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ASSESSING THE VULNERABILITY OF COASTAL TOURISM TO SEA EROSION- THE CASE OF ADA EAST DISTRICT

BY

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DECLARATION

I, Odikro Godwin, declare that this research and its entire contents represent my own work. I remain answerable to every question pertaining to this work and duely acknowledged all secondary sources in the list of references. No part whatsoever has been presented to any other Institution for the award of degree.

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DEDICATION

To my lovely family that has remained my strength and support throughout the entire duration of the study. My father, Mr. T.N.K Odikro, Mother, Mrs. Mary Yaa Odikro, brother Franklin Odikro and Sisters Agatha Odikro and Magdalene Odikro.

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LIST OF ACRONYMS AND ABBREVIATIONS

AEDA	Ada East District Assembly
ATSA	Ada Tourism Stakeholders Association
AVDEAMC	Ada Volta Delta Anyanui Estuary Mangrove Complex
CBNRM	Community Based Natural Resource Management
COAST project	Collaborative Actions for Sustainable Tourism
CVI	Coastal Vulnerability Index
DSAS	Digital Shoreline Analysis system
DSF	Destination Sustainability Framework
EPR	End Point Rate of Erosion
EWS	Early Warning System
GDP	Gross Domestic Product
GIS	Geographic Information Systems
GSS	Ghana Statistical Service
IDMC	International Dredging and Marine Consultants
MoWH	Ministry of Works and Housing
MoWRWH	Ministry of Water Resource, Works and Housing
NADMO	National Disaster Management Organization
NSM	Net Shoreline Movement
PWD	Public Works Department
RS	Remote Sensing
SDP	Sea Defence Project
SLF	Sustainable Livelihood Framework
UNWTO	United Nations World Tourism Organization

ABSTRACT

Coastal erosion along the coast of Ada East District has caused severe damage to life and property worth millions of Ghana cedis over the last seven decades. The study sought to understand the underlying factors that contribute to the vulnerability of the tourism industry to sea erosion and also to find out the level of development of the tourism industry and its effects on the livelihood of the host communities.

The study used a mixed method strategy that aided the gathering of quantitative and qualitative data. The digital shoreline analysis system (DSAS v.4.2) and the coastal vulnerability index (CVI) were used to establish the net shoreline movement (NSM) and the end point rate of erosion (EPR). Additionally, 180 questionnaires were administered to 3 selected host communities, 20 questionnaires to tourists and 19 interviews conducted with various tourism stakeholders.

The results from the study showed that the coastline of Ada East District generally continues to erode at a rate of 4.34 m/year with some sections witnessing deposition at a rate of 7.13 m/year with the central and eastern sections of the coast being the most vulnerable to sea erosion. Furthermore, the tourism industry, infrastructures and livelihood activities remain the most vulnerable to sea erosion due mainly to their physical locations and the generally poor coastline characteristics.

The study recommended a collaborative coconut tree restoration project and mangrove restoration and protection strategies along the coast to complement the sea defence project aimed at reducing vulnerabilities to coastal erosion. Further, stakeholder involvement in tourism must be better organized to increase the industry's contribution to livelihood enhancement and economic development.

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CHAPTER ONE

GENERAL INTRODUCTION

1.0 Introduction

Coastal erosion has become a major problem to coastal dwellers worldwide as its effects of destruction to properties, flooding and inundations continue to render populations homeless. Coastal erosion is defined as the wearing away of material from a coastal profile due to imbalance in the supply and export of material from a certain section (Marchand, 2010).

Coastal erosion is noted to have burdened most nations' financial budgets in the mitigation and management of this quandary. Marchand (2010, p. 4) noted that France spends over €20 million yearly on sea erosion mitigation with the Netherlands making provision for €41 million in their annual budget as cost to sand nourishment measures. Elsewhere, in Portugal as much as €500 million was the cost to dune and seafront rehabilitation and other hard defence rehabilitation works since 1995 (Marchand, 2010, p.4).

Small and Nicholls (2003) estimated that globally 1.2 billion people live within 100 km of the coast, constituting about 23% of the world's population. A further projection indicates an increase in coastal population to 50% by 2030 (cited in Adger et al., 2005). The increased human population along the coast coupled with the highly multi-functional nature of the coastal ecological system makes the zone among the least stable and the most physically changeable of the earth's landform system (Pearce and Kirk, 1986).

Increasing researches on coastlines and the oceans have shown general trends in sea level rise. The IPCC Third Assessment Report (2001) projected global sea levels to

rise by 0.09m to 0.88m between 1990 and 2100 (cited in Chand and Acharya, 2010). The projected rise in sea levels has been attributed to a number of factors. These factors as outlined by Chand and Acharya (2010) include increasing global warming, thermal expansion of oceans, melting of glaciers and polar ice sheets. These facts contribute to the vulnerability of coastal dwellers and coast based activities. The socio-ecological system which involves potentially, coastal tourism based activities remains threatened by the impending physical effects these changes pose. The coastal zone involves continues interplay of socio-ecological systems. Halliday and Glaser (2011, p.1) define socio-ecological systems as one that is "composed of organized assemblages of humans and non-human life forms in a spatially determined geophysical setting". According to Naronha (2003, p.8), coastal tourism offers a rich arena involving a combined interaction between the various human activities and the natural ecosystem. This interplay has made coastal dwellers, infrastructures and activities particularly vulnerable to a host of hazards including erosion, flooding, hurricanes, tsunamis, typhoons, storm surges among others. Adger et al. (2005) stated that 10 million people along the coastal zone experience flooding yearly as a result of storm surges and landfall typhoons. The figure is estimated to reach 50 million by 2080 due to increasing coastal habitation and climate change (Adger et al., 2005).

Vulnerability study in tourism is relatively young as industry stakeholders undermined the potential disruption to tourism activities by impending hazards. As a result a number of coastal tourism destinations have suffered from some severe coastal hazards. The Indian Ocean tsunami in 2004, the United States of America hurricane Katrina in 2005, the Samoan tsunami of 2009, Australian floods of 2010/11 (Becken and Hughey, 2013) are some recent manifestations of these hazards that have awaken tourism stakeholders interest in safe guarding tourism destinations.

Vulnerability is defined as the degree to which an exposure unit [human groups, tourism infrastructures, host community, ecosystem] is susceptible to harm due to exposure to a perturbation or stress (sea erosion), and the ability (or lack thereof) of the exposure unit to cope, recover or fundamentally adapt (become a new system or become extinct) (Kasperson et al., 2002, p.7). Five factors have been identified as underlying reasons that assist in understanding the vulnerability of tourism destinations to hazards. They include the place specific nature of tourist activity, fragility of destination images to negative perceptions of risks, high dependency on tourism as a primary livelihood, heavy reliance on the marketing strategies of international tour operators and high levels of seasonality (see Calgaro & Lloyd, 2008 p. 289). Hazard is defined as "any potentially damaging physical event or phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation" (UN, 2004).

Hall (2001) defined coastal tourism as a concept that embraces the full range of tourism, leisure and recreationally oriented activities that takes place in the coastal zone and the near offshore coastal waters. Notwithstanding the economic reasons for developing coastal tourism (due to the high demands for its traditional sun, sea and sand attractions) the coastal zone remains highly complex and vulnerable to sea erosion. The coastal environment has become very fragile with pressure from a number of activities including strong competition for space. Miller (1993) outlined a number of activities including agriculture, human settlement, fishing, industrial locations and tourism among others that makes coastal zones highly complex (cited in Hall, 2001).

The visible positive imprints of the daily business of tourism have brought significant benefits to practicing countries. The growth in demand for tourism has gone beyond mere leisure and visits to natural and cultural sceneries over the years. Tourism has become a vehicle of growth in most developing and Third World nations. Archer and Fletcher (1990) (quoted in Vaugeois, 1997) stated that notwithstanding many of the highly commendable motives for encouraging the growth of international tourism set out in the 1980 Manila declaration, the overwhelming reason why countries regard themselves as tourist destinations is for economic benefits. The quote recognizes in its initial sentence the inherent traditional motive for which tourism is undertaken i.e. to provide leisure and recreation, but this motive has been overwhelmed with the idea of employing tourism as a tool for economic regeneration in poor nations and for such reasons as diversifying local economies (Telfer & Sharpley, 2008).

The period after the Western centred development paradigms (beyond the 1970‘s) saw the emergence of a new era for world tourism. The focus of tourism development has shifted to the recognition of local tourism potentials to generate internal wealth. Telfer and Sharpley (2008) advanced arguments in favour of adopting tourism as a tool in generating economic growth in nation‘s with a struggling economy. The idea has gained much attention among resource scarce communities that took the advantage to identify attractions to promote local tourism. Coastal communities capitalized on the prospects in tourism, making coastal tourism an attractive venture. Despite, the contributions of coastal tourism to the livelihood of host communities, the industry remains vulnerable to the potential destruction by sea erosion. Stakeholders must therefore be prepared to mitigate and respond to such hazards appropriately.

The increased human activities along the coastal zones coupled with its complex functions reveal that the coastal ecosystem is under severe threat of degradation. The coast of Ghana stretches to a distance of 550 km (Ly, 1980). This coastal stretch of Ghana represents about 6.5% of its land area and houses as many as 25% of the nation's total population (Amlalo, 2006). The zone also is home to over 60% of industries whiles growing at a rate of 3% per year in terms of offering employment to coastal populations (Amlalo, 2006). The coast of Ghana has over the years suffered severe degradations from sea erosion, flooding, pollutions, coastal land inundations and sand mining among others (Appeaning Addo et al., 2012).

Generally, natural factors including rise in sea-levels and global warming are contributing factors to sea erosion effects on populations and their activities (Boateng, 2009; Appeaning Addo et al., 2010). Prominent among the various types of hazards that threaten the Ghanaian coast is sea erosion, a problem that has been tackled on slow piece meal basis.

The Eastern coast of Ghana stretches over a distance of 149 km, extending from Aflao at the extreme East of Ghana to Old Ningo, East of Prampram (Boateng, 2012). The Eastern coast is among the most affected by sea erosion and inundations over the years (Ly, 1980; Appeaning Addo, 2008; Boateng, 2012). It includes the Ada coast which covers a distance of 44km stretching from Wekumagbe to Azizanya at the Estuary towards the East. The Ada coast which has experienced severe coastal erosion and inundation over the years has suffered severe damages to coastal properties including homes, lives, farms, industries, tourist attractions and facilities (Boateng, 2009; Kusimi & Dita, 2012). According to Ly (1960) cited in Appeaning Addo et al. (2012) the coastal erosion suffered in these areas is as a result of the construction of

the Akosombo Dam in 1962 which saw a drastic reduction in sediment supply to the Ada and Keta coasts. He further noted that the rates of erosion increased from 4 m/year before the commencement of construction to 8 m/year after the completion of the Akosombo Dam project. Other factors including the low lying nature of the coast, its soft geology and geomorphology, high tidal waves and human activities have been noted as contributing to the increased sea erosion (Appeaning Addo, 2008; Kusimi & Dika, 2012).

Undoubtedly, tourism has contributed very significantly to the Ghanaian economy through foreign exchange earnings. Tourist arrivals in Ghana have risen from 286,600 in 1995 to 1,087,000 in 2011 with international tourism receipts increasing from 30,000,000 in 1995 to 797,000,000 as at 2011 (WTO, www.indexmundi.com). Tourism in Ada for the past decade has seen an increase in tourist arrivals necessitating expansions in the hospitality sector and supporting facilities. The industry has witnessed expansion in hotels, guesthouses, resorts, chalets and beach camps over the last decade and these developments may be a manifestation of the calls for the adoption of tourism as an alternative source of livelihood globally. The duality of coastal tourism development and the potential sea erosion hazard poses a huge puzzle to industry players and this call for the adoption of appropriate measures by industry practitioners on preparedness, coping strategies and resilience towards averting any future calamities to the tourism industry and the livelihoods of the people in the area.

This research therefore aims at understanding the underlying factors that make the Ada coastal tourism industry vulnerable to sea erosion and the effects of this vulnerability on the livelihood of people within the host communities.

1.1 Problem Statement

Research on vulnerabilities resulting from natural and human hazards along the coast to tourism have continued to grow significantly in volume over the past decade (Becken & Hughey, 2013; Scott, Simpson & Slim, 2012; Ferreira et al., 2006; Jones, Hinkel & Arp et al., 2008; Phillips & Jones, 2006). Notwithstanding the increased volume in academic literature on hazard-tourism researches, a number of gaps in this field of research still exists and requires further investigations. Three gaps identified in this field of research that needs further investigations include;

a) Limited-specific hazard researches on coastal tourism.
b) Overconcentration of research on developed tourist destinations neglecting newly developing destinations and
c) Additional researches needed to ascertain the truism in tourism as a viable option for economic growth in developing nations.

The coast of Ghana has for decades experienced high sea-level rise, coastal erosion among other extremes weather conditions (Oteng-Ababio, 2011; Appeaning Addo et al., 2011). Ly (1980) divided the Ghanaian coast into three sections, the Western, Central and Eastern based on their geomorphological features. This concurs with Armah (2005) geomorphologic classification of coastal Ghana into the Western, Central and Eastern coasts.

The Ministry of Works and Housing (MoWH, 2011) noted that of the three sections defined by Ly (1980), the Eastern coast is suffering the most from coastal erosion which is eminent along the 149km stretch is the Keta and Ada sections of the Volta basin. Anim et al. (2013) have noted that sand mining, inadequate coast management, dredging of canals and protective canals building, modification of ecosystem, mineral mining as some anthropogenic factors compounding this problem. Natural causes on the other hand include sea level rise, heavy storms, waves, weathering and transport slope process. Anim et al. (2013) further showed that some immediate consequences of coastal erosion include the loss of coastal vegetation, destruction of structures and properties and the destruction to organism‘s habitats. As a result it becomes unattractive for interested investors and may cause economic loss to governments in building sea defence walls.

The Ada tourism industry, although still at the exploration stage of the Butlers (1980) cycle (Tweneboah & Asiedu, 2009), possesses great coastal tourism potentials that can be tapped for economic development. The coast of Ada has for many years seen increased activities in settlements, agriculture, fishing, salt mining, and more important, increased tourism development. The area can boast of a number of attractions, including the Songor Lagoon, which is the biggest natural salt mining area in Ghana, the Spot-Nose Monkey and Green Monkey on "Monkey Island", Gin (rum) distillery site on the Aflive Island, Crocodile Island, presence of sea turtles (Leatherback turtle, Green turtle and Olive Ridley types), the Volta River Estuary, long sandy beaches with coconut trees and the Old Missionary Presbyterian church in Ada Foah, others include Fort Kongenstein and the old Cemetery (in poor condition) among others (http://ada-tourism.com). These attractions are being tapped into by the local people as an alternative development asset to complement the traditional fishing

and agriculture thereby helping to diversify the local economy for generating economic wealth for development and livelihood sustenance. The coast which is experiencing rapid coastal erosion simultaneously has recorded a number of disasters resulting in enormous destructions to life and property, buildings, agricultural farms, tourism facilities and activities among (Kusimi & Dika, 2012; Boateng 2009).

The coastal erosion problem in Ada has affected coastal tourism infrastructure and activities and further continues to threaten the existence of some beach camps, Fort Kongestein and the old cemetery. Reports from the Ada East District Assembly (2012) indicate the threat posed to the historical fort and cemetery at the beach of Ada Foah. Kusimi and Dika (2012) showed that tourism support facilities including the structures of the Cocoloco beach resort and roads linking Totope and Pute communities in Ada have suffered from sea erosion. Near the Estuary, a number of beach camps have to relocate to safer spaces after they were inundated by sea erosion. The International Dredging and Marine Consultants (IDMC, 2011) in a design for the protection of Ada Coast noted that the zone is losing large expanse of the beach to the sea through erosion. To this extent, the growth and sustainability of the tourism industry in Ada cannot be realised without consideration given to sea erosion as a potential hazard.

Several attempts have been made from individual improvisations and the government of Ghana to find a lasting solution to the age long ravaging sea erosion. Parts of the Ada coast have benefited from a national coastal engineering project valued at 60 million Euros. This covers a total area of 15km and an additional 120 million Euros is to be sought to cover the rest of the coast of Ada.

A significant number of researches have been conducted on sea erosion and coastal processes along the general coast of Ghana, including the Ada East District coast. Notwithstanding, little is known of the potential consequence of sea erosion on coastal based tourism in the Ada East District.

1.2 Research Questions

1. Can tourism be a viable economic development option for Ada?
2. What factors impede the development of tourism at Ada?
3. What ecological factors contribute to the vulnerability of coastal tourism to sea erosion?
4. What are the mitigation and adaptation measures adopted by local destination managers and other stakeholders to ensure sustainability of the tourism industry?
5. How effective have been the adaptation measures adopted?

1.3 Aim and Objectives

The general aim of this research was to examine the nature of the Ada coast as a socio-ecological system and to assess the extent of vulnerability to coastal tourism. The objectives of the study were to:

1. Analyse the extent to which tourism has affected the community‘s livelihoods.
2. Examine the ecological factors contributing to the vulnerability of coastal tourism based activities to sea erosion.
3. Assess stakeholders’ resilience and coping strategies to adapting to sea erosion.

4. Recommend measures for mitigating vulnerability of the coastal tourism industry to sea erosion.

1.4 Propositions

1. Tourism offers significant development to host communities through its ability to create jobs, support infrastructural development and enhance community image. The establishment of a tourism industry in a community sets it on the path to development; and
2. Tourism industries have the ability to grow within hazard prone zones, both natural and human related threats. The co-existence of hazards and tourism activities at a tourist destination blessed with natural and human attractions does not impede the development and growth of local tourism.

1.5 Significance of the Study

The study intends bringing to the fore issues on the vulnerability of coastal based tourism activities in Ada East District to sea erosion. This study concentrated on the tourism industry along the coast of Ada in the Greater Accra Region. Despite the range of attractions in the area, the coast exposure to sea erosion for many years has raised concerns over the resilience and sustainability of the tourism industry in the midst of this hazard. The significance of the study are summarised below.

1. It provides first-hand information about the potentials and challenges of the Ada coast within the context of coastal tourism as an integral element of livelihood development.

2. Secondly, the study provides useful directions for assuring policy makers at both local and national level in addressing issues related to coastal erosion and coastal tourism as a way of promoting socio-economic development.
3. It contributes towards the increasing use of mixed research methodology in filling some of the existing gaps in approaches adopted to assess vulnerability of coastal erosion and its impact on tourism, an approach towards resource management and livelihood improvement.

1.6 Arrangement of the Study

The current study was arranged in six chapters. The first chapter provided a general introduction to the study, the problem statement, research questions, objectives and the propositions of the study. The chapter concluded with the significance of the study.

The second chapter reviewed related literature on specific themes including understanding tourism as a livelihood option, the concept of vulnerability, coastal tourism and its challenges, sea erosion along the Ada East Coast. The chapter concluded with a review on the vulnerability framework adopted from Calgaro and Lloyd (2008) for this study.

Further, the third chapter was dedicated to the Study Area and Methodology of the study. Specifically, the chapter dwelt on the data collection methods, sampling technique, sampling size, data sources and the study area.

The fourth and fifth chapters delved into the analysis and discussions of data. The chapter analysed and discussed the respondent‘s characteristics and the contribution of tourism to community livelihoods. The fifth chapter discusses the vulnerability and

mitigation strategies to coastal erosion and tourism development in the Ada East District.

The final chapter presents the summary of key findings, conclusion and recommendations.

1.7 Summary

The chapter is made up of six sections. The first section gave a general background to the study whiles the second section is devoted to the problem statement.

The focus of the third and fourth sections dwelt on the research questions, objectives and propositions of the study respectively whiles the fifth section addresses issues relating to the significance of the study. The final section looks at the organisation of the study. The next chapter is dedicated to the review of related literature, theoretical and conceptual frameworks of the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Understanding Tourism as a Livelihood Option

Tourism has been variedly defined in the academic literature. Understanding the assumptions underlying tourism will help provide a comprehensive definition of the term. To fully define tourism one has to consider it as an extreme form of leisure (distant location), travel component and a minimum of 24 hours to a maximum of one calendar year. Tourism must also be practiced as a non-remunerative activity. Pearce (1989) defined tourism as "the relationships and phenomena arising out of the journeys and temporary stays of people travelling primarily for leisure or recreational purposes". Pearce recognizes in his attempt to explain the definition, the travel component, length of stay and purpose of the journey.

After the 1970's, the focus of tourism development have shifted to the generation of increasing economic wealth and growth of destination communities. Many state institutions in charge of tourism in developing countries have followed international trends in growth in tourism and promoted the adoption of tourism as an alternative source of livelihood for resource constraint nations. This also laid the foundation for the tourism-environment relationship. The increasing growth in tourism with mass tourism still on the upsurge has raised concerns on the possible impacts on the environment. Mathieson and Wall (1982), in their study on the tourism impacts on the environment discredited the views that tourism has insignificant impacts on the environment, as the last decades have proven that tourism indeed has very significant negative impacts on the environment in which it is undertaken.

Tourism has many positive economic effects on nations and continues to play significant role in the development of many countries. The societies in mostly developing and Third World countries continue to face hardships and poverty. A lot of interventions have come from many sectors including external donor support in forms of loans and grants to assist poor countries to transform their economies and diversify them for the generation of additional income to sustain livelihoods. Telfer and Sharpley (2008, p.17) noted that tourism is adopted as a development strategy as a result of its ability to contribute to the local or national economy. Brown (1998, p.59) cited in Telfer and Sharpley (2008) argued that tourism may represent the only realistic way to development, noting that for many of the developing nations there are limited choices for development.

Tourism has offered many countries an alternative path to development through its potential to attract foreign exchange and improve balance of payment (Opperman & Chon, 1997, p.109, cited in Telfer & Sharpley, 2008). Grandoit (1992) recognized the importance of the tourism industry in the Caribbean due to its employment avenues and income generated. The industry employs one out of every four people and generates over 2 billion dollars a year. Most of the tourism industries to this effect have become export-oriented economies relying on foreign consumers. Sharpley (2007) admits that tourism offers numerous potentials including foreign exchange but was however cautious to add that, the adoption of tourism "does not invariably set a nation onto the path of development".

According to Telfer and Sharpley (2008), a number of factors account for the adoption of tourism as a development option to developing nations. First, that tourism is a growth industry through its remarkable growth experienced over centuries. Second,

tourism is able to redistribute wealth from the international scales to national and further to local economies. Notwithstanding the associated problem of leakages of foreign exchange, tourism succeeds in redistributing wealth to local economies. Also, tourism is regarded as a backward linkage. Tourism has the ability to distribute varieties of goods and services demanded by tourist at destinations. But they noted that, the extent of the backward linkage depends on the availability of finance and the maturity of the local economy (Telfer & Sharpley, 2008). Further, tourism is believed to make use of "free natural infrastructure". Tourism development is built mostly on existing natural or manmade attractions and thus may be considered to have a low cost for start-up. Finally, tourism is practised as a barrier free trade. It is not one that is affected by the barriers such as EU imposing restrictions to control markets. People travel to destinations without restrictions to enjoy tourism leisure and recreation (Telfer & Sharpley, 2008). These factors Telfer and Sharpley (2008) believed have the potential to propel local economies to another height and offer developmental opportunities to smaller developing nations.

Grandoit (1992) in his study in the Caribbean where tourism has been pursued as a developmental tool found out that, tourism outcomes are not really what it's always portrayed to be. Contrary to the aspirations of tourism as a developmental tool Grandoit (1992) observed that promoting tourism as a tool in the Caribbean has failed to meet its objective. The massive leakages and exploitative conditions from international agencies promoting tourism in the Caribbean have left local destinations in bizarre states. The foreign exchange leakage occurs mostly through the bad conditions attached to grants and loans for development. Other sources included the cost of goods and services purchased to satisfy visitors, costs of equipment and

material for infrastructure, payments to foreign factors of production, exportations for promoting destination abroad, transferring pricing and exemption of tax and duties for foreign owned businesses (Vaugeois, 1997). To realise the true economic impact of tourism therefore, Vaugeois (1997) opined that the leakages must be subtracted from the earnings.

Vaugeois (1997) captured the 3 pro poor arguments set by Mill and Morrison (1999) as enough reasons for developing nations to adopt tourism as a development tool. First, that the increased income stability and travel preference of people in developed world have shown a positive trend in the demand for international tourism. Secondly, a rise in the income elasticity of demand for tourism will presuppose a wider disposable income for nations and hence more interest in travel. Finally, developing countries are in need of foreign exchange earnings to support economic development to satisfy demands. These arguments have lured most developing nations to opt for tourism as a development tool neglecting its potential destruction to the human-environment relation. Jenkins (1980:27) summarizes it by saying that "tourism in the developed countries can be regarded as a social activity with economic consequences whereas it is largely an economic activity in developing countries with social consequences". Vaugeois (1997) encourage further research in adopting tourism as a tool for economic development in especially the developing nations.

Grandoit (1992) further showed that "the immediate need of Caribbean governments to generate foreign exchange mainly through tourism, often leads to policies that compromise the environment and which adversely affects the island populations, the supposed beneficiaries of these policies". He bemoaned the Caribbean governments chase for the short term benefits of economic revenue neglecting the long term effects

of environmental degradation on the local people. Grandoit (1992) opined that for policy interventions, government should incorporate and uphold environmental codes in the tourism industry. Also, the marketing of tourism should be redirected and Islands should pursue alternative forms of development.

In understanding how local economies could be limited in adopting tourism as a development tool, Sharpley (2007) argued that local destinations that are financially constrained with poor infrastructure and human resource and narrow economic base presents for themselves a limited option for the full realization of tourism benefits.

In a more recent development in the literature of adopting tourism as a development tool Chok, Macbeth and Warren (2013) recognized that many developing nations are lured into believing that tourism is a panacea for averting poverty in their nations. They believe this advancement is an illusion to many developing nations in the statement "powerful bureaucratic and business alliances have been forged to expand this program". They supported their claims through a study on critical analysis of pro-poor tourism and its implication for sustainability. Their study also showed trends of leakages that deny the fact that local people reap and enjoy full tourism returns.

Sharpley (2007) also argued that there is not enough evidence to support claims of tourism development trickling down to the poor and hence tagging tourism as a panacea for economic, social and environmental "cure for all" must still be subjected to further empirical research. He further noted that the persistent optimism placed on tourism as an alternative source of livelihood are misplaced as tourism has continually failed in addressing the development challenges of local destination regions. This is manifested in the high dependency on foreign assistance for management of the

industry, the leakage effects and the effects of the larger political economy and globalization. Tourism in the midst of globalization has become vulnerable to a number of forces ranging from political upheavals, natural disasters, health scares that may limit its potential to lead development at local destinations (Sharpley, 2007).

2.1 The Concept of Vulnerability

The term vulnerability as has been applied in many fields today has spanned a very long period of time. Cutter (1996) noted that the term has no common conceptualization and regarded by Weichselgartner (2001) as a fuzzy term. Vulnerability has been seen to have several dimensions depending on the level it is examined. Weichselgartner (2001) classified it under individual/personal, social or infrastructure vulnerability. His determination of these classes was based on the elements affected at each level and defined them as follows; individuals become sensitive to loses that have both spatial and non-spatial domains. Social vulnerability refers to a group‘s susceptibility to potential losses from disastrous events whereas infrastructure vulnerability denotes a house, electricity grid or transport infrastructure susceptibility to potential destruction from a damaging event. Finally, the author also noted potential losses that can result from the interaction between societies with its biophysical environment. The different conceptualization of the term is due to the different epistemological and methodological practices from the various disciplines (Weichselgartner, 2001).

To understand the concept of vulnerability, Weichselgartner (2001) identified 3 distinct themes within vulnerability discourse. The first theme examines vulnerability

in the context of pre-existing conditions. These conditions refer to human occupancy of zones or regions termed as hazardous such as earthquake, flood prone areas and seismic zones. The second group focuses on the coping responses including societal resistance to hazards. Finally, vulnerability is considered hazard place specific which combines the earlier two themes. This third theme was noted as geographically oriented. Vulnerability in this regard is considered as a bio-physical risk and social response that is examined at a specific area or geographical region. Various theoretical perspectives have also been advanced to explain the causes of vulnerability. From a social vulnerability viewpoint, Watts and Bohle (1993) noted 3 processes that define vulnerability. They include economic capabilities (entitlement), empowerment (political/social power) and the political economy (historical/structural) (cited in Weichselgartner, 2001). Another model popularly referred to as the pressure and release model was proposed by Blaikie et al. (1994). This model integrates much more elements under a cause and effect relationship between the elements that constitute vulnerability. According to Blaikie et al. (1994), the model includes in it 'unsafe conditions that expose one to social vulnerability when in contact with any type of hazard'. The model also highlights 'dynamic pressures' as another element. Much focus is oriented to this element as it explains the underlying driving forces that make a system vulnerable.

Vulnerability studies have been conducted across various disciplines over time from the fields of disasters, economics, anthropology, psychology, sociology, engineering, geography and ecology. There is increasing attention given to the human-environment interaction in such disciplines as human geography, physical geography and human ecology. Vulnerability has begun to take new turns in its application. Adger (2006) noted that the interdisciplinary approach of the term invariably has widened the scope

of and meaning but also "contribute to the emerging socio-ecological systems and the inherent and dynamic vulnerability". He identified vulnerability as being driven by deliberate actions of human that re-enforces self-interest and the distribution of power and the physical and ecological systems interactions that take place. The socio-ecological system has therefore become a complex area as concerns for environment, sustainability is on the ascendency.

Adger (2006) conceptualised vulnerability elements as consisting exposure, sensitivity to stresses or perturbations and the capacity to adapt. He defined exposure as "the degree to which a system experiences environmental or socio-political stress, whose characteristics are the magnitude, duration, frequency and areal extent of the hazard" (Burton et a., 1993, cited in Adger, 2006).

Sensitivity refers to the "degree to which a system is modified or affected by perturbations" whiles Adaptive capacity is defined "as a system's ability to evolve in order to accommodate hazards or policy change to expand the range of variability with which it can cope" (Adger, 2006). These elements constitute the bases for any vulnerability research. They combine in different ways with different sub-elements or indicators depending on the system being examined (Adger, 2006). The setting of individual elements poses challenges to the measuring of vulnerability as indicators and hazards continue to change from place to place. As O'Brien et al. (2004) noted, vulnerability is the dynamic phenomenon that changes across the social and bio-physical environment. The measurement of vulnerability must therefore reflect its social and biophysical process that occurs within socio-ecological system. Several attempts have been geared towards measuring vulnerability quantitatively and also a

path to track it across space (Kamanon & Morduch, 2004; Alwang et al., 200; cited in Adger, 2006). Adger (2006) noted however that notwithstanding these difficulties, consistent frameworks must be developed for measuring vulnerability quantitatively in order to gain complementary insights into the outcome and perceptions on vulnerability.

Adger (2006) therefore reviewed the antecedent and successor research traditions in vulnerability. The antecedents he noted started in the vulnerability of famine and food insecurity. This research arose after proponents felt the entitlements approach has outlived its usefulness and seeks to explain how people become vulnerable to famine during food shortages or production failures. Sen (1988), Swift (1989), Watts and Bohle (1993) are followers of the Adger (2006) approach (cited in Adger, 2006). Secondly, Adger (2006) noted that vulnerability to hazards was proposed by Burton et al. (1978, 1993), Smith (1996), Parry and Carter (1994) and seeks to identify or predict how groups could become vulnerable to hazards (cited in Adger, 2006). The human ecology vulnerability approach on the other hand focuses on the structural analysis of underlying causes of vulnerability to natural hazards.

Lastly, the pressure and release model which was built on the human ecology approach by Hewitt (1983) is also linked with risks, political economy of resources and disaster management and intervention. The successor approaches to vulnerability also began with climate change and variability research, followed with sustainable livelihoods and vulnerability to poverty and most recently on socio-ecological systems. The elements of the vulnerability concept will continue to change in order to

meet current dynamics in the human and ecological systems in so far as the measurement of vulnerability remains hazard and place specific.

2.2 Coastal Tourism and Its Challenges

Coastal tourism has developed as a form of tourism concentrating on coastal resources to provide recreationally oriented activities for tourists. It has seen an increased growth in arrivals and receipts over the years. It has also been recognized as one of the fastest growing areas of world tourism today (Miller & Auyong, 1991). Hall (2001) defines the concept of coastal tourism as one that "embraces the full range of tourism leisure and recreationally oriented activities that takes place in the coastal zone and the off shore coastal waters". He noted the range of tourism activities along the coast as increasing from the development of accommodation, restaurant, food industries and second homes. Also, the infrastructures supporting coastal tourism development include retail business, marine activity suppliers. Finally, the writer identified the activities undertaking for recreation along the coast as boating, coast-marine based eco-tourism, cruises, swimming, recreational fishing, snorkelling and diving (Hall, 2001).

Hall (2001) recognized that in the argument of using tourism as a developmental tool, the World Bank have argued that marine areas whiles still achieving its aim of protection are also a good source for revenue generation. This argument relates well with earlier arguments over the international agencies spearheading the agenda's for the adoption of tourism as a developmental tool in developing nations. This is not to suggest entirely that international agencies are selfish in propelling just their own interest as studies conducted by Dixon et al. (1993) suggested that Bonaire Marine Park in the Netherlands Antilles if managed properly could yield both protection and

development benefits. This is just a single case out of the many questions about the ability of coastal ecosystems to withstand the impacts of tourism in an environmentally friendly manner.

Hall and Lew (1998) stated that despite the environmental, social and economic changes brought by tourism, the coastal zone is consequently affected by the same factors of change. Major attentions have not centred on the socio-ecological system of coastal zones. Hall (2001) noted that the lack of information on the potential impacts of tourism on the environment have contributed to the neglect of environmental concerns for a long time. Some of the reasons he assigned for the neglect of environmental concerns includes the following. First, most government's concern on environmental impacts are quite recent as previously most governments showed no political commitment to the management of environmental impacts. Again, governments have over concentrated on reaping huge economic benefits from tourism to the neglect of environmental sustainability issues and finally the lack of technology and expertise to take up the large research required to unravelling the impact of tourism on the environment (Hall, 1993 cited in Hall, 2001).

Coastal zones over the years have suffered from a number of natural hazards that have continued to affect tourism activities. Accepting tourism as a powerful tool to economic development in locally endowed coastal zones requires the need to manage the zones sustainably. The Sun, Sand, Sea and Surf (4'S) of coastal tourism constitute to a large extent the motivation and drive that propel the demand for tourism along the coast. Apart from the natural attractions that are found along the coast, the availability of the supporting infrastructures contributes to the demand for coastal tourism. As Wong (1998) noted in a study conducted in South East Asia, the provision of high

class resorts along the coast of South East Asia has contributed to the touristic activities in the region that improves overall demand for tourism.

The tourism industry operating in coastal zones over the world has continued to suffer natural and man-made disasters rendering so much development effects on practicing destinations. In the wake of promoting tourism as a developmental tool, international agencies and local tourism stakeholders have failed to recognise space for the inevitable shocks, stressors and perturbations that tourism dependent destination regions are vulnerable to (Becken & Hughey, 2013).

Meheux & Parker (2006) makes the point that tourism industries are greatly exposed to damaging natural hazards that further exacerbates the intrinsic vulnerabilities of the tourism industry. Their findings exposed the multiple hazards the Tanna tourism industry in Vanuatu faces and plans to increase their resilience through adequate mitigation and preparedness measures. This recent account of disasters across the world justifies the position that no tourism destination is risk free and could be hard hit at any time. There is the need for extensive researches to expose the hazards and risks associated with local destination regions that appear to be trapped in the idea of promoting tourism for economic gains to the neglect of potential environmental, social and cultural consequences and now the bane of hazards and disasters.

It appears there is no single framework or methodology available to conducting vulnerability research even within specific subject areas in the tourism industry. It is basically due to the dynamism in the elements constituting regions vulnerability as it is defined as being hazard and place specific. In the tourism literature, Calgaro & Lloyd (2008) in their study of the vulnerability of Khao Lak tourism industry have built a robust framework as they find existing ones inexhaustive for their study. Their

addition of two geographical elements of relational scale and place concepts makes the framework particularly stronger for geographical studies in vulnerability studies in tourism. They adopted a pure qualitative approach in their research but call for additional researches to test the framework for robustness.

In another study conducted by Meheux & Parker (2006) based on people‘s perception, both qualitative and quantitative methods that produced quantifiable data and also qualitative data on the shared experiences of people were used. They also employed a comprehensive approach that brought together six factors including hazard knowledge, attitudes to risk, previous experience of emergencies, and exposure to awareness raising, ability to mitigate/prepare and respond and demographic characteristics. Acknowledging the complexity of the approach due to the varied elements, they noted that, the approaches ability to give a comprehensive basis on which to build strategies to increase resilience to disasters for tourism sustainability is a major strength.

Most vulnerability researches in the tourism industry have also focused much attention on the developed tourism destinations overlooking the fact that resource scarce destinations are equally vulnerable to shocks. As developing destinations grow their tourism industries, much attention is given to the promotion of destinations through donor assistance from governments and international agencies to boost infrastructural development and this further deepens their vulnerability.

2.3 General Coastal Characteristics in Ghana

The coastal zone of Ghana is home to over 25 percent of the country‘s population (Boateng, 2009) and accommodates close to 80 percent of the countries industries and businesses (Jayson-Quashigah et al., 2013). Generally, the country experiences two

major seasons, namely the Wet and dry seasons influenced highly by the tropical humid savannah climatic conditions (Boateng, 2006). Ghana is divided into two distinct drainage systems that spread across the length and breadth of the country namely the Volta and the south-western basins that accounts for 75 percent and 25 percent of the land area of Ghana respectively (Boateng et al., 2013). The coast of Ghana is made up of the historic Precambrian rocks to quaternary rocks which are relatively younger formations and usually found along the Volta delta (Boateng et al., 2013). The coast of Ghana is generally below 30 m contour and accounts for almost a 7 percent of the 238,533 km^2 of the nation's land area. The Western coast is a relatively low energy beach with coastal lagoons and fine sandy beaches (Boateng, 2006). The central coast is characterised with rocky headlands and sand bars with an embayment between these rocky headlands (Boateng, 2006). It is characterised as a high energy coast (Ly, 1980) and eroding sandy beaches. The geomorphology of the Eastern coast is influenced mainly by the Volta River which deposits fluvial sediments on the surface of the coast (Boateng, 2006). The coast of Ghana has been noted to suffer chronic erosion (Angnuureng, et al., 2013; Kusimi & Dika, 2012) for so many decades.

2.4 The Eastern Coast of Ghana

The Eastern coast is said to cover a total of 149 km of the entire 550 km stretch of the Ghana coast. The Eastern coast extends from the coastal boarder town at Aflao Westwards towards Laloi lagoon in West Prampram. The coast as noted by Ly (1980) is a very dynamic one and the most suffered in terms of coastal inundations and erosion over the years. In more recent times Kusimi and Dika (2012) also have noted that of the three divisions of the Ghana coast, the central and Eastern coasts have been

noted for their high erosion rates and occasional inundations. Ly (1980) forwarded his argument that the Eastern coast has been influenced by high energy and wave heights reaching 1meter in the surf zones (cited in Boateng, 2009) probably accounting for its highly dynamic nature.

The geological composition of the Eastern coast is characterised by clay, loose sand and gravels (Benneh & Dickson, 1998; cited in Boateng, 2012). Several interventions from community improvisations and government's assistance have since been initiated to salvage the threat posed to coastal settlers.

2.5 Factors Influencing Erosion along the Ada Coast

2.5.1 Wave and Wind Energy Systems Influencing the Coast of Ada

The coast of Ada Foah is influenced by two wind systems. This includes the South Westerly monsoon winds coming in from the Gulf of Guinea and the North Eastern trade winds (harmattan) from across the Sahara Desert. The two wind systems influence on the coast of Ada are noted to be very weak with monthly average wind speed in Ada ranging between 1.7 m/s and 2.6 m/s (Sorensen et al., 2003, cited in Kusimi & Dika, 2012). The direction of these winds may intercept with oncoming strong tides and storms that contribute ultimately to sea erosion and abrasion at the near coast. The Ada coast also experiences two forms of waves defined by the weak local monsoon winds and the swell generated by storms in the southern part of the Atlantic Ocean. Average wave heights between 1997 and 2006 is 1.93 metres but could reach heights of about 3 metres (Kusimi & Dika, 2012). With the coast made up of poorly unconsolidated quaternary sediments, littoral drift usually occur at close angles to the coast influenced by the south-westerly winds resulting in some sand

deposition along the eastern section of the coast whiles erosion becomes evident near the breakwaters towards the western section of the coast (Ly, 1980; Kusimi & Dika, 2012). The coast of Ada is noted to be influenced by semi-diurnal tide with ranges averaging 1 meter with the waves normally directed towards south and south west of the shoreline and average speed reaching 10.91/s. The coast is also noted to be prone to high energy tidal waves and wind storms that cause seasonal flooding of homes and communities especially with increasing rise in sea levels.

2.5.2 Geology and Topography of the Ada Coast

The geology of the Ada coast and the eastern coast generally is a very soft one made up of unconsolidated quaternary rock formation that constitutes loose clay, gravel and sand (Benneh & Dickson, 1988, cited in Boateng, 2012). The coast of Ada and the entire eastern coast have been characterised with sandy beaches and the absence of rocky headlands culminating in its susceptibility to severe sea erosion. Coupled with the long sandy beaches along the eastern coast, it is also a low lying coastal beach, low beach ridges with marshes and lagoons (Kusimi & Dika, 2012). These factors make erosion continue to increase along this stretch as long shore waves and tides hits directly the loose sandy shores coupled with the absence of rocky headlands to break the waves near-shore to reduce its power to erode and take away coastal sand.

The whole coastal stretch of Ada is known to be a deltaic shoreline that is influenced heavily by the Volta River delta and lagoons systems existing along the stretch and protected mainly by the sandy beaches and barriers that separate the lagoons from sea water (Boateng, 2012). It is supported by a number of backwaters, including marshy areas, wetlands and low coastal plains that are fronted with sandy beaches and barriers

(Boateng, 2012). The zone is therefore subject to occasional overflows of sea water due to the high storm surges and tides.

2.5.3 Sea Level Rise

The phenomenon of climate change and sea level rise has become one of global concern. The coast of Ghana have been said to be experiencing some increase in its sea level which is in tandem with global rise in sea level trends to approximately 2mm/year (Appeaning Addo et al., 2011). The sea levels for the general coastal stretch of Ghana are projected to witness continues increase to 6mm/year (Appeaning Addo et al., 2009). The eastern coasts have also continued to have its fair share of climate change and the effect of changing sea levels. The low topography and soft geological conditions of the Ada coast makes it particularly vulnerable to any rise in sea levels. Current climatic conditions places sea level rise estimates around 1.2 mm/year and 3.1 mm/year (IPCC, 2007, cited in Kusimi & Dika, 2012) in Ada. Predictions of 1 mm rise in sea level could see large coastal areas of Ada and other low lying areas experience severe consequences including erosion, flooding and inundation or submergence of coastal lands (IPCC, 2007, cited in Boateng, 2009).

2.5.4 The Construction of the Akosombo Dam and Tema Harbour

The construction of the Akosombo dam has been noted as a major cause of the severe erosion experienced along the coast of Ada Foah. Jayson-Quashigah, et al. (2013) noted that, after the construction of the Akosombo dam in the 1960‘s, the Volta river has reduced its overall sediment supply to the whole Eastern coast causing an imbalance in the amount of sediment lost to longshore drift and replenishment. The coast has seen erosion rates increasing from 4 m/year before construction to 8 m/year.

According to Bollen et al. (2011), the coast before construction transported 7.5million m^3/S sediments (containing 20 percent of sand) annually with mean velocity of water discharges at 1,000 m^3/S reaching 6,000m^3/S at the peak periods (cited in Kusimi & Dika, 2012). The situation however changed after the construction as the total sand transported to the East coast has reduced with over 60 percent of transported sand lost due to a drop in the overall flow velocity of the Volta River.

Analysis of the sand grain size along the coast to the West of the Estuary shows that, sand transported from the Volta river end up at the east of the Estuary. These changes could therefore not be attributed to the shoreline erosion to the West of Ada (Ly, 1980; Nairn et al., 19908, cited in Kusimi & Dika, 2012) as the construction of the Tema and Takoradi harbours have resulted in an increasing deposition of sand sediments to the western section of the coast further causing the eastern coast to suffer continued erosion near the breakwaters (Allersma & Tilmans, 1991, cited in Kusimi & Dika, 2012).

2.5.5 Sand Winning

Sand winning has also been noted as a serious threat to the survival of stable shorelines. With increasing activities of sand winning for commercial purposes, coastal areas are further lowered exposing the beach and shorelines to the effects of wave and wind energy systems that will ultimately result in erosion. Anim et al. (2013) noted that although sand winning in coastal zones is a banned activity in Ghana, it‘s been pursued to satisfy the demands of real estate developers. These activities are mostly uncontrolled and unmanaged given room to indiscriminate wining of sand which serves as a barrier for storm surges and tidal waves along the coastal zones. Kusimi and Dika (2012) in their study at Ada stated that illegal sand

winning is normally carried by private commercial firms to supply sand to the building and construction companies and this worsens the effects of the ravaging sea waves as heights of beaches are lowered.

2.5.6 Growth in Population and Modifications to Biodiversity and Ecosystems

The increasing growth in coastal populations has necessitated increasing demands for coastal resources including land space for infrastructural development. This has led to increased encroachment on coastal biodiversity and ecosystems resources so as to meet the growing demands of the increasing population. Anim et al., (2013) noted that the growing exploitation of mangroves in the Ada Volta Delta Anyanui Estuary Mangrove Complex (AVDEAMC) has been a major contributing factor to the loss of coastal vegetation that otherwise serves as wind breaks. The coast of Ada is characterised by the coastal savannah vegetation with the short savannah grasses interspersed mostly by the coastal shrubs and short trees.

Also visible are the long stretches of coconut trees and mangroves found around the Songor lagoon and the Volta delta along the Ada coast (Kusimi & Dika, 2012). These vegetation's have over the years been lost to sea erosion and human encroachment activities which have further expose the coast of Ada to climate change effects. Amlalo (2006) noted that the loss of biodiversity and aquatic beach encroachment, wetlands and mangrove destruction are among seven environmental problems faced by coastal zones in Ghana. The need to protect coastal areas and especially the coastal zone of Ada saw the introduction of the Collaborative Actions for Sustainable Tourism (COAST project) aimed at protecting and adopting sustainable practices towards the management of coastal and marine environments from degradation and overexploitation. The implementation of the project at Ada is aimed largely at

improving Eco-tourism and has embedded in it issues of high environmental sustainability (Sustainable Coastal Tourism Report, 2012, cited in UNEP, 2011).

2.6 Destination Sustainability Framework

Calgaro and Lloyd (2008) argued strongly for the point that, although vulnerability has gained recognition in many disciplines with defined methodologies for analyses, no explicit framework for analysing vulnerability in the tourism industry exists. Although it is clear the industry faces lots of threats through its interaction with the social and ecological systems. The authors proposed the Destination Sustainability Framework (DSF) for analysing the vulnerability of the tourism industry to external and internal shocks and stressors. This framework has been adopted for this study as it seeks to understand the vulnerability of a destination in relation to specific hazards. The addition of the concepts of dynamic and relational scale and the concept of place makes the framework particularly suitable for geographic research. Despite the stated merits, the framework present a case of a concrete unique place concept neglecting the fact that places could be dynamic in their characteristics and change overtime due to dynamic earth processes ongoing. The framework is also too general as it is unable to provide specific elements to address the social and economic elements to understand livelihood vulnerabilities of host destinations. The framework is nevertheless adopted for the current study due to its strength in deconstructing tourism destinations vulnerability from social, political and ecological viewpoints.

The DSF developed by Calgaro and Lloyd (2008) is made up of three constructs. They include Turner et al. (2003) sustainability vulnerability framework, relational scale and place concepts. The elements are discussed below.

2.6.1 Sustainability Vulnerability Framework

The sustainability vulnerability framework used by Turner et al. (2003) used multiple attributes of vulnerability, dynamic and differential nature of vulnerability as it varies with populations from place to place at specific time as underlying factors to vulnerability (cited in Calgaro & Lloyd, 2008). The framework holds the view that individuals or populations exposure, sensitivity and resilience to shocks and stressors were the direct effects of their access and entitlements to resources. Further, peoples entitlements to resources and its distribution is linked to the wider environmental and socio-political processes at varying scales and levels within a society (Turner et. al, 2003, cited in Calgaro & Lloyd, 2008).

Calgaro and Lloyd (2008) noted that the framework is deficient as a result of its inability to analyse how various social actors use scaled socio-political processes and structures to facilitate and constrain individual‘s access to capital. They therefore introduced the two geographical concepts of relational scale and place to make up for the deficiency. This was to a large extent introduced to understand the place specific nature of tourism with the contributions of stakeholders at varying levels along destination management chain.

2.6.2 Dynamic Relational Scale Concept

The relational scale concept refers to the dynamism played at various levels within a social and political environment that defines people‘s access to capital and resources that makes them either vulnerable or less vulnerable to external shocks. The human society is made up of a number of complex social organisations at various scales (national, regional and local) and this concept helps to explain how these scaled social

processes interplay to account for the uneven or imbalanced social, political powers within a society (Calgaro & Lloyd, 2008).

Calgaro and Lloyd (2008) recognize scale therefore as an expression of power and control of resources. Its contribution to Turner et al. (2003) framework is its ability to expose the underlying socio-political processes that drive societal inequalities in access to capital and other resources. They therefore provided three paths through which relational scale concept can contribute to analysing community's vulnerability. First, they noted that its focus on the stakeholder dynamics helps to identify the various factors that influence destinations vulnerabilities. Secondly, it defines how these stakeholders are able to increase their access to capital within the political arena. Lastly, to identify stakeholders that collectively will work through policy makers, planners and host communities at various scales to become familiar with the resilience strategies and appropriate policy intervention.

2.6.3 Concept of Place Theory

The concept of place literally refers to the physical location of the unit under study. Calgaro and Lloyd (2008) noted that the place concept provided the theoretical lens through which the study unit is properly situated in the wider context of the various factors that influence its vulnerability. Nevertheless, the authors maintained that the concepts connotation goes beyond the mere representation of physical location or political demarcation of space. Massey (1993), cited in Calgaro and Lloyd (2008), defined the concept place as a "socio-politically charged landscape infused with multiple layers of meaning, collective identities, experiences and understandings developed over space". Places are recognized as unique entities whose overall characteristics set it apart from the neighbouring environment. The place specific

nature of tourism presupposes that, every tourism destination will have certain characteristics that set it apart from other destinations. Destinations generally differ in its elements that make it up and hence the need to carefully isolate those elements for the adoption of an appropriate tool for analysis. For example, the threats to the elements of a vegetation destination will require a differing approach or tool from a coastal destination. Place analysis of tourism as a product is consequently necessary in order to perform a vulnerability assessment of the destination.

According to Calgaro and Lloyd (2008), place seen as a socio-political product of multiple images, identities and interactions constitute the creation of a tourism product. Pritchard and Morgan (2000) identify tourism products as constituting imaginations that are multi-layered in nature and are defined by the tour operators and key stakeholders who make these decisions purely on the grounds of their perceived desires of the travelling public (cited in Calgaro & Lloyd, 2008)

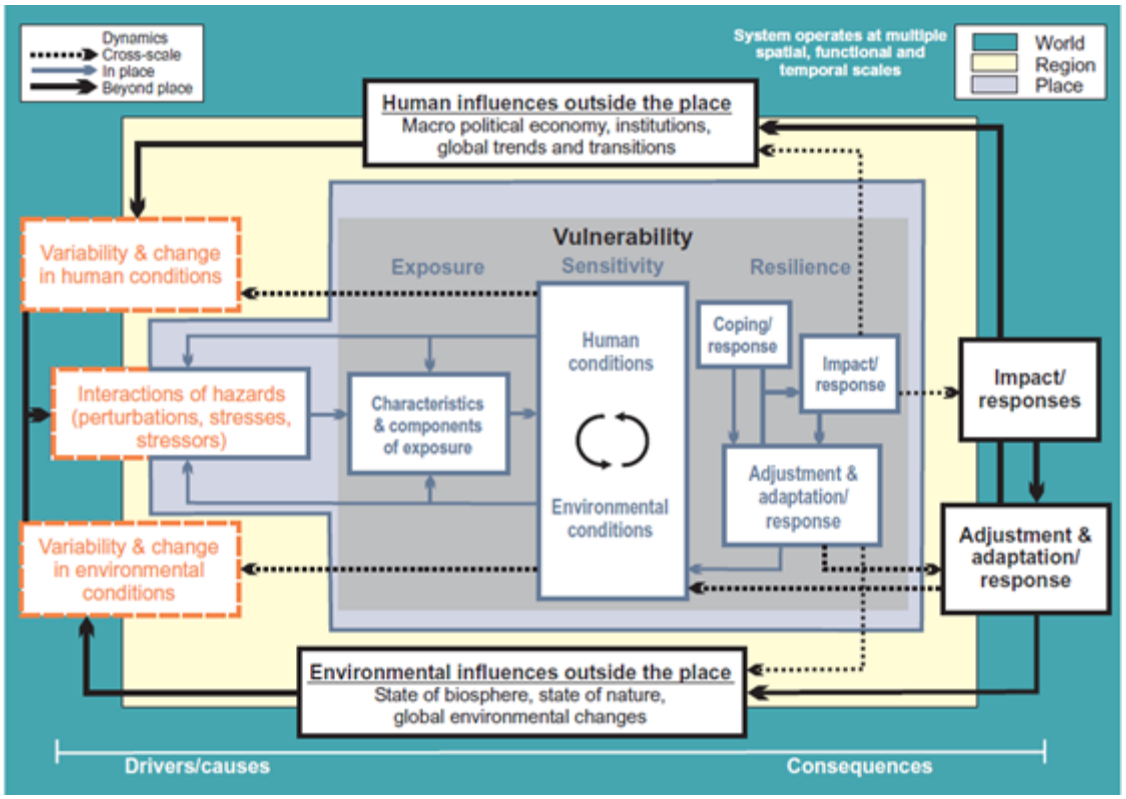
2.6.4 Contributions to the Destination Sustainability Framework (DSF)

Current technological applications such as the Remote Sensing (RS) and Geographic Information System (GIS) will be incorporated into the framework to enhance the place specific identification and analysis of vulnerability. This will allow the framework to be tested empirically using statistical data to enhance its robustness.

The framework has been used at a destination that has been severely hit by tsunami to conduct a post disaster assessment and also well developed. The current study seeks to test the framework against an emerging and a hazard prone tourism destination (Turner et al., 2003).

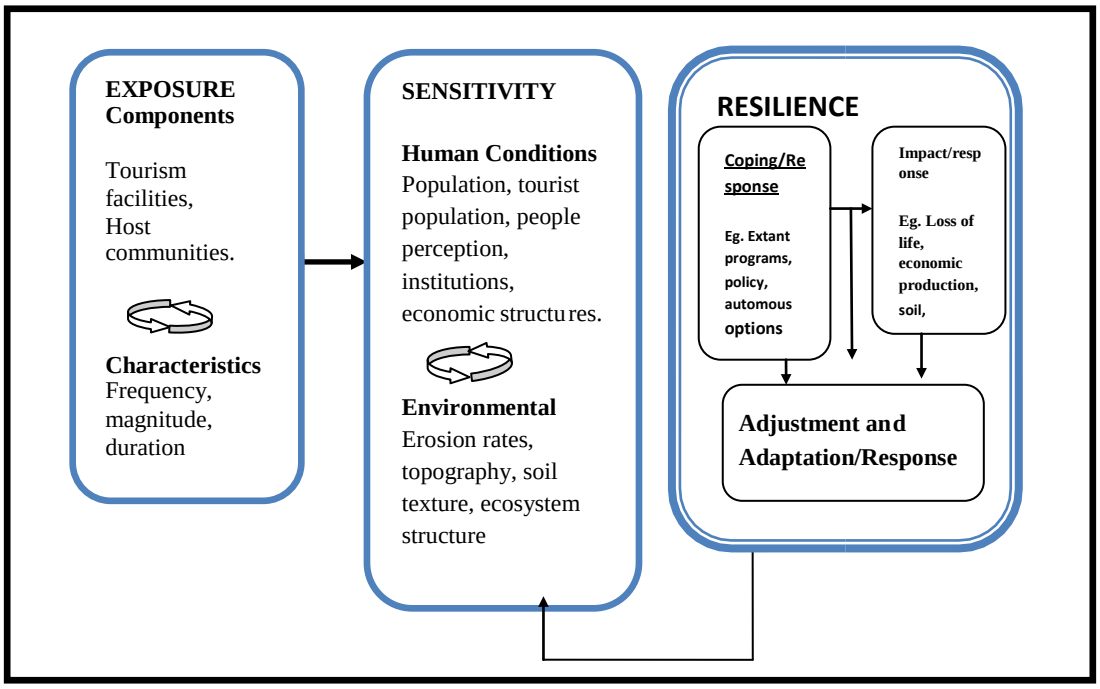
Turner et al. (2003) defines the main elements of the vulnerability framework as constituting Exposure, Sensitivity and Resilience. The various elements that make up a destination‘s exposure, sensitivity and resilience should be defined within any study. The Figures 2.1 and 2.2 shows the Destination Sustainability Framework and the various elements defined in the current study illustrating the relationships existing among them respectively.

Figure 2.1: The Destination Sustainability Framework



Source: Adopted from Calgaro and Lloyd (2008)

Figure 2.2: Defining the Elements of Vulnerability Under this Study



Source: Adapted from Turner et al. (2003)

2.7 The Livelihood Framework

One criticism against the Destination Sustainability Framework of Calgaro and Lloyd (2008) is the lack of comprehensive elements for measuring host communities vulnerabilities generated through their livelihood activities within their environments. This limitation has been addressed using the simplified livelihood framework adapted by Ashley (2000) from DFID (1999) guideline sheets. This study deploys this framework to assess the contribution of tourism to the livelihood conditions of residents of the Ada East District within the wider socio-ecological vulnerability context of the study.

The livelihood framework provides variables to measure specific community livelihoods activities. The framework also provides a feedback relation to assess how each community and individual asset could be influenced by external activities and strategies including policies and institutions. Ashley (2000) noted that the main

strength of the simplified framework is its ability to disentangle components of livelihood to measure the indirect, negative and positive impacts of tourism.

The framework is composed of 3 main segments including assets, activities and strategies and some expected outcomes. The assets of the livelihood framework are defined by the natural, financial, physical, human and social capitals available to host communities. These capitals are used for certain activities and strategies defined by an individual or communities priorities and preferences. The priorities and preferences of individuals are also influenced by the existing policies and institutions and the vulnerability context within which the community is assessed. A number of outcomes which could generally improve the well-being of community members, income levels, empowerment to local host communities, improved health conditions and overall to reduce the community's vulnerability within the context of assessment are expected from these interactions. A feedback mechanism also embedded in the framework is used to assess these outcomes. Fig. 2.3 is a diagrammatic representation of the framework

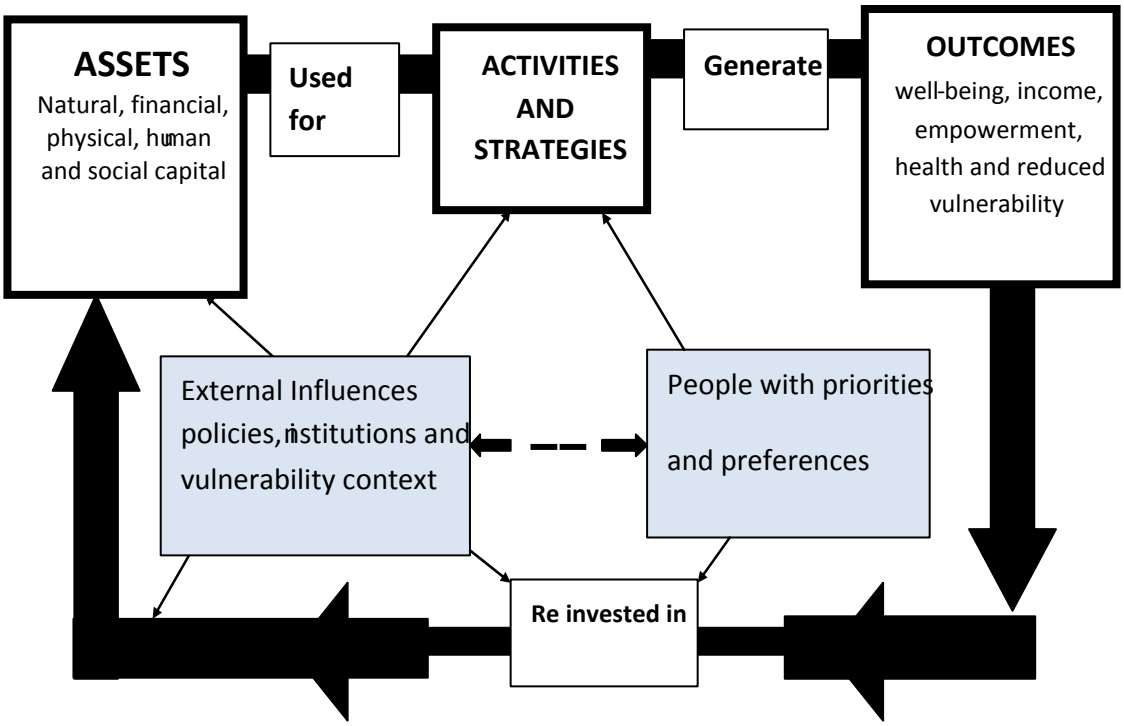
2.8 Summary

The chapter was devoted to the review of related literature and the theoretical and conceptual frameworks adopted for the study. These were organised in two main subsections. The first section focused on reviewing literature around a number of themes including understanding tourism as a livelihood option, the concept of vulnerability, coastal tourism and its challenges and sea erosion along the eastern coast of Ghana. Again, issues on the factors that affect the Ada East coast were subsequently described including the waves and wind energy systems influencing the Ada east coast, the geology and topography of the Ada east coast, sea level rise, the construction of the

Akosombo Dam, growth in population and modifications to biodiversity and ecosystems have been discussed.

The second section dwelt on the conceptual framework adopted for the study. The study reviewed the destination sustainability framework adopted from Calgaro and Lloyd (2008). The framework was generally described with its advantages and disadvantages and also its relevance to the study. However, the study also adopted the Livelihood Framework from Ashley (2000) to complement the limitations in the destination sustainability framework of Calgaro and Lloyd (2008) in providing comprehensive explanation to the livelihood conditions of host communities.

Figure 2.3: A Livelihood Framework (Simplified Version)



Source: Adopted from Ashley (2000) .

CHAPTER THREE

STUDY AREA AND METHODOLOGY

3.0 Introduction

The chapter is dedicated to the presentation of a detailed literature on the study area and the methodology that guided this study. The study area presented issues physical location of the study area, climatic conditions and the livelihood conditions of the people. The chapter also provided detail information on the methodology that guided the study. The methodology dwelt on issues of the philosophical background that underpins the study, whiles providing details on the research strategy, design, sampling technique, sample size and data analysis. Also, the chapter provided a methodology on how the risk maps were produced including the shoreline erosion and movement maps using the ArcGis 10.0 and Digital Shoreline Analysis System (DSAS. v.4.2).

3.1 Study Area

The study area chosen for this study was the 22.53km stretch of the Ada East District coastline. The whole stretch of the land is said to stretch from Lolonya in the Western section to Kewunor near the Estuary. The District is located to the Eastern Stretch of the Greater Accra region. It is located within Latitude 5°45 South and 6°00 North and from Longitude 0°20 West and 0°35 North. The district is bounded to the North and East by North Tongu and South Tongu respectively. Whiles Ada West lies to the West of the District and bounded by the Gulf of Guinea to the South. The total land area covered by the district is about 525 sq km (AEDA, 2013).

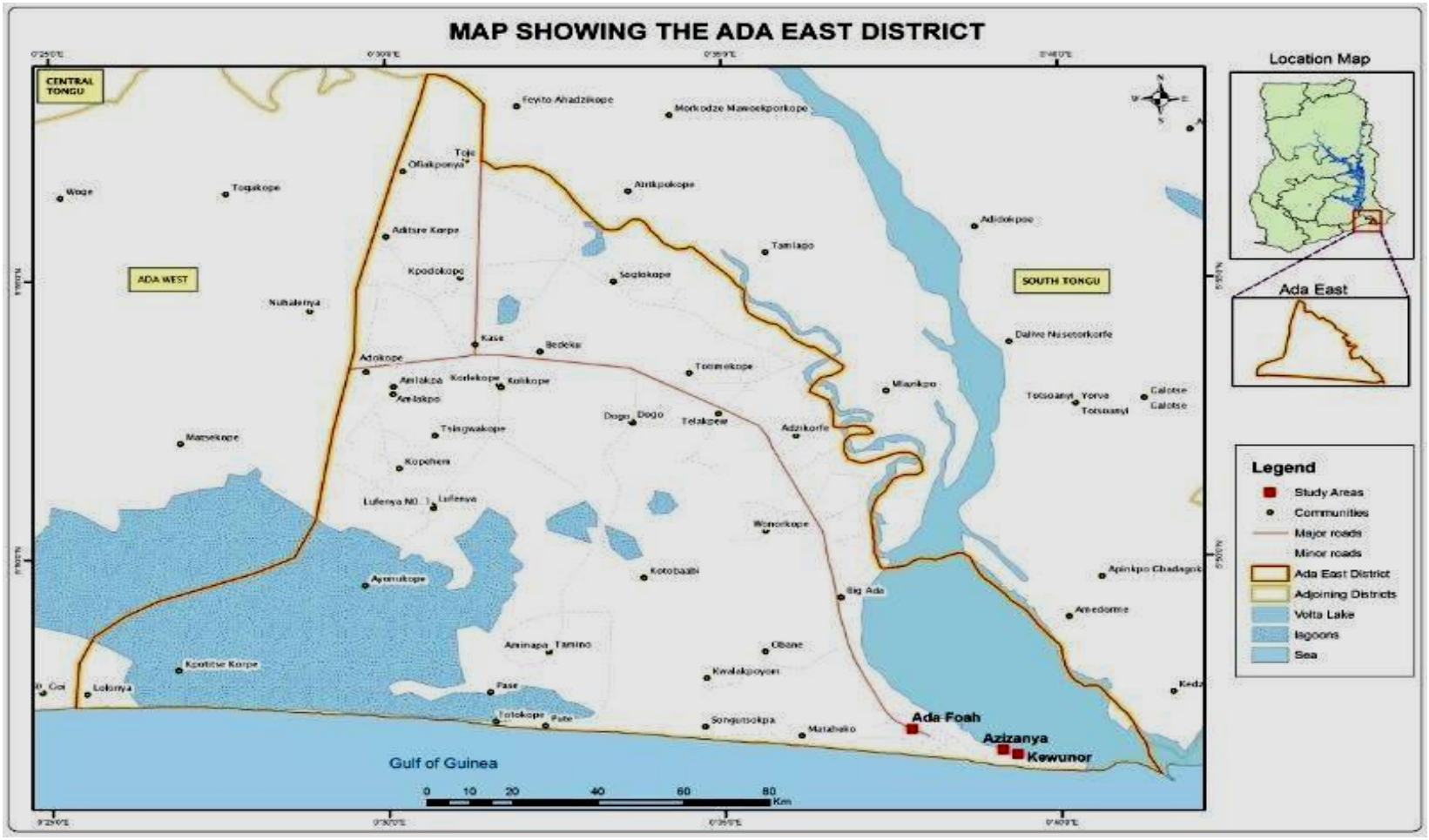
According to the recent population and housing census (2010) the population of the Ada East district is placed at 130, 975 with 68, 801 females and 62,174 males. The

female population represents approximately 52.53% of the total population. The district capital is Ada Foah located at the south eastern part of the district and is about 20km off the Accra-Aflao. The capital is also about 2km from the Volta river estuary (www.dangbeeast.ghanadistricts.gov.gh). Other major settlements in the district include Big Ada, Kasseh, Anyinam, Goi, Lolonya, Akplabanya and Pute. The District experiences hot temperatures as it forms part of the South Eastern coastal plains of Ghana. Temperature ranges reaches 33°c during very hot seasons whiles falling to 23°c and 28°c for most times of the year. Daily rates of evaporation also range from 5.4 ml t 6.8 ml. The high temperatures are mostly beneficial to the salt industry as it helps in quick crystallization. The Fig. 3.1 shows the 3 selected communities and the coastal zone of Ada on the study area map.

Fishing is the major activity along the coast of Ada East and it's been undertaken by quite significant number of people along the coast. According to the AEDA (2013) large scale fishing is undertaken along the coast of Azizanya, Pute, Elavanyo and the Environs of the District Capital-Ada Foah. Common among the fishing practices is the marine and fresh water fishing. The report noted how fishermen could move deeper into the sea near Togo and Cameroun when fish catches are reducing. Agriculture is also a dominant sector in the District as people engage in the farming of agricultural produce such as onions, pepper, tomatoes and root tubers such as cassava (AEDA, 2013).

Another major traditional industry is the weaving industry. It is noted to be a female dominant job undertaken to support household incomes. Some items weaved in the District includes mat, baskets, local fun, straw bag among others. Crab picking and oyster harvesting is also on a large scale in the industry (AEDA, 2013). The salt mining industry is one increasingly developing sector.

Figure 3.1: Map of Study Area



Source: CERGIS (2014)

There are major salt mining industries in the district that are largely privately owned and became well established through partnerships (AEDA, 2013). According to the AEDA (2013), a number of hospitality industries also exist within the district like chalets and other forms of holiday homes, hotels, bars and restaurants including miniature canteens.

3.2 Tourism Attractions and Supporting Facilities in Ada East District

The tourist attractions and supporting facilities available in Ada East District have been described broadly under six (6) categories or forms. They are:

First, the sun, sea and sand tourism is normally undertaken along the long sandy beaches of the Ada coast with patches of coconut trees providing shade and fruit juice to visiting tourists. The sand remains a major attraction to tourists visiting the Maranatha beach camp near the estuary.

Secondly, Eco-tourism continues to play an important role in attracting nature loving tourists to the district. The richness of the industry in the abundant eco-tourism attractions necessitated its selection as a protected reserve. The Ada East District is properly designated as the Songor Ramsar site among six others in Ghana. The site is currently under the management of the Wildlife Division of the Forestry Commission of Ghana with a local office operating at Ada Foah. The main mandate of the Division in Ada is to protect Flora and Fauna reserves that define its environment as most of these species are endangered. Visitors engage in sightseeing activities that include migratory bird watch, sea turtle watch at nights in a team with tour guides. Visitors are also taken out for tours to regenerated mangrove areas along the Volta River mostly by boat cruise with a tour guide.

Third, the district also boast of rich cultures and traditional festivals celebrated annually. The Asafotu festival is celebrated by the people of Ada in August every year. The festival has for many years attracted people at the national and international levels. The traditional chiefs of the area are presented in their finest traditional wears amidst chanting of war songs and traditional drumming and dancing as a form of re-enactment of the wars fought by the people of Ada adding to visitor‘s overall rich experience.

Plate 3.1: Wildlife Division Organised Tour on the Volta River

Source: Field Data (2014)

Fourth, the remains of Fort Kongenstein, built in 1783 by the Danish is another attraction. Close to this are the old Presbyterian Church and the old cemetery used by Danish traders and subsequent settlers. The potentials of these historical monuments for tourism purposes have rather been underutilised. Tourists also engage in boat cruises on the river to see the estuary and visit a number of islands and beach camps

and this gradually is attracting a lot of tourists to the destination. Jet skis are available for racing purposes, whiles majority of visitors swim in the Volta River.

Plate 3.2: Jet Skis and Wooden Boats at Tsarley Korpey Beach Resort

Source: Field Data (2014)

The Ada East District is also home to a number of island communities usually referred to by the local people as 'Overbanks'. These island communities have unique features and attractions. Famous among them is the Aflive island known among the local people as the 'Rum Island'. It is known for its local Gin produced from locally grown sugar canes using very outmoded methods of gin distillation. A family man in charge of the distillery gladly takes tourists through the production stages and offers the product to tourists for sale. Notable on the Island are fresh coconut fruits, fried oysters and sugar cane for tourists. The crocodile and alligator island also is accessible through a boat cruise. A number of crocodiles and alligators in their natural habitat enjoying the sun and air are also available for viewing by tourists. Another notable island in the

Volta River basin is Obonukope. This island has a community zoo that offers a number of African mammals including large pythons (snakes).

As expected the district has also witnessed an upsurge in the development of the hospitality industry. An appreciable number of hotels, guesthouses, resorts, beach camps and chalets have been built over the last half of the decade. The 3 star Peace Holiday hotel remain the biggest with its luxurious conference rooms, bedrooms and auditoriums and the wide range of services including jet skiing on the Volta River among others. Also available in the district is the Tsarley Korpey beach resort which offers pleasurable experience to tourists. The beach resort remains one of the major points of visit for most tourists. The resort has accommodation facilities, drinking spots, swimming pools, rest stops built on water, wooden boats in nice colours, speed boats among others that tourists makes use of during visit.

Other hotels and guesthouses include the Aqua Safari, Kemat, Maks, Ezime, and Manet. A number of beach camps also available in the district. The Maranatha beach camp remain the most vibrant in terms of number of tourists received during peak days and hours. Its location near the estuary, the abundant sea and sand for numerous games available, monitored swimming and its rural orientation offers tourist some distinguishing pleasures. Other beach camps in the district are the Cocoloco and Dreamland beach camps. There are also a number of temporal beach camps normally organised during public holidays and festivities featured along the sea coast.

Plate 3.3: Inner View of Tsarley Korpey Beach Resort

Source: Field Data (2014)

3.3 Philosophical Consideration for this Research

The place of philosophical consideration in a research is one that has become very imperative. The philosophical worldview underlying a research underscores the path and general ideas of how the world is conceived by a researcher. This idea about the world is what guides a research through its design and strategies for enquiry into the problem investigated. The worldview or paradigm connotes "a set of believes that guides an action" (Guba, 1990) through the investigation of an identified problem affecting man and his environment. A philosophical consideration in a research will follow two broader methodologies referred to as ontology and epistemology. The epistemological viewpoint of any research will seek to gather data subjectively from the world where people create their own understanding of what they see around them. The ontological viewpoint on the other hand denotes what exists as what people perceive to exist in the world they lived in rather than making meaning out of their own surroundings. These two methodological bases go a long way to define the path of enquiry adopted by a researcher to investigate the world. A number of philosophical

viewpoints were examined but this study adopted Creswell's (2009) line of argument for the pragmatics.

According to Creswell (2009), pragmatism arises out of the actions, situations and consequences rather than the antecedent conditions in post/positivism. Patton (1990) a more recent advocator for pragmatism noted that its concern is on what works and provides solutions to world problems. This explains why the pragmatics are not preoccupied with the thoughts of what system of philosophy or reality to apply to a particular studies but rather focus attention on the problem to be investigated using pluralistic approaches to gather information (Patton, 1990).

The pragmatics aligns themselves with the mixed method strategy to research as it involves both qualitative and quantitative approaches to study. It therefore has been acknowledged to be the philosophical underpinning for mixed method research (Cherryholmes, 1992; Morgan, 2007; Creswell, 2009). Pragmatics believes the world is composed of social, natural, historical and cultural aspects and hence does not accept the world as an absolute entity. It therefore gives a wider platform to the researcher to make the choice of methods, techniques and procedures that best fit for investigating a specific problem. Pragmatism therefore opens the gate for investigators to explore all aspects of a problem for a holistic understanding rather than the focus on methods and techniques (Creswell, 2009).

The current research seeks to understand the vulnerability of coastal tourism to sea erosion. This study takes into consideration the dynamics of the human and natural environment and therefore adopts the concept of socio-ecological system as a focus. The socio-ecological system provides a platform for a mutual interaction between the human society and the ecological system in the study area. To understand the

underlying causes of extensive sea erosion will require quantifiable techniques and methods whiles the threat it poses to a developing tourism industry will be better comprehended through an in-depth understanding of people's experiences, actions, cultural and historical systems. Adopting any other worldview philosophy to this study will limit the holistic understanding of the problem investigated. Pragmatism as a philosophical worldview offers a better platform as it allows for the use of mixed method techniques and procedures coupled with specific theories and frameworks to unravel the complex problem investigated.

3.4 Research Design

The research adopted a case study design in collecting data for this study. Despite the availability of other designs, including cross-sectional design, which is equally applicable to this study, case study design was considered to be the most appropriate and ideal due to the place and hazard specific nature of the research. Calgaro and Lloyd (2008) opined that, observing the place specific nature of vulnerability, case study has the capacity to deconstruct complex place based phenomenon. This design assisted in the gathering of in-depth information on the case under study to better inform policy and decision making on coastal tourism sustainability.

3.5 Research Strategy

The research made use of a mixed method strategy. The mixed method strategy as noted in Creswell (2009) is a concept that involves the mixing of different methods in a single research. It emerged in the late 1950's. The mixed method strategy has since witnessed an increased use in the social sciences. Tashakkari and Teddie (1998, 2003, cited in Denscombe, 2011) contrasted the mixed method with the research paradigm in favour of either the qualitative or quantitative methodologies. They stated four different characteristics as constituting the mixed method approach. The

characteristics include applying both qualitative and quantitative methods in the same research, deciding on the sequence of adopting the two research designs, classified by Creswell (2009) as sequential, concurrent or transformative, an explicit account detailing how the qualitative and quantitative research relates with emphasis on the triangulation method adopted. Lastly, the philosophical viewpoint that underpins such mixed method research is pragmatism. Creswell (2009) noted that, mixed method approach goes beyond the mere collection of data using the quantitative and qualitative strategies but must ensure that the two approaches must give a stronger outcome of the research than either of the methods would have produced.

Teye (2012) explained that the quantitative approaches emphasize the use of statistics for analytical purposes for the generalization and prediction whiles the qualitative approach entails the experiences, perceptions, emotions, beliefs and behaviours of respondents. He also noted that findings from quantitative data detach it from the researcher‘s influence. Triangulation of these methods enabled a detailed path to data collection as they complement each other rather than contrast. Sharan (2002) therefore argued that, the different interpretations of reality as a result of its complexity are better understood with the assistance of the mixed method as a valuable tool (cited in Teye, 2012). The research adopted a concurrent mixed method strategy defined by Creswell (2009) as collecting data about a problem at the same time and subsequently integrating the information in the overall interpretation of results. Despite the advantages of the mixed method strategy, it has its own set of weaknesses. Teye (2012) noted that the mixed method when used could widen the scope of the research than originally planned. Again, there is the problem of coordination and resource constraints, prioritization of research methods, integrating findings and conflicts

during data interpretation stage. Finally, the choice of sample size poses another challenge when using this method.

Notwithstanding the fore mentioned weaknesses, this research employed the use of a mixed method strategy in collecting detailed information on varying variables investigated. This is justified as a result of the complexities of the issues examined. The study sought to understand how social behaviour, patterns of development and interactions within the ecological environment may contribute to the vulnerability of a destination. The method provided insights into the socio-ecological system of the coast of Ada East District coupled with the tourism infrastructure and activities undertaken. The triangulation of the two methods provided a favourable platform in gathering varying data to understand the state of coastal tourism in Ada and its vulnerability to sea erosion.

3.6 Data Sources

The research collected data from both primary and secondary sources. The primary data consisted of data gathered from qualitative sources through in-depth interviews and digital photographs. Quantitative data was also gathered through a semi-structured questionnaires and Remote Sensing Images. Primary data was also gathered from reconnaissance survey and direct field observations by the researcher. The secondary sources of data included articles, books, reports, publications and newspaper reviews.

3.7 Data Collection Methods

3.7.1 Quantitative Data

Quantitative data was gathered from the field using semi-structured questionnaires. The questions included both open-ended and close-ended questions. Two set of questionnaires were designed for households and tourists as separate respondents. The household questionnaires were divided into five sections, structured to reflect the order of objectives of the study. This was to assist in the organisation of responses to themes for analysis. The first section gathered the bio-data of respondents including age, sex, and educational level, length of stay in community and the name of community of residence.

The second section dwelt on respondent's general knowledge on the tourism industry and their level of involvement. The section also establishes the contribution of tourism to development at the local level. The third section captured data on the Livelihood options of respondents. This was to give an idea on the general living conditions of respondents including their economic activities, assets acquired, perceptions on poverty and livelihood sustainability. The fourth section dealt with an overview of the socio-ecological factors contributing to coastal tourism, identified as a livelihood option in the study area. It poses questions on the general level of relationship between the host communities and visiting tourist. Also, there was an attempt to find out the impacts of tourism on the local environment and the common environmental practices of residents that may pose danger to visiting tourists. The final section focused on the key stakeholders of the local tourism industry. The section tries to ascertain the dangers posed by the ravaging sea erosion and stakeholder's

preparedness, Adaptive capacity and resilience strategies in mitigating or controlling the effects.

The tourist‘s questionnaire was divided into four sections. The first section collected data on the personal details of tourists. They included their age, level of education, nationality, sex and occupation. This gave us broad idea on the type of tourist by age and nationality that visits the study area. The second section captured data on the knowledge of tourists on the available attractions found in Ada and their assessment on what the tourism industry in Ada offers. Again, the third section focused on socio-ecological factors that may contribute to the vulnerability of the tourism industry in Ada. Finally, the perceptions on how safe the tourism industry was in Ada were given attention. Quantitative data was also collected with the help of remotely sensed technique. The data retrieved and used for analysis in this study were Landsat Tm images.

3.7.2 Qualitative Data

Qualitative data was collected through an in-depth interview with key stakeholders in the Ada tourism industry. The interviews used semi-structured interview guide (see appendix A3). The respondents selected were varied to reflect the stakeholder compositions within the industry. They included the destination managers, travel and tour operators, Ada tourism association, Traditional authorities, Ministry of Water Resource, Works and Housing (IDMC, Ada), Hotels/Guesthouse and restaurant operators, boat operators, District Assembly (Planning Department). Digital photographs were also taken during the data collection. These were to assist in giving pictorial view to areas and situations observed on the field so as to provide a vivid explanation to the problem understudy.

3.8 Sample Sizes

3.8.1 Sample Size for Quantitative Data

A total of 180 questionnaires were administered to three (3) coastal communities. The three communities were selected for the study along the coast of Ada. The communities selected included Kewunor, Azizanya (Mataheko and Ayigbo) and Ada Foah. For quantitative studies, large sample sizes are needed for purposes of quantification and representativeness of the sample (Bazeley, 2004, cited in Teye, 2012). This was to ensure that populations were fairly represented in the study to allow for a more rigorous analysis and interpretations (Teye, 2012).

The study took population statistics from the department of planning of the Ada East District Assembly. A major difficulty with the population data was the merging of all smaller villages into one. For example, Azizanya and Kewunor communities 'population were lumped. Notwithstanding the difficulty, assistance from planning department aided in generating average population for the two communities. Another, difficulty was the absence of the community breakdown population statistics of the 2010 Population and Housing Census. Estimates were created with assistance from the District Assembly Planning officer. The estimated figures were then used to calculate for the proportional allocation of sample sizes in each community. Using the formula S= N/n*s, where S= sample size, N=Total population of all three communities, n= population of each community and s= the sample size of the study. The final output saw Kewunor allocated 34, Azizanya allocated 50 and Ada Foah received 96 summing up to 180 questionnaires distributed to the targeted respondents.

3.8.2 Sample Size for Qualitative Data

A total of 13 stakeholders were purposively selected for interview during the field work. The stakeholders included destination managers, travel and tour operators, Ada tourism association, traditional authorities, Ministry of Water Resource, Works and Housing(MWRWH), Hotels/Guesthouse and restaurant operators, boat operators, District Assembly (Planning Department), Dredging International (Labour department), National Disaster Management Organization (NADMO) Ada, youth groups and assemblymen. The total interviews conducted were 19 and the breakdown is presented in Table 3.1. Interviews as noted by Teye (2012) does not require large sample sizes as emphasis is placed on process and meaning. Although, Teye pegged qualitative interview figures at 20-40, this research settled on 19 as a result of field challenges. Dominant among the challenges is the refusal or hesitance of contacted departments and institutions, unavailability of heads of institutions, frustrating bureaucratic procedures among others. With the shortfall in total interviews notwithstanding, the researcher was able to make the required meaning and interpretations needed to complete this work.

3.9 Participant Observation

Strong (1974) noted that the view that any researcher will exert no influence in the field during data gathering is unrealistic. This presupposes that every researcher will to an extent include his personal observations to cross check observed phenomenon on the field and subsequently integrating them in the final analysis of the research. To that extent, the researcher engaged in critical field observations in the areas of population distribution, building materials and building arrangements, tourist-guest interactions, Sea defence work progress, activities undertaking along the coast,

physical attributes and behaviour patterns along the coastline during transect walks and attitudes of tourists in accessing available tourist services within the coastal zone under study. This assisted the researcher in gathering first-hand information used to complement data gathered with other methods employed in the research.

Table 3.1 Stakeholders and Interviews Conducted

Stakeholder	No. Interviewed
Destination managers	2
Travel and Tour Operators	1
Ada Tourism Association	1
Traditional Authorities	1
Assemblyman	1
Boat Operators	2
District Assembly	1
Head of MWRWH on (IDMC) project	1
Hotels/Guesthouses	5
Dept. of Wildlife, Ada	1
Dredging International (Labour)	1
Head of NADMO, Ada	1
Community Youth Secretary	1
Total	19

Source: Field Data (2014)

3.10 Sampling Technique

Three (3) study sites were purposively selected along the 22.53km stretch coast of Ada. The sites included Ada Foah, Azizanya and Kewunor. The selection of these communities is justified by their location along the coast of Ada. Secondly, all three communities historically have suffered from sea erosion and inundations and lastly the concentration of tourism activities around these communities.

The multi-stage sampling technique was adopted to ensure representativeness of all populations. This technique was adopted due to the heterogeneous nature of the entire population and within each community. The multistage sampling technique allowed

for step by step fragmentation of the population at different stages for representativeness. The first stage involved the clustering of each community into defined blocks using major roads and footpaths as divisible landmarks. This method was necessary as a result of the scattered settlement pattern observed in all three communities. Each community was divided into three clusters, eastern, central and western blocks. At the second stage, the simple random sampling technique was used to select houses for questionnaire administration within each block of cluster in each of the 3 communities. An estimation of houses with assistance from an assembly member aided the use of the simple random sampling technique to reach out to houses. At the third and final stage, household heads were selected. In cases where household heads were absent, any available person who had stayed in the community for at least 15-20 years with knowledge on the tourism industry and sea erosion in the area were considered for the interview. The research nevertheless made conscious effort to give fair representation to both male and females in addition to some youth and elderly.

After, the household survey, a total of twenty (20) questionnaires separately designed for tourist was also administered. Here, for difficulties in reaching out to tourist who were out on fun trips, the willingness of the tourist was considered as a strong basis for selection. The convenient sampling technique was nevertheless adopted in reaching out to all 20 tourists. It was a herculean task but also an interesting twist to research as the researcher waited for tourist to have some taste of fun before sharing their experiences. Tourists were reached out to on their willingness to participate and whilst they were getting ready to leave or taking time off to relax with family or

friends. Again, the researcher made conscious efforts to reach out to return and first time visitors through the assistance of destination manager.

3.11 Data Analysis

The data collected was analysed at 2 different stages. At the first stage the qualitative data and quantitative data were analysed separately. This was to observe the nature of variations in each data set and responses whiles making meaning out of these data. At the second stage of analysis the data was then combined to present a holistic and comprehensive explanation of the study where the two data corroborate and complement each other for deeper understanding. The quantitative data was analysed using the Statistical Package for Social Sciences (SPSS) software version 16.0. The data then was used to generate and compute for various statistical analyses. Statistical computations such as measures of dispersion (mean, mode, median) were computed. Pie charts, histograms and tables were produced to enhance visual presentation of result using Microsoft Excel. Finally, Remote Sensing (RS)/Geographic Information Systems (GIS) data collected were analysed using ArcGIS 10.0 and DSAS v.4.2 software in calculating for erosion rates and producing a risk map of the coast.

The qualitative data on the other hand were analysed manually into themes. Audio interviews were also transcribed before subsequent manual analysis was conducted to generate themes for better understanding.

3.12 Methodology on Remote Sensing and Geographic Information Systems

The study area covered the coastal stretch of the political boundary of Ada East District of Ghana. It stretches from Lolonya in the West to Kewunor at the Volta

Delta near the Estuary in the East. The total shoreline distance covered was 22.53 km out of the total 45 km stretch of the entire Ada coastline.

Landsat Images were downloaded from USGS website (http://glovis.usgs.gov). Two image data sets were acquired including the 1985 Landsat Tm+ 5 and the 2013 Landsat Tm+ 7. The selection of the two image data sets were based on availability of best possible data images and the 28 years span was enough to carry out any meaningful and significant shoreline change analysis. Landsat images were selected due to their extensive use for coastal mappings and more so because of their multispectral and multi temporal characteristics (Chand & Acharnya, 2010). The two images were then stacked using bands 5, 4 and 3 to produce composite images with natural colours.

The images were then taken through an unsupervised classification (K-means) of 6 classes after which it was superimposed on aerial imagery in Google Earth software to help ascertain the changing nature of the classes and the beach line. An NDVI image was created for each respective image. With the aid of Google Earth imagery, reflectance of the composite image and the NDVI images, a supervised classification was done which contained 2 classes including water and land. The classified images were then exported to Arc Map 10.0. The raster images were converted to vector layers using the "From Raster" tool in the Arc Tool box. This enabled the extraction of the shoreline in each image for further processing.

The shoreline for each year was then extracted and taken through analysis in the Digital Shoreline Analysis System (DSAS) version 4.2. The DSAS was integrated in ArcGIS and used as an extension file. The two shorelines were saved as a single file as poly-line and exported into the DSAS 4.2. The shorelines were saved in a personal

geo-database recognized by the DSAS 4.2 software. An offshore baseline was created using the DSAS 4.2 to allow for the casting of transect. Perpendicular transects were then casted at 20m intervals to the baseline offshore.

The change in shoreline and rate of change between the periods were calculated using the End Point Rate of erosion (EPR) and Net Shoreline Movement (NSM) methods both of which are computer based embedded in the DSAS 4.2 software. The method was chosen as a result of its reliability, extensive use and its suitability when only two shorelines are considered for analysis (Chand & Acharya, 2010; Kuleli, 2010; Kusimi & Dika, 2012). The EPR was derived from the formula below

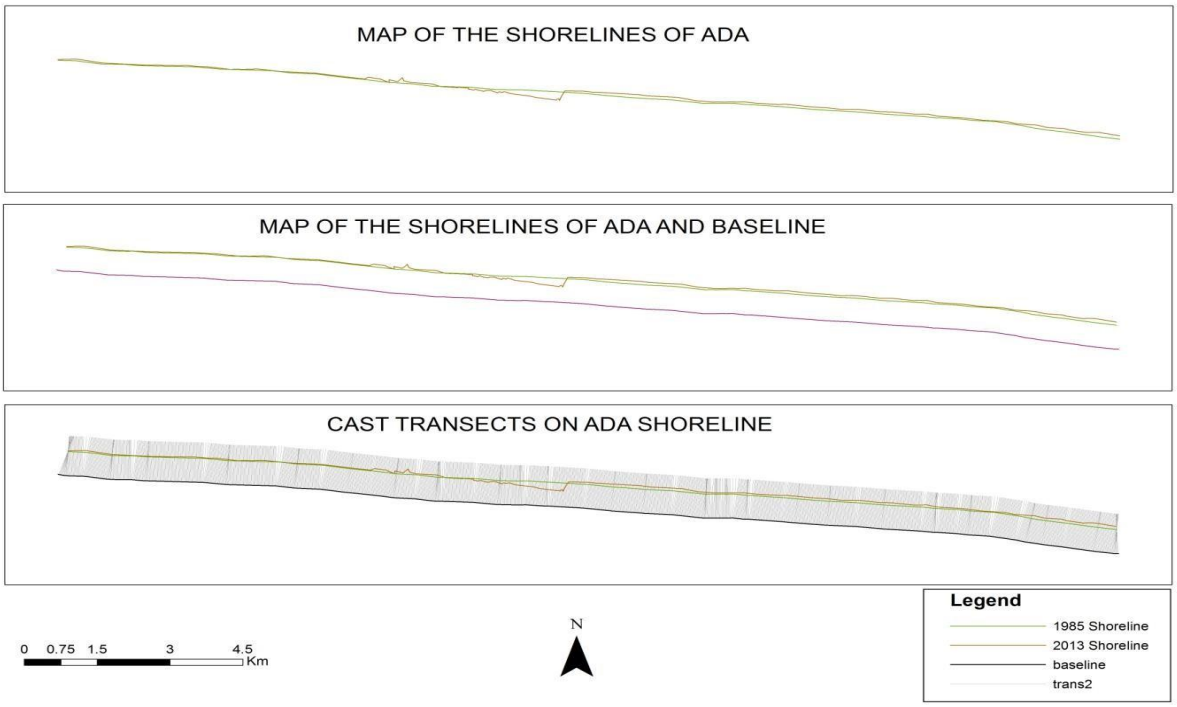
EPR= Distance between shorelines (NSM)/Number of years elapsed.

Error sources were not associated with the EPR and NSM analysis since the Landsat images used were all radiometrically and geometrically corrected and projected to the WGS 1984 UTM Zone 30^0N before their acquisition and use from the USGS database (http://glovis.usgs.gov). The NSM and EPR graphs are shown in the Chapter four of the study. The shorelines, baseline and transects created are represented in the Fig. 3.2

3.13 Methodology for Geology, Geomorphology and Vulnerability Maps

The Arc Map 10.0 was used to produce final maps of geology, geomorphology and risk map for the Ada East Coastline under the current study. The shoreline used for the study was that of the 2013 shoreline from the Landsat Tm7 image assessed from the USGS website (http://glovis.usgs.gov). This was preferred over the political boundary of the district because the study aims at estimating close to the current situation and nature of the coastline.

Figure 3.2: Shorelines, Baseline and Transects of the Ada East Coast



Source: Field Data (2014)

A data base was created for the 7 selected variables after Appeaning Addo (2013). These variables included the geology, geomorphology, mean elevation, mean shoreline displacement, local subsidence trend, mean tidal range and significant wave height. The variables were classified using the Likert scale and the risk factors were defined after Gorintz et al., (1991) and used by Appeaning Addo (2013) (See Appendix A1, Table 4). The coastal line of Ada East was then divided into three sections based on their relative geological characteristics. A combination of the 7 risk factors was used to produce a final risk map indicating the relative vulnerability of the coastline to sea erosion.

The variables for the geology of the coastline were derived from Ly (1980) and Boateng (2010) and compared with the geology map of Ghana retrieved from the Department of Earth Science of the University of Ghana. The geomorphological

variables were developed directly from Appeaning Addo (2013) and values assigned for specific field locations were informed by established figures in a literature search on the study area (Ly, 1980; Appeaning Addo, 2008; Boateng, 2010 and Kusimi & Dika, 2012).

The mean elevation was derived from data retrieved from the Wildlife Department at Ada; GPS coordinates from field survey compared with existing figures in literature (Kusimi & Dika, 2012). The mean shoreline displacement, local subsidence trend, mean tidal range and wave heights were all established from a thorough and comprehensive literature review with cross checking of variables established from different sources. Mean values were calculated and used for the study (Ly, 1980; Appeaning-Addo, 2008, Boateng 2009 and Kusimi & Dika, 2012).

A geomorphology and geological map of the area was created using field data collected by site inspection, the corresponding areas on the map were digitized with their respective geomorphology and geological attributes. The final maps were produced after symbology was applied to the specific geomorphological and geological attributes. The final vulnerability map of the area was created through the symbology of shapefiles using the 7 risk factor values established.

Three tables were generated including geology based on the Likert scale, geomorphology based on the Likert scale and all other five variables based on Gorintz et al., (1991) after Appeaning Addo (2013). The Likert scale was given values of 1 to represent very low and 5 showing severity (very high) (See Appendix A1, Tables 1, 2 and 3). The Coastal Vulnerability Index (CVI) was calculated from the relative risk factors created (See Appendix A1, Table 4). This assisted in identifying areas along

the 3 sections that are more vulnerable to sea erosion. The study adopted the two CVI formula used by Appeaning Addo (2013).

a) Product Mean $CVI_1 = X_1*X_2*X_3*X_4…X_N/ N$

b) Square root of Product mean $CVI_5= [CVI_1]^{1/2}$

Where,

1. X_1= mean elevation
2. X_2= local subsidence trend
3. X_3= Geology
4. X_4= Geomorphology
5. X_5= mean shoreline displacement
6. X_6= significant wave height
7. X_7= mean tidal range

The CVI_5 which is derived from the square root of the product mean (CVI_1) was used to derive the relative vulnerability of the coastline in the 3 sections. The final vulnerability data values were calculated and used to construct the risk map. The results have been classified into low risks, medium and high risks using the 33 percentile ranges (ETC ACC, 2011, cited in Appeaning Addo (2013). Low risk areas represented a total CVI_5 value less than 6 and moderate risk representing values in between 6-9. The high risk areas were represented by CVI_5 values greater than 9 (See Appendix A1, Table 4)

3.14 Summary

Chapter three was devoted to the study area and the methodology for the study. The chapter was divided into 3 main sections including the study area, data collection methods and the methodology for remote sensing and geographic information system. The first section of the chapter looked at the description of the study area that

provided a general background to the study area and also discussed the various tourism attractions and supporting facilities found in the Ada East District tourism industry.

The second section of the chapter dwelt on the data collection methods adopted for the study. The methods were discussed under the following themes and headings. They include the philosophical paradigm that guided the research, the research strategy, data sources, quantitative and qualitative data collection methods, sampling techniques and sample sizes, participant observation and finally data analysis. Lastly, the study also focused on the methodology used in analysing data from remote sensing sources using the geographic information system and the digital shoreline analysis system (DSAS 4.2).

CHAPTER FOUR

RESPONDENTS CHARACTERISTICS AND LIVELIHOODS

4.0 Introduction

The chapter presents the results and discussion on the background characteristics of respondents, tourism resources and the effects of tourism on the livelihood of host communities in Ada East District. The results are followed by a detail discussion linked to the literature to place the issues within a wider context. Background characteristics of respondents are necessary as it places the views of respondents in a proper perspective to understand the context of discussions. The chapter also gave a detail description on the tourism attractions and ancillary services available in Ada East District. The chapter concluded with an analysis on the effects of tourism on the livelihoods of host communities using the simplified Livelihood Framework adopted from Ashley (2000).

The age distributions of respondents have been placed in four ranges as shown in Table 4.1. The age group 35-45 years constitute the highest representing 42.2 percent of total respondents followed closely by 15-30 age group constituting 30.6 percent of respondents. This shows that respondents are highly youthful in nature between the ages of 15 to 45 years. The group falls into the active economic group variously employed in different sectors. The group was able to provide valuable information concerning current work opportunities, the tourism industry of Ada and to a large extent accounts on the historical developments of the sea erosion problem.

4.1 The Background Characteristics of Respondents

Table 4.1: Background Characteristics of Respondents

Variables	Freq	%		Variables	Freq	%
AGE				**SEX**		
15-30	55	30.6		Male	73	40.6
31-45	76	42.2		Female	107	59.4
46-60	29	16.1		**Total**	180	100
61 and above	20	11.1				
Total	180	100				
				LEVEL OF EDUCATION		
LENGTH OF STAY				No Education	32	17.8
Born Here	116	64.4		Primary	41	22.8
Less than 10years	18	10		JHS	40	22.2
11-20 years	22	12.2		SHS	30	16.7
21-30 years	13	7.2		Tertiary	15	8.3
31years and above	11	6.1		Others	22	12.2
Total	180	100		**Total**	180	100

Source: Field Data (2014)

The age structure corresponds with the youthful distribution of the districts population (GSS, 2010). On the other hand the relatively older respondents from the ages of 46 to 60 and above provided detailed insights into the historical development of the sea erosion problem in the study area. The age distribution confirms the scope of respondents involved in this research and has given a fair representation to all community members. It nevertheless assisted in gathering a balanced account of the problems investigated across all age groups.

The sex distribution favoured the female respondents as confirmed in Table 4.1. The female population represented 59.4 percent of total respondents and men accounted for only 40.6 percent. Given a fair representation to both sexes would have presented a more neutral response as observed by each sex group. The higher number of females (59.4%) is as a result of number of factors noticed across all communities under study.

Firstly, apart from Tuesdays and partially Sundays, men always leave home early in the day for fishing and mostly return during sunset exhausted and tired. This explains why more women were available at most homes visited.

Although Tuesdays is marked specially as a traditional non-fishing day, very few men are found at homes. Men usually used the off-fishing days to mend their nets, visits friends and family members in other communities. This also made it difficult accessing men for the questionnaire surveys. Although, these factors were found mainly in the Kewunor and Azizanya (two fishing communities), similar factors accounted for the Ada Foah community where the population was more heterogeneous in terms of ethnicity. Also, the capital has more job opportunities and saw people employed in varied sectors rather than a dominant fishing community. Notwithstanding, meeting men at home again was more difficult as they spent longer times in their offices. Notwithstanding the factors listed above, the sex distribution has fairly represented the population.

Table 4.2: Respondents Levels of Education by Community

Level / Community	No Education	Primary	JHS	SHS	Tertiary	Others	Total
Ada Foah	10	9	26	23	14	14	96
Kewunor	7	14	3	5	0	5	34
Azizanya	15	18	11	2	1	3	50
Total	32	41	40	40	15	22	180

Source: Field Data (2014)

Respondent's levels of education were also investigated in this study. Table 4.1 shows that those who had primary and JHS education accounted for 22.8 percent and 22.2 percent respectively followed by secondary and Tertiary education accounting for 16.7 percent and 8.3 percent respectively. Significant also were a total of 32 respondents representing 17.8 percent having no education at all. A crosstab computation was conducted with respondent's level of education and their community of residence. The capital Ada Foah happens to have a more educated population than the two fishing communities of Azizanya and Kewunor. From Table 4.1 JHS, SHS, Tertiary and others accounted for 26, 23, 14 and 14 respondents respectively confirming common perception that capital towns have more educated people due to their access to better education facilities. In the reports from the AEDA (2012) the capital Ada Foah has access to better and more schools with improved infrastructure. Azizanya has only one large public school from the basic to the JHS level and Kewunor has just a basic school up to lower primary. Students from Kewunor will therefore have to attend schools in Azizanya or Ada Foah mostly on foot. These factors perhaps may account for the low educational levels in the two fishing communities.

The study also gathered information on the length of stay of respondents in their respective communities. From Table 4.1 a larger number of the total population representing 64.4 percent were born in their respective communities. This was followed by those who stayed between 11-20 years and 21-30years accounting for 12.2 percent and 7.2 percent respectively. A crosstab computation was done using the length of stay and community of residence of respondents to find out the length of stay of respondents in their various communities.

Table 4.3: Length of Stay of Respondents

Years / Community	Native	>10yrs	11-20yrs	21-30yrs	<30years	Total
Ada Foah	29	16	14	7	10	96
Kewunor	24	1	6	3	0	34
Azizanya	43	1	2	3	1	50
Total	116	18	22	13	11	180

Source: Field Data (2014)

Table 4.3 revealed that larger portions of the fishing dominant communities of Kewunor and Azizanya had more of its members born in their respective communities. Whereas the population of the capital Ada Foah was widely spread showing a more heterogeneous population, the two fishing communities can be described to be more homogeneous.

4.2 Host Perceptions on Tourism and Local Development

Understanding the perceptions of host community members to tourism development is an important aspect of tourism. This has the potential to assist planners and organisers of the industry to better prepare strategies in managing the tourism industry. The perceptions of the host communities about the kind of tourism practiced go a long way to affect the overall growth of the industry. The section tries to understand the various perceptions held by the host communities in Ada and how this is contributing or affecting the overall growth and management of the industry.

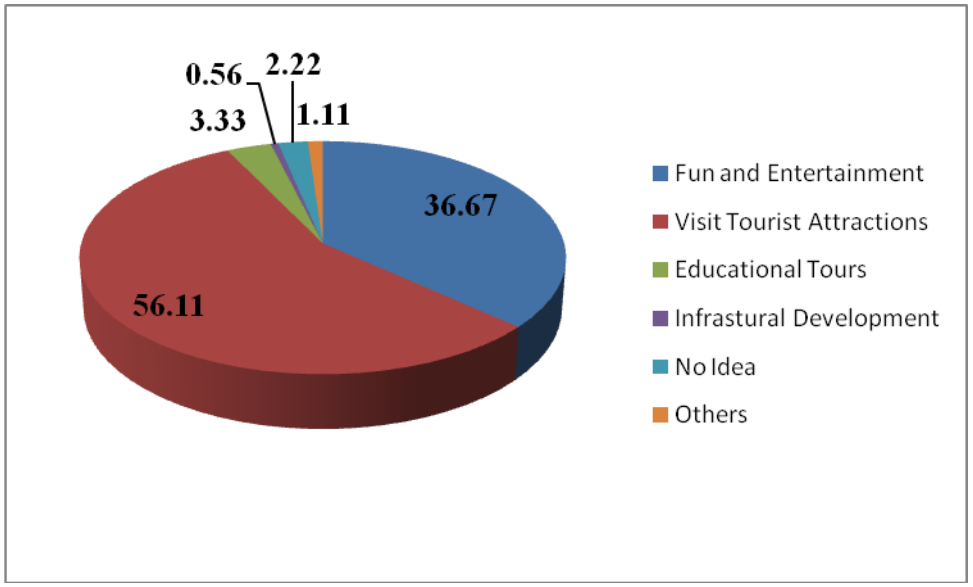
4.2.1 Hosts Knowledge on the Ada East District Tourism Industry

Figure 4.1 represents the perceptions of the local community on the existence of the tourism industry in Ada. It was realised that most community members are very much aware of the various tourism activities undertaken at Ada. Notwithstanding, the research sought to find out their views on what they know about the tourism industry in Ada. It was clear that, community members have little knowledge on the industry as a whole and were limited to only the activities they see tourist engage in during their visits. To that extent, a larger number of the respondents representing 56.11 percent shared the view that tourist only come around to visit the attractions available in Ada. Also, significant is 36.67 percent respondents who said tourism in Ada is just about fun and entertainment. On the other hand, 3.33 percent of respondents claimed some tourists come for educational tours to learn about some of the attractions in their community. As low as 0.56 percent of total respondents sees tourism as the presence of supporting facilities in the form of chalets, hotels, guesthouses and beach camps in Ada.

Again, notable were 2.22 percent of total respondents who could not share any knowledge on the tourism industry in Ada. Host communities to this extent appears so disengaged from the activities of tourism in all three communities. The selection of the three communities were partly based on their nearness to the tourist attractions currently receiving much attention in Ada, including the Volta river and the Estuary, the Sea, Islands, beach camps and beach resorts. This appears not to be the case as these tourism communities appears to have little knowledge on the management and organisation of tourism. The industry appears to be in the hands of individual stakeholder operators with total neglect on the role of communities in the organisation

and management of tourism. Tourism development in any community cannot be achieved without the participation of host communities in touristic activities. Host communities are an integral part of any successful tourism destination and form one of the major stakeholders. Any attempt to neglect or overlook the host community in the planning and management of tourism destinations is a recipe to decrease tourist visit, low revenues and distasteful tourism experience.

Figure 4.1: Respondents Knowledge on the Tourism Industry



Source: Field Data (2014)

The findings are not different from the findings of Tweneboah and Asiedu (2009) study on the perspectives of hosts and guests on coastal tourism development in Ghana. Their study was conducted in Ada and Elmina and it was found out that the tourism industry in Ada has very poor links and connection with the host communities; hence there is little interaction between tourist and host communities. Community members therefore have very little knowledge on the tourism industry or nothing at all about what goes on in the tourism industry.

The resultant effect is that host community's lack of interest in partaking in touristic activities is as a result of the feeling of neglect and absence of tourism benefits. The current study also on Ada indicated that the situation has not changed much. The host community can only be said to be passive members of the industry who only watch tourists pass through their communities without any involvement in the planning and management of the industry.

The level of engagement of community members as observed in the current study is nothing more than those who are directly engaged in activities such as boat riding, cooks and caretakers of chalets and hotels/guesthouses among others. Those who are employed have the choice to join tourism groups existing in the area and will therefore be able to contribute to management issues. But for community members who are not directly engaged in tourism activities, have little to do with the industry. All tourism destinations have gone through some stages of development as hypothetically described in Butler (1980). Tweneboah and Asiedu (2009) described the tourism industry in Ada as one which is at the development stage of Butler's cycle (1980). The tourism industry in Ada has currently seen an increased number of tourists, an extensive investment in supporting facilities by individuals outside the community and country.

It implies that the control of tourism is gradually leaving the hands of the local people into the hands of larger investors. This observation by Tweneboah and Asiedu (2009) is still the case 5years after their study, as there have been increasing interests from investors outside the region in acquiring spaces for development. Local control of the industry has totally decline as there is little involvement of local people in managing the industry. Doxey (1970) recognises that at each of the level of development

described by Butler (1980), the attitudes of local residents is positive at the initial exploration stage but decreases as one move further the development ladder. Additionally, Lepp (2007) indicates further, that destinations with no prior knowledge of tourism potentials tend to express suspicions, anxieties and fears at the initial stages of development. Although Tweneboah and Asiedu (2009) believed that the tourism in Ada is at the development stage and could be likened to the first stage of Doxey's classification where tourist will have positive attitudes towards tourism development with high expectations, it nevertheless must be noted as found by Horn and Simmons (2002) cited in Singh (2005), tourist attitudes may vary at each stage of Butler's cycle (1980) due to the relative economic importance of tourism at each destination and the type of tourist visiting the destination. The tourist market for a particular destination with time may begin to change as a particular group of tourists gets fed up with the destination. The current study found out that despite the positive attitudes of the local residents, they show no such expectations for tourism to transform their economic lives rather they depended on their daily normal activities to get a livelihood. Those involved in petty trading especially were however happy with the presence of tourist as they form a major market for their goods. This perception may be due largely to the general lack of knowledge on the potentials of tourism and the absence of any form of benefit over the years visible in these tourism communities in Ada.

4.2.2 Host Perceptions on Tourism Growth

The study further clarified from respondents the various reasons for which lots of them believed that, the tourism industry in Ada is a vibrant one. It was very clear from their responses, that their personal observations over the years form the basis for their judgement on how vibrant the industry has been over the years. From Figure 4.2 as

many as 157 respondents representing 87.22 percent of the total respondents noted that, the industry in Ada is vibrant due to the increasing number of tourists that visit tourist attractions. They noticed that, the change in the nature of visitations has moved from individual tourist and small number of tourists to current trends involving large mass tourist visit especially during national holidays and weekends.

Hitherto, the situation was a bit different as tourists on visit were easily countable per head, but now it‘s easier to count and keep the number of buses and private vehicles entering the community rather than the individual mass tourists. Also, 12 respondents accounting for 6.67 percent of respondents were of the view that, the continued presence of tourist at all times in their communities was enough to know that the industry is a vibrant one. They noted that, at any point in time during the day and the night tourist can be seen moving about in the town or moving towards attractions. Further, Figure 4.2 shows that only 4 respondents constituting 4.44 percent of total respondents gave various other reasons for which they think the tourism industry is not a vibrant one. They stated the lack of proper organisation on the front of stakeholders and the lack of effective marketing strategies coupled with the minimal government intervention needed to make the industry a vibrant one. This group of people are likely to have some links with the tourism industry and so are able to raise some deep reasons regarding organisation and management of tourism in Ada. This view was supported during an interview with a travel and tour company operator and secretary to the Ada tourism stakeholders association who made the point that, the tourism industry in Ada is not an organised one for many years. Various smaller stakeholder groups have formed their own groups and operated within their own capacities. For example, the boat operators association existed which does not include

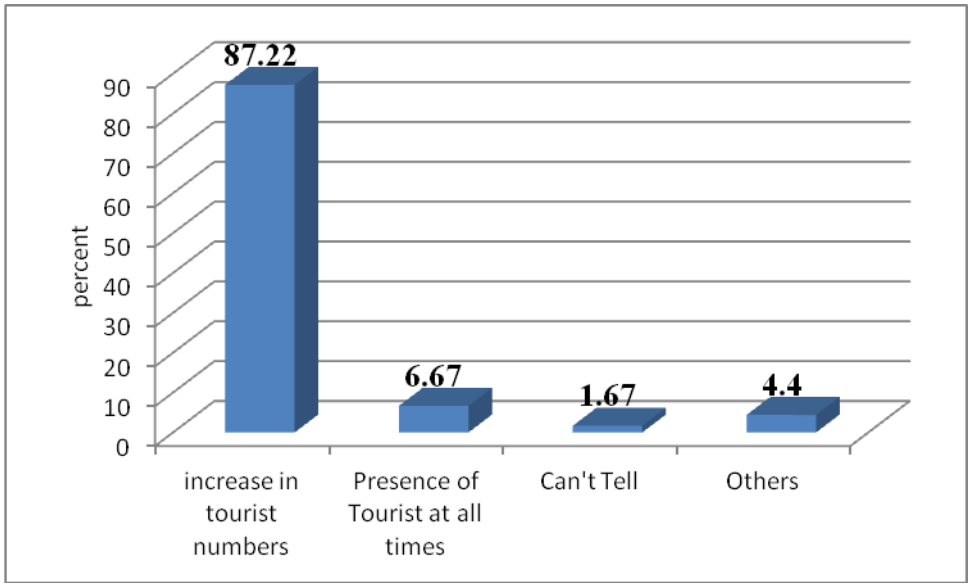
all boat operators anyway, hotels and guesthouses association (which is not too functional due to the bigger umbrella of Ghana Hotels Association they belong to) among others. He stated that,

> *"Ada Tourism Services has been established by the boat operators and tour guides only, but we realise the need to bring all other stakeholders to get involved. Now the Ada Tourism stakeholders Association has started and it is aimed at bringing all stakeholders on board. The Ada Tourism Services is about 4 years old now. The idea of all Stakeholders have been operating for long but its importance is now been realise by all".*

The tourism industry in Ada still does not have a unified front that will take collective decisions in managing the industry. Current efforts from few individuals are nevertheless beginning to yield good results as the response so far has been positive. A new office has been acquired at the PWD yard at Ada Foah where stakeholders activities are held and at the same time, where tourist are supposed to make their first stop before proceeding to attractions. Although, a number of challenges still exist, the researcher with his observations made during stakeholder meetings and ongoing activities can say there is light at the end of the tunnel.

The findings again resonates well with Tweneboah and Asiedu (2009) study in Ada. The findings here further shows that, the planning, organisation and management proper of the tourism industry are detached from the host community. The lack of knowledge on what goes on within the management and planning of tourism in Ada accounted for the peoples shortfall in responding to why they think the tourism industry in Ada is vibrant or not.

Figure 4.2: Respondents View on Tourism Growth



Source: Field Data (2014)

Those who claim tourism is vibrant in Ada due to the presence of tourist in Ada at all times resonates well with the findings of Tweneboah and Asiedu (2009) that some of the residents of Ada associates tourism directly with foreigners. This is true as those who stated the presence of tourists in Ada as an indicator of how vibrant the industry is, only can obviously differentiate white skin (Europeans) tourists to fellow Ghanaian or other black skin tourists.

4.2.3 Host Perceptions on Tourism and Local Development

The study as part of its first objective sought to determine the contribution of the local tourism industry to the development of the local community. That was to determine whether the blessings of tourist attractions in Ada in anyway have brought development to its communities and the people. In other to ascertain the contribution of tourism to the development of the local economy of Ada, the researcher ask

respondents on their views on whether tourism in Ada has brought positive returns to their community and the reasons for their choice of response.

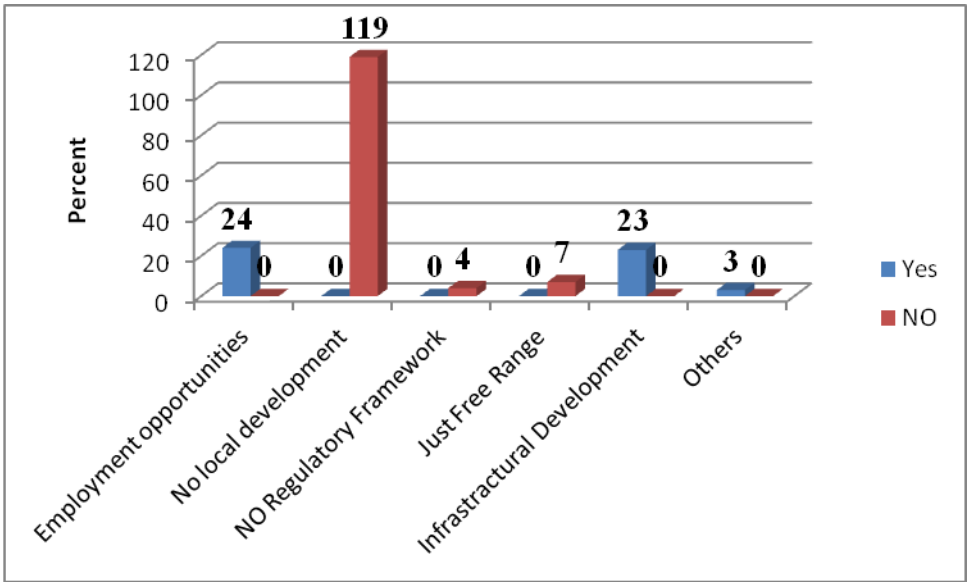
A careful look at Figure 4.3 shows that as many as 119 respondents representing 66.11 percent of total respondents were not convinced that tourism has brought any form of development to their community. They indicated strongly that, there has been no local development of any kind to their local economy. To such people, the inability of tourism to assist in local development makes them have no hope in opting for tourism as an economic gateway.

A total of 4 and 7 respondents constituting 2.22 percent and 3.89 percent respectively gave reasons that the absence of regulatory framework and the free range of tourism practiced in Ada can be noted as prime reasons for the low performance of the tourism industry in supporting local growth. These respondents believed that, tourism organisation in Ada have remained uncontrolled with no regulations. Local community people believe tourism in Ada is gradually attracting bigger investments outside the local community. They see these investors as pure business people who come to make their own profits. There are no such institutions that ensure that these investors contribute to the development of the local community. Others still were of the view that, the nature of tourism practiced in Ada is not one for economic gain. They see tourists visiting their communities as enjoying freely without paying anything significant since they see no designated point where tourists report to make initial entrance fees over the years. On the other hand, 24 respondents representing 13.33 percent of total respondents were of the view that tourism has brought some form of employment to the local people hence some development is realised. Their

views could be linked to another group of 23 respondents that constitutes 12.78 percent of total respondents who hold the view that tourism has brought some form of development in the form of infrastructure to the people. They noted that, some infrastructures the community has are benefits from the tourism revenues gathered over the years, or from the munificence of some visiting tourist to the area.

Despite the large number of respondents disclaiming the fact that tourism in Ada has brought any development to their communities, the study sought to find out if there are specific infrastructural benefits. From Figure 4.4 respondents in Kewunor community located nearest to the estuary showed recognition to the establishment of a Primary school in their locality. As many as 22 out of the total 34 respondents from Kewunor shared same view on the support to education given by tourism.

Figure 4.3: Perceptions on Tourism and Local Development

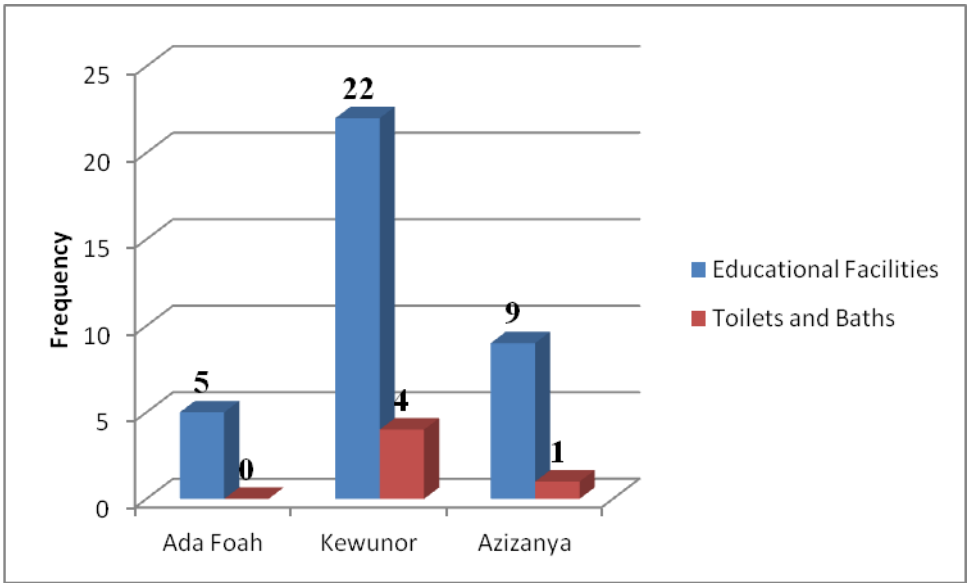


Source: Field Data (2014)

Again, 4 respondents at Kewunor pointed out that, the community also benefited from toilet and bath facilities as a result of tourism. In an interview conducted with the Secretary of the youth group in the Kewunor community, he indicated that the school built in the community although from tourism, was as a result of the selfless work and dedication from a son of the community. The individual in question is the owner of the now famous Maranatha beach camp where tourism experience is not complete for any tourist unless their visitation ends at the Maranatha beach camp.

The secretary to the youth group at Kewunor also indicated that there is a toilet and bath facility that is near completion for the community. In the other two communities Ada Foah and Azizanya, there was absolutely no form of infrastructural development identified by respondents. The few respondents in Ada Foah who made reference to education benefits were in effect rather referring to what they know or heard about in Kewunor and not their community itself. The point therefore is worth noting that, respondents in Ada Foah, the capital of Ada and Azizanya community could not point to any single infrastructure that tourism has brought to their communities.

Figure 4.4: Communities and Infrastructural Development



Source: Field Data (2014)

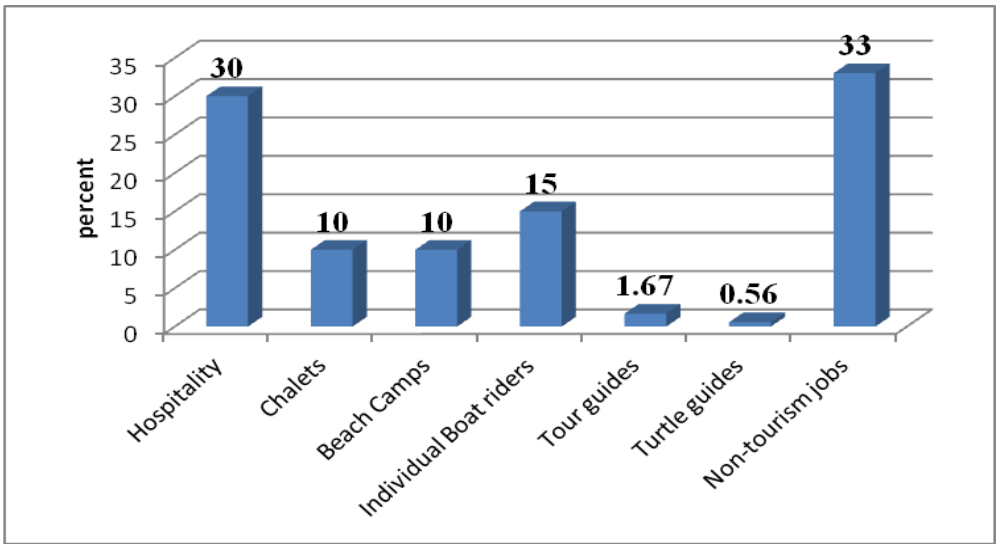
4.2.4 Host Perceptions on Tourism Employment Opportunities

It was clear from the preceding paragraph that, the tourism industry has not brought any significant infrastructural development to the Ada communities. Notwithstanding the zero infrastructural benefit, the study tried to ascertain the perceptions of the people on employment opportunities created by tourism over the years. From Figure 4.5 there was a resounding yes from all respondents, agreeing to the fact that, although infrastructural benefits are not visible, opportunities for jobs and business have nevertheless been created.

As many as 54 respondents representing 30 percent of total respondents were of the view that, the hospitality industry in Ada has been the largest employer for many local residents. The hospitality industry in Ada includes the hotels, resorts, restaurants, guesthouses, pubs, drinking spots and local chop bars. These establishments employ most locals to take responsibility of such positions as cooks, cleaners, receptionists,

waiters/ress, watchmen and boat riders among others. Another sector that is noted to have given employment to the local people is the boat operating industry. A total of 27 respondents accounting for 15 percent of total respondents pointed out that quite a large number of the youth are engaged in the boat operating business. These are individuals who either own the wooden boats themselves or working for someone else, take tourist on tour during visits on the Volta River to any destination of choice at a charged price. These individuals are in groups and have varying loading points along the river bank where tourists are loaded on to wooden boats with capacities of between 14 to 50 persons. Although, the larger wooden boats have capacity up to 50 persons for security and safety reasons they are always advised to carry no more than 30 persons.

Figure 4.5: Respondents Perceptions on Tourism Employment Opportunities



Source: Field Data (2014)

Further, the chalets and the beach camps were noted by some 18 respondents representing 10 percent of total respondents. The chalets normally owned by multi-national companies built along the river banks have been a source of employment to some community members. Those who work in these chalets are given a name thug as "chalet boys". They are given duties such as caretakers, security men and boat riders. The boats at the chalets belong to the owners of the chalets and mostly they are high speed boats and jet skis.

The beach camps on the other hand are another important employer of locals. As at the time this study was carried out, four main beach camps well known by community members were fully operating. They included the Maranatha beach camp, Midas, Cocoloco and Dreamland beach camps. Surprisingly, all these beach camps are locally owned except for Dreamland that is owned by a Ghanaian and a German. The beach camps employ people for varying duties including cooks, caretakers, securities, waiters/ress, boat riders, secretaries, receptionists among others. Other opportunities created by tourism include tour guiding and turtle protection guards. These represent 1.67 percent and 0.56 percent respectively of total respondents. The duty of tour guiding tourists and turtle guides have been linked directly to the Ada wildlife Division who have taking the responsibility to train interested youths. They were under initial plans to be placed at vantage points where tourists wait to start tours so they could join boats for tours. Turtle guides were also to join teams that will take visitors at nights for turtle walks. These opportunities were created by the Park Manager of the Ada wildlife division of Forestry commission who saw the need to collaborate closely with community members for effective protection of the flora and fauna resources under the Songor Ramsar site.

Tourism has always been touted as a panacea for stimulating growth in local economies of many nations. Many researchers believe tourism has indisputably contributed to the development of the local economy through its ability to create employment opportunities and bring development to the local people. Telfer and Sharpley (2008) have argued that the tourism industry have the ability to bring development to the local populace through its ability to redistribute wealth at the local level.

One will expect that with an industry described as vibrant as a result of the sturdy increase in the numbers of tourist will correlate with the development of the tourism communities around. Telfer and Sharpley's (2008) argument therefore does not completely match with the findings at Ada. Although one could see the presence of investors putting up supporting facilities, an indication of positive returns from the industry, revenues are not redistributed to meet local development. The seemingly inability of tourism stakeholders to support local development in Ada may partly be seen as a result of the neglect of local residents in planning and management and the poor organisation of all stakeholders within the industry.

Tourism in Ada appears to be in the hands of only the industry players who have done little in bringing local residents together. Current efforts to establish a strong stakeholder base are been appreciated by all although this is met with some challenges from individual stakeholders. The current situation in Ada might appear very rare to most researchers as tourism has continually been pushed forward as a tool for economic regeneration. The current findings may not be in line with a large number of researches including Grandoit (1992) who recognised the economic contribution of

tourism to the development of Caribbean but only bemoaned its excessive pursuance for economic gains to the neglect of sustaining the environment.

Sharpley (2007) noted that despite the fact that tourism has the potentials of improving the economic conditions of nations and contributing significantly to the GDP of most nations, he argued that there is not enough evidence to support the trickledown effect to local economies or the poor. His arguments fall in line with the current findings as the promotion of tourism as a panacea for leveraging local economies is not the case in Ada. Perhaps, the leakage effects described by Sharpley (2007) and Vaugeios (1997) are significantly contributing to the case in Ada, although it cannot be linked to foreign factors of production, it can be seen in the light of individual operators making profits for themselves and the lack of collective efforts to support development at the local level. This argument fall in line with Sharpley (2007) that local tourism destinations that are financially constrained with poor infrastructure and human resource and a narrow economic base are very limited in adopting tourism as a development tool. The tourism industry of Ada is constrained with all the factors outlined by Sharpley (2007) and a lack of proper management organisation that will drive the industry stakeholders and advocate for community development.

4.3 Contribution of Tourism to Community Livelihood

4.3.1 Assessing Tourism Impact on Households

Household assets have been assessed based on the Natural, human, physical, social and financial resources.

4.3.1.1 Human capital

In Ada, there are conscious efforts to build the human base capital to become sensitive to environmental concerns, which will ultimately boosts tourism activities. The presence of the Songor Ramsar site and the COAST project in Ada has to a great extent built stakeholders and community member‘s capacity. As part of the Ramsar site projects currently under the management of the Ghana Wildlife Division of the Forestry Commission in Ada East, they undertake public education on environmental protection and fauna protections that have so far yielded positive results such as change in attitude towards harvesting sea turtles for meat, reduced cutting of vegetation and offering land for mangrove plantations.

The park manager of the Ramsar site of the Wildlife Division at Ada in an interview stated that:

> *“We mobilise some communities to clear the paths of river flow and replant trees along the river banks. Some now use the water for irrigated farming and other purposes. We also try to protect the animals in the area, if you don’t visit the communities in person, they don’t take your education serious. We do head counts of birds during visits and also check out traps set to catch them. When we realise this, we call on the Assemblyman to organise a forum where we show films in the night and explain the laws to them”.*

The COAST project on the other hand, also sought to adopt best practices in managing coastal tourism and to reduce the negative coastal tourism practices. More importantly the project seeks to build the capacity of local tourism stakeholders and practitioners in delivering quality services, enhance skills in service delivery, protect the environment, raise incomes and create alternative livelihoods of local

communities through awareness creations. The two projects have assisted in building capacity of the local residents and also stakeholders within the tourism industry.

4.3.1.2 Natural capital

The natural capital of communities varies across space and their use extensively could depend on how tourism is managed either with communities or solely by investors and developers. Again, the natural capital is assessed in two forms including how tourism has affected these capitals. Currently in Ada East, the natural resources available include lands, Volta River, the Gulf Sea and beaches among other natural tourist attractions. Ashley (2000) noted that one form of competition is when local residents have to compete with tourism developers and tourists over access to natural resources around them. Land in Ada has become very costly due to the growing tourism activities.

Financial access to land has seen an increasing trend, with foreign investors becoming the best bidders and owners of lands. Again communities in Azizanya and Kewunor complains of limited access routes to the Volta River due to the chain chalets style of building adopted by investors described by a respondent as a "bumper-to-bumper" building style (as shown in Plate 4.1). Further, in Kewunor community, an eviction threat currently faces the whole community as the land is supposedly been sold out to a foreign investor to develop into a tourist facility. Tourist's use of the Volta River for boat racing activities especially on peak tourists day (holidays) have also affected the local people's fishing activities. Tourists normally use speed boats and Jet Ski's on the river water which makes fishing at shallow waters impossible as the turbulence caused by the boats makes fishes move to deeper waters. A fisherman in an interview stated that

"Yes, these tourists when they ride on the water don't know the places we set out net traps, even where we indicate with sticks tied with cloth piece they don't see it, the motors of their machines tear our fishing nets. We have to chase them to pay us, which not all pay us back".

Community based tourism have also led to strengthening the community management of a range of natural resources. Ashley (2000) noted that this is most achieved when applied within a bigger institution-building and natural resource development programme. In the case of Ada, the designation of the Area as a Songor Ramsar site managed by the Wildlife Division of the Forestry commission ensured increase awareness of communities towards the need to protect the flora and fauna natural resources to their own benefits. The manager of the Songor Ramsar site under the wildlife division of the Forestry commission at Ada noted that:

"We have planted more than 10 acres of mangroves at Abrani, which the community used to win an international award about 5 years ago. The place was first a bare land and we organise them for the planting project. They were the same community that removed the grasses from the river channel and now they are getting more fishes from the river and would not allow for the cutting of fuel wood from the mangrove due to the benefits".

"Now you cannot harvest turtles and their eggs either in the day or night since all community members are now aware of the touristic benefits. We receive calls from local residents on poachers and we follow up to arrest them. Interested community members are also trained as turtle guides and night patrols for which they earn money after every tour with tourist.

Plate 4.1: Front View of Chalets Along the Volta River

Source: Field Data (2014)

5.3.1.3 Social capital

Social capital is defined as a resource upon which people draw in pursuit of their livelihood such as relationships of trust, social norms, networks and memberships of groups. Ashley (2000) noted that tourism has the potential of bringing both positive returns from social connections and community organisations as well as negative impacts in the absence of these two factors.

In Ada, the social capitals assessed were in both general forms benefiting communities and on individual basis who have led the drive towards tourism establishment. Tourism in Ada until recently has been promoted by individual interests and investors both local and foreign. Various interest groups have awakened in recent times to form strong community ties and connections with external interest groups. Ashley (2000) noted that positive social impacts are realised when linked to the Community Based Natural Resource Management (CBNRM) in Namibia. This is likely the case in Ada as the presence of the Ramsar site and COAST project has

improved social ties. Ada East has ascribed to international status recognition as a result of its designation as a Ramsar site and subsequent selection for the COAST project. In Ada tourism has begun from individual efforts and growing with the incorporation of communities and efforts to bring all stakeholders together. Although this appears to be a systematic step there are huge challenges with the full integration of communities into decision making. There still remains division among stakeholders as their target goals varies from that promoted by interest groups. With the varying challenges at each level Ashley (2000) proposed the assessment of social assets impacts at three levels

- Increased social capital of households within the communities: In Ada, community organisations undertaken tourism activities is virtually absent. Social cohesion between tourism and individual communities is entirely weak. Nonetheless individuals within communities have gained some enviable status within their communities due to their interests to develop tourism. The owner of the Maranatha Beach camp is a member of the Kewunor community. His ability to make the beach camp one of the most attractive places in Ada has carved for himself so much social status in the community. Again other individual community members who saw the need to unite all stakeholders have also gained for themselves recognition and status;

- Organisational strength and management capacity of community organisations: Generally in Ada, community members have benefited from the education and awareness creation on the protection of natural resources with some tourism staffs receiving training in management skills to

enhance service delivery in tourism through the Songor Ramsar site reserve and the COAST projects respectively. Unfortunately, community members have received less of these trainings to enhance their decision making power and to be recognised at management and organisational levels of tourism development in Ada; and

- Increase in community recognition and links with the external world: The tourism industry in Ada is relatively young and still remains highly unorganised. Nevertheless, the industry has gained much recognition offering opportunity to stakeholders to engage with external links, including Government officials, political leaders and neighbouring communities. Tour packages as seen on the Ada Tourism Services flyers, includes visiting "Rasta" an old fetish shrine at Anyanui and the Pottery industry at Vume near Sogakofe. This gives it stronger links with neighbouring communities. With a more organised tourism industry in Ada, there will be greater social links among community members, the stakeholders and policy makers. This will also go a long way to empower local residents and development of the industry as a whole.

Tourism also has the ability to exacerbate conflicts and undermine social capital. Ashley (2000) noted that conflict could arise both within and between communities. In Ada, such conflicts exist and have the potential to undermine social capital and strengthening external ties. The Kewunor community and the Maranatha Beach Camp have resisted any attempt by some chiefs and the District Assembly to evict them from the land on which the community is settled to make way for the development of a tourist facility to be built on that land. This has generated heated tension between the

village and its neighbouring communities. The chiefs in question are reigning over the whole Ada area, whiles the Kewunor community is a purely migrant community of Anlo's from the Southern Volta receiving backing from other chiefs in Ada not to succumb to any eviction threat. To this extent therefore, any indigenous Ada person entering the Kewunor community is seen as a spy and therefore watched closely as he moves through the community. Ashley (2000) noted the difficulties in assessing and measuring social capital changes on sustainable livelihoods among unorganised household but nevertheless noted that it has significant influences on their livelihoods. It is therefore important to acknowledge the importance of social change among communities and their livelihoods.

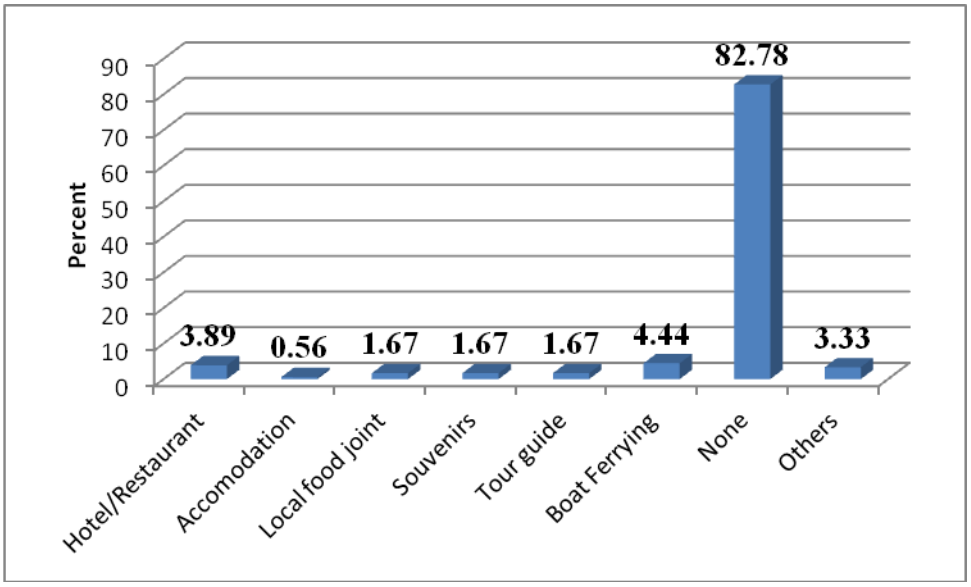
4.3.2 Tourism Impact on Activities and Strategies

4.3.2.1 Complementing other activities

Ashley (2000) noted that tourism should have the power to complement the traditional activities of local communities rather than be used as a total substitute for rural livelihoods. This includes among others boosting the assets base of local residents. In Ada, the tourism industry is very small and offer limited employment to the local people. From Figure 4.6, majority of residents accounting for 82.78 percent of total respondents are engaged in their traditional livelihood activities including fishing and trading. Tourism engages less than the remaining 18 percent of respondents. But this few who are engaged in tourism related activities nevertheless have continued to make some good gains. With the population as predominantly fishermen and women engaged in fish processing for sale and also trading during off seasons. Tourism opportunities have been capitalised on by some residents. In Azizanya a fisherman

left one of his wooden boats for carrying tourists on river tours, this money he noted assisted him to boost the trade of the wife and complement home needs. Some young boys on weekends join others to take tourists on tours to raise some money which is invested into buying pre-mix fuel for deeper fishing expeditions during the weekdays. Despite the small number of local residents currently employed directly by the tourism industry, they nevertheless are generating some income to support home incomes.

Figure 4.6: Number of Local Residents Employed by Tourism



Source: Field Data (2014)

4.3.2.2 Conflicts between tourism and traditional livelihoods

Ashley (2000) noted the possible conflicts between the establishment of tourism and traditional livelihood activities among local populations. In Ada, community involvement in the management and organisation of tourism is absent whereas among the stakeholders there are more issues to constituting a united association. There are nevertheless isolated cases of conflicts but these are rather insignificant.

The Table 4.4 shows how tourism can positively and negatively affect livelihood activities on a general picture of situations only not considering the individual variations.

Table 4.4: The Effects of Tourism on Livelihoods

Livelihood Activities	Opportunities	Challenges
Fishing	1. Tourists buying fresh fishes at the fishermen landing points. 2. Re-investment of cash revenues 3. Seasonal shifts to boat riding and temporary jobs in chalets as securities and boat riders. 4. Hotels/Guesthouses/resorts getting fish supply directly from fishermen	Speed boats and Jet Ski's Destroying fishing net traps Peak visitation hours affecting fishing in near bank or shallow water .
Trading	Wider market for local goods and services. Market for Guesthouses and hotels.	Increasing costs of goods and services due to tourists presence
Employment/SME's	Transferable skills Additional source of income Increasing market size	
Livelihood strategy/ diversify off-fishing season	Source of additional income	
Minimise Risk		Risky investment Leakage effects
Maintain Liquidity and Flexibility		Seasonal Earnings High start-up capitals

Source; Field Data (2014)

4.3.2.3 Tourism fit with livelihood strategies

Ashley (2000) noted the importance of understanding the extent to which tourism will fit with the underlying household livelihood strategies. Tourism fits well with two key strategies including coping strategies during off fish season and diversifies the

livelihood options of local communities in Ada. Again, any investment in tourism is also seen to conflict with two cases, including minimising risk and maintaining liquidity. Tourism is a sector with high risk due to seasonal variability in tourists market and long term investment yields (Ashley, 2000).

4.3.3 Contribution to Livelihood Needs and Priorities

The section highlights the goals in the sustainable livelihood framework and how tourism has contributed to the realisation of these outcomes. Although, Ashley (2000) noted that income outputs in terms of cash remain the sole most important goal for local residents, it nevertheless goes beyond.

4.3.3.1 Cash income

Ashley (2000) noted that tourism generates basically 3 levels of income for individuals and households with a fourth one benefiting the larger community.

- **Regular wages for those with jobs**: Tourism generates jobs for local residents within its varying sectors. Although Ashley (2000) noted these jobs are rarely permanent. Some sections of individuals are employed in the hospitality industry, boat cruising, turtle and tour guides, chalet boys, securities among others. Although, the total employment offered by tourism in Ada is still very low, those employed are earning appreciably to help boost their income levels and generate multiplier effects in the local economy of Ada. In an interview with a boat operator, he indicated that

  "My boat can carry 50 passengers but for security reasons, we are asked to take only 30 tourists at a time. We normally don't charge per head, it's fixed for a trip. We normally take between 60 to 80 cedis for a trip. We take the

group to their places of choice and bring them back. But if to the Maranatha beach camp where they delay, then we leave them to continue business until they are ready, they will give me a call to come and pick them. If you are lucky a day you could get more than 5 trips on weekends"

- **Casual earnings**

  This group refers mainly to the local souvenirs industry who are engaged in wood carvings, local foods (coconut, palm wine, local gin and fruits) among others.

  The plate 4.2 shows wood carvings by a local on sale at the Tsarley Korpey Beach Resort to tourists. The earnings of these groups may be small as compared to those in the permanent employment section as they could depend more on regular wages. Although Ashley (2000) noted that, this industry could offer more employment to locals, it's not really the case in Ada as the number of people engaged in this sector remains small and perhaps insignificant.

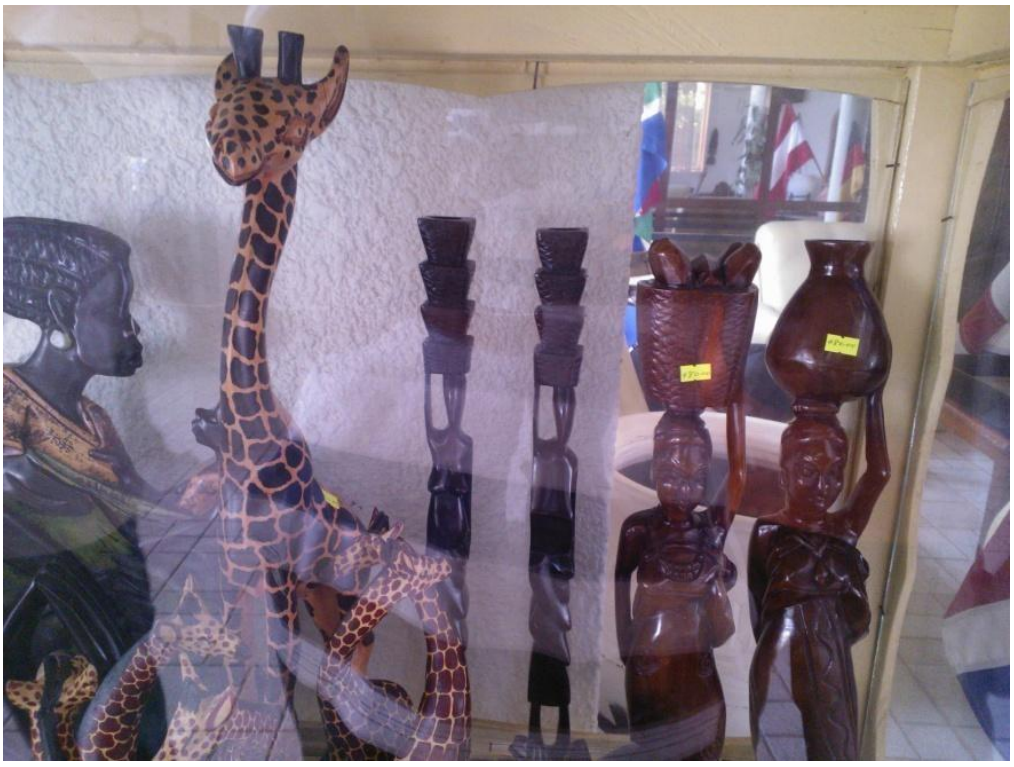
- **Profits from ownership of tourism enterprises**

  Although there are small local enterprise ownerships, there are few in Ada as alluded to by Ashley (2000). However, in Ada a number of the bigger investments are owned by individual community members and others as joint ventures with either community member or an external investor. The famous Tsarley Korpey Beach Resort is owned by an individual who comes from Ada, same can be said for the Maranatha and Cocoloco Beach camps.

  The Dreamland beach camp on the other hand is a joint venture between a local and a German business man. Nevertheless smaller enterprises including spots and bars are new areas where individuals are venturing into Ada. This

mostly is found in the capital Ada Foah where business is well conducted and patronised. These enterprises however are not found in Kewunor and Azizanya due perhaps to their remote locations from the main town and small income base.

Plate 4.2: Carvings on Sale at Tsarley Korpey Beach Resort.



Source: Field Data (2014)

- **Collective income earned by community**

Ashley (2000) defines this as a collective income earned by a conservancy or community trust when it leases tourism or hunting rights, profits or bed levy's from a tourism enterprise in the area. Currently in Ada, there is no known collective interest that is targeted at making returns to benefit communities. Even though many complain about the lease and outright purchase of

community lands for tourists enterprises yet its dividends and how it is spent is still unclear to community members.

4.3.3.2 Decreased vulnerability

Tourism has as seasonal attitude as well as variability in the season of traditional livelihoods. Households in Ada could become highly insecure and vulnerable to seasonal fishing conditions whiles women quickly capitalise on trading opportunities and men depending on conditions of either the sea or the river or travel out for fishing expeditions in deep sea of neighbouring communities and sometimes neighbouring coastal countries. Table 4.5 shows fishing and trading as the major activities for Kewunor and Azizanya. Tourism offers plausible option to this income vulnerability as people turn to new opportunities created by the industry. In Kewunor and Azizanya, fishermen are now investing in wooden boats with outboard motors for tourists river tours to attractions. Trading is also becoming additional option during seasonal periods due to the larger market offered by tourist presence among others. The capital Ada Foah is seen as less vulnerable as most people are not into fishing which is seasonal but rather engaged in trading which is an all year round employment. The Table 4.5 show that local residents in Ada Foah are mostly engaged in trading (69.6%) and other activities (27.9%) including employments in the public and civil servants sector of government.

Table 4.5: Livelihood Options Available to Host Communities

Community	Counts/percentages	Agriculture	Fishing	Salt mining	Trading	Others	Total
Ada Foah	Count	1	1	1	62	24	89
	% within COMMUNITY	1.12	1.12	1.12	69.66	26.97	100
Kewunor	Count	0	11	0	12	4	27
	% within COMMUNITY	0	40.74	0.00	44.44	14.81	100
Azizanya	Count	0	15	0	22	1	38
	% within COMMUNITY	0	39.47	0.00	57.89	2.63	100
Total	Count	1	27	1	96	29	154
	% within COMMUNITY	0.65	17.53	0.65	62.34	18.83	100

Source: Field Data (2014)

4.3.3.3 Food security

Basically, income earned from tourism apart from reinvestment, are used to supplement the purchasing of food stuffs to sustain the home food needs. Ashley (2000) noted that in Namibia, it‘s mainly cash income realised from the casual income group that are more important to assisting in food security than the permanent wage earners. This finding is similar to the case in Ada where those engaged in trading especially in Azizanya community and Kewunor noted that cash realised from their small sales are used to purchase food for everyday meals and a factor that accounts for many inability to save enough for the future.

4.3.3.4 Cultural benefits

The rich cultural diversity of the heterogeneous ethnic backgrounds of populations in Ada is one that is boosting cultural benefits. The bigger Asafotu festival celebrated by the people of Ada annually in August attracts Ghanaians and international tourists and policy makers to Ada. At the local community levels, the people of Kewunor with

some individuals from neighbouring Azizanya organise cultural groups which performs cultural displays to tourist at the Maranatha beach camp.

The owner of the Beach camp have therefore dedicated Friday nights as 'bonfire' nights, where fire is set up amidst drumming and dancing to entertain tourists staying overnight. This as noted by Ashley (2000) in Namibia can strengthen cultural prides among local residents. However, the risk of devaluing the local culture has not been established in any of the communities under study. A woman at Kewunor stated that

> *"Tourists rather love to have a feel of our local culture since they are fed up with their exotic and one way lives in the big cities. They relax and enjoy themselves as we offer them good traditional music and dances".*

4.3.3.5 Pride and empowerment

There is little of empowerment enjoyed by locals of Ada, as tourism is controlled by affluent individuals from the community and foreign investors. Large number of respondents denied any engagement of local community members in the decision making process in managing and organising tourism in Ada. This situation could be linked to the lack of a proper organisation to lead the course for local community engagement in tourism at Ada. All community members are highly disengaged from the management and decision making process as established in the previous chapter. There are current efforts to form a unified Association of all stakeholders to advocate for local development through tourism contribution.

4.3.3.6 Physical security

Local residents are very secured physically in their environment in all three communities in Ada, as the presence of tourists does not in any way contributes to any form of danger to their physical well-being.

4.3.3.7 Policy and institutional influence on livelihood impacts

The lack of policies and implementing institutions has left most local communities to their own fate. Much have not been known at community levels in Ada East District on the existence of any policy or institution working to assist people in improving rural community livelihoods. Although most of the people expressed high hopes in the growing tourism industry, there is little institutional influence on the contribution to local development hence the absence of any tourism led project in Azizanya and Ada Foah, with only Kewunor benefiting from a school project from the ingenuity of their own son who established the Maranatha Beach Camp.

This notwithstanding, a number of institutions exists including the Wildlife Division of the Forestry Commission focused on environmental protection, the Rural Enterprise Project situated at Ada Foah but with little influence on the provision of employable skills to youths in the villages due to institutional challenges. Tourism activities apart from the heavy presence of the wildlife division with focus on the environment remain highly unregulated to transform the livelihood opportunities of communities. Most tourism industry operators do not receive adequate checks or totally under no checks except for the hotels who are sometimes inspected. Even the inspectoral team from the hotels association in Accra concentrates more on the bigger operators of hotels and guesthouses and resorts neglecting the smaller pubs and drink

spots to units under the District Assembly who are almost non-functional. The National Tourism Development Plan of Ghana is far from been implemented at the community levels with heavy focuses placed at the national and regional levels.

Table 4.6: Impacts of Tourism on Livelihood Outcomes

Activity	Negative impact	Positive impact
Cash Income	Start-up income	Additional avenue to earn cash through employment, trade, tourism enterprises.
Food Security		Cash income from individual sources
Empowerment	-Conflicts within and between communities undermines social capital. - Control of tourism development. - Exploitation of local resources by outsiders.	- stronger social and human capital - recognition of local community role by outsiders and government institutions - influence over control of local resource - make decision on outsider‘s extent of involvement in tourism development.
Decreased vulnerability	-competition for other livelihood options during seasonal periods	Earnings from off seasons of fishing if conditions of river or sea allow for fishing.
Cultural Values	Risk of devaluing culture and commercialising culture	Increase community pride Reviving old local traditions Bring community members closer than before
Physical Security		Good health conditions to continue working

Source: Field Data (2014)

4.4 Proposition 2

The research established that, the presence of good attractions does not automatically set destination communities on the path of economic development. The Ada East Tourism industry is blessed with varied attractions but its contribution currently to the local economy still remains highly insignificant. The inability of the industry to support local infrastructural development, provide permanent and well paid jobs and becoming a livelihood for local residents among others demonstrate the fact that, there are other factors perhaps more important than the mere discovery of resources. The research outcome showed that, the lack of organisation among stakeholders, the absence of appropriate policies and regulations, the chaotic land ownership system and the neglect of local communities in managing tourism remains the key factors affecting the vertical growth of tourism in Ada East Tourism Industry. The second proposition therefore is not supported by the findings of the current research.

4.5 Summary

This chapter is made up of three main sections. The sections are composed of the characteristics of community respondents, the perceptions of host communities on tourism development and a livelihood assessment in the Ada East Assembly. The first section discussed the characteristics of the respondents used for the community survey. Respondent‘s ages, levels of education, length of stay in community of resident and their sex. The second section addressed issues relating to the perceptions of host communities on the contribution of tourism to local development. The contributions were assessed through resident‘s knowledge on tourism, growth in local

tourism in Ada East District, the provision of infrastructure and employment avenues in the local economy.

The third and final section assessed the contribution of tourism to community livelihood in Ada using a sustainable livelihood framework adopted from Ashley (2000). To analyse thoroughly the community's livelihood, the human, financial and social capitals were first assessed. The study also examined the impact of tourism on activities and strategies such as complementing other activities, conflicts between tourism and traditional livelihoods, tourism fit with livelihood strategies, livelihood needs and priorities, cash income and decreased vulnerability. Also, tourism impact on food security, cultural benefits, pride and empowerment, physical security and the policy and institutional influence were also assessed.

CHAPTER FIVE

VULNERABILITY AND COPING STRATEGIES FOR COASTAL EROSION AND TOURISM DEVELOPMENT

5.0 Introduction

Coastal zones remain highly vulnerable to a number of weather and human related hazards due to its complexity. The study examined the various geological, geomorphological, soils and vegetation characteristics of the coast that together contribute to the erosion along the coastal zone. In other to unravel the underlying factors that contribute to the vulnerability of Ada East coast to sea erosion, the chapter establishes the rate of sea erosion and shoreline movement. The results were then subsequently discussed with its implications for the tourism industry. The chapter finally discusses the coping strategies adopted by stakeholders to reduce vulnerability of the tourism industry to sea erosion.

5.1 Understanding the Characteristics of the Ada East Coast

5.1.1 The Geology of the Ada East Coast

The coast of Ada is generally plain and sandy devoid of rocky headlands extending into the sea to serve as breaks to longshore waves and strong tides actions along the coastline. These characteristics affect coastal process and may account for the variations in coastal processes. From Figure 5.1 the general geological composition along the coast of Ada can be observed. The Ada East Coast covers about 22.53 km of the entire 45 km stretch of the Ada Coast and is made up loose sands, clay, gravels and marine and lagoon fluvial deposits. The Eastern part of the coast is generally made up loose sands, clay and alluvial deposits all from recent quaternary processes. The central section of the coast is made up of clay and loose sands with the Western

section made up of gravels, clay and consolidated sands. With these compositions the Western section of the coast remains more resilient to the coastal processes of wave and tidal actions than the Central and Eastern sections of the coast. The geological map of Ada East Coast illustrated in Figure 5.1 is based on data collected through exploratory literature reviews, geological map of Ghana from the Department of Geology of University of Ghana and transects walks along some sections of the coastal stretch under study.

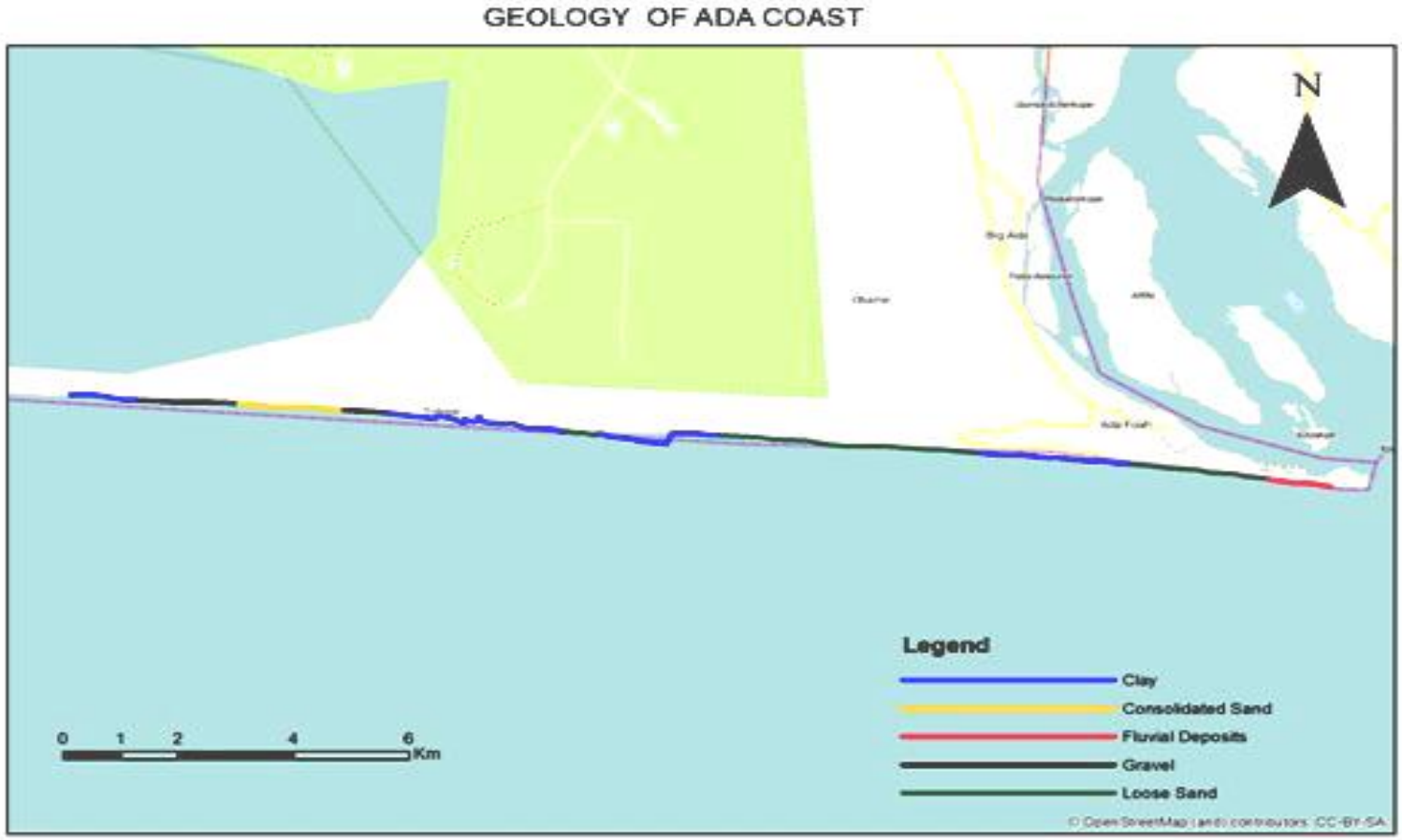
5.1.2 The Geomorphology of the Ada East Coast

The coastal stretch of Ada East has undergone several coastal processes that accounts for its current geomorphology. Figure 5.2 shows the geomorphological nature of the coast of Ada East District after Appeaning Addo (2013). The geomorphology of the entire coast remains generally homogeneous, with wave actions experienced along the entire coastline, with land erosion occurring at significant sections. Beaches along the coast have remained generally poorly developed with deltaic features at the extreme eastern section near the estuary. The absence of rocks along virtually the entire coast is also a notable characteristic.

5.2 Residents Perceptions on Coastal Erosion.

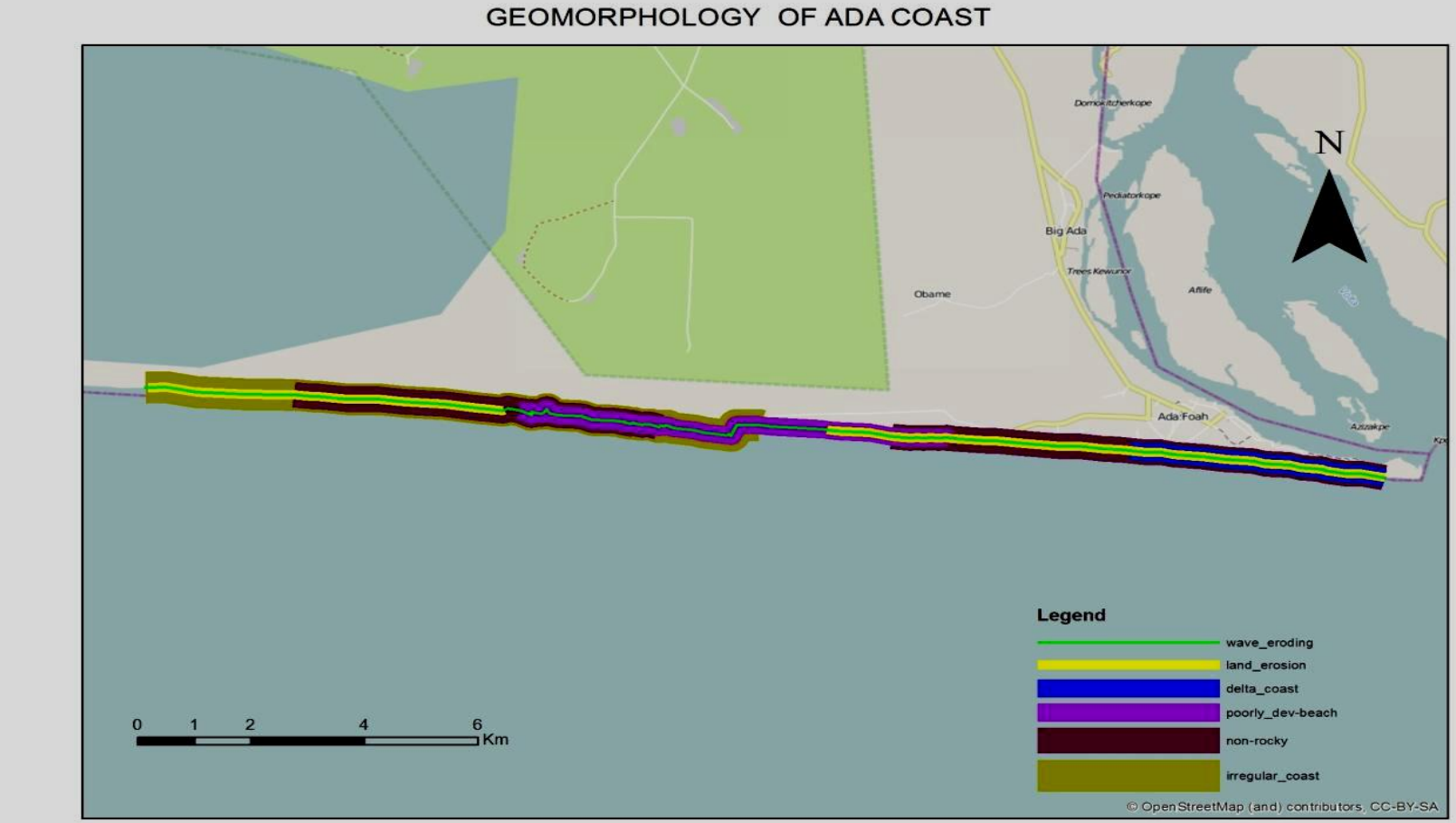
A critical problem that has been a bane to all residents of Ada has remained sea erosion; especially those communities located along the immediate coastline or beaches have suffered erosion and inundations for years. The question as to whether sea erosion has been a source of worry to respondents was rather met with high indifference in the responses. All respondents unanimously indicated that the sea is a serious source of worry for every resident in all three communities.

Figure 5.1: Geology Map of Ada East Coast



Source: Based on Field Data Collected (2014)

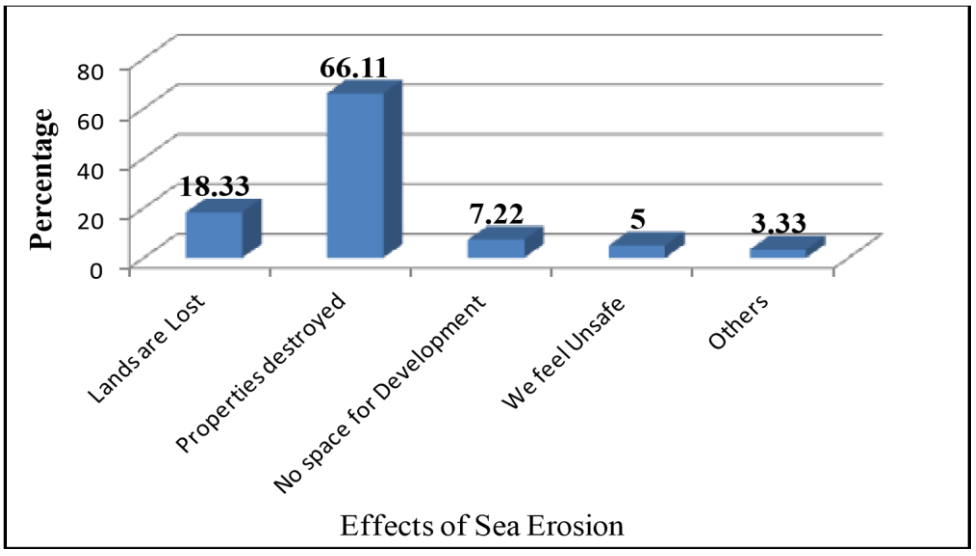
Figure 5.2: Geomorphology Map of Ada East Coast



Source: Based on Field Data Collected (2014)

From Figure 5.3, most local residents representing 66.1 percent of total respondents noted that they have lost their buildings and properties to the sea. They mentioned that the problem is not a thing of the past, but they continue to face worries from the ravaging sea during some periods of the year if not daily. Again, 33 respondents representing 18.3 percent of total respondents further noted the loss of vast expanse of agricultural lands to the sea. Further, 13 and 9 respondents representing 7.2 percent and 5.0 percent respectively noted the lack of land space for development and the feeling of been displaced by the sea at any time as other worries. These worries are what deter most local residents of making long term plans in the areas they reside. The sea erosion problem appears to be at heart for most residents as the emotions and expressions shown during the data collection showed that they are in dire need of sustainable solution.

Figure 5.3: Local Residents Perceptions on the Effects of Sea Erosion



Source: Field Data (2014)

In other to understand the current situation of sea erosion along the Ada East Coast, the study using Landsat TM+ images of 1985 and 2013, was able to establish that, erosion has continually affected the entire stretch of the coast with some sections experiencing deposition. From Figure 5.4, the shoreline of Ada has remained so unstable over the entire period. The Net Shoreline Movement (NSM) graph shows that, the least area of shoreline receding stands at 3.47 m with the highest been 124.88 m. The coast has also gained some land through deposition with the shoreline positively advancing at minimum of 2.08 m and a maximum 205.44 m. It is worthy to note that the shoreline advancement is seen within a particular section of the entire coast whiles the entire coast can be generally described as experiencing a receding shoreline between the periods under study.

5.2.1 Rate of Shoreline Movement

The study also sought to find out the trend of the rate of erosion using two years as end points. The two images used were all Landsat from the USGS database representing 1985 and 2013. After going through series of processes the EPR was arrived at and used to explain the rate of erosion during the period under study. From the Fig. 5.4, the graph shows the general situation along the Ada East Coast since 1985 to 2013. Between the two periods under study, the coast has experienced more erosion with the least eroded area recording 0.12 m/year and the highest erosion occurring at 4.34 m/year. Erosion trends has continued to be slowly increasing most towards the Eastern section of the coastline near to the Estuary, with sections along the Western section intermittently witnessing high rates of erosion. Along the stretch of the coast under study, some areas have also recorded deposition between Lolonya and Totope where the coastline is influenced by the dynamics of the Songor lagoon

with the least area recording 2.08 m/year and the highest deposition occurring at a rate of 205.44 m/year. The area is likely to receive high sediment discharge from the lagoon area as the irregular coastline along the stretch contributes to sediment trapping causing depositions around that section. The presence of mangrove vegetation along the Songor lagoon region also makes the area relatively resistant to oncoming waves and tides culminating in reduced erosion along the section.

5.2.2 Rate of Erosion

Erosion along the Eastern coast of Ghana has been established to be occurring over seven decades (Ly, 1980; Dickson & Benneh, 1995; Boateng, 2009). Recent studies by Kusimi and Dika (2012) noted that, sea erosion along the Ada coast has started since 1926 to date. The results from the current study do not differ so much from earlier studies in the area. The findings of Kusimi and Dika (2012) only place the current study in a better perspective to appreciate the current erosion trend of the region. Their study was conducted during the periods 1926 to 2008 using the oldest available ground survey sheet in 1926 and Landsat ETM+ 2008 image. The study revealed that, the shoreline of Ada has receded throughout the period without any advancement. This implies that over the past 82 years the coastline of Ada generally have continued to erode at a rate of 0.8 m/year as the least and reaching 8.66 m/year at its maximum.

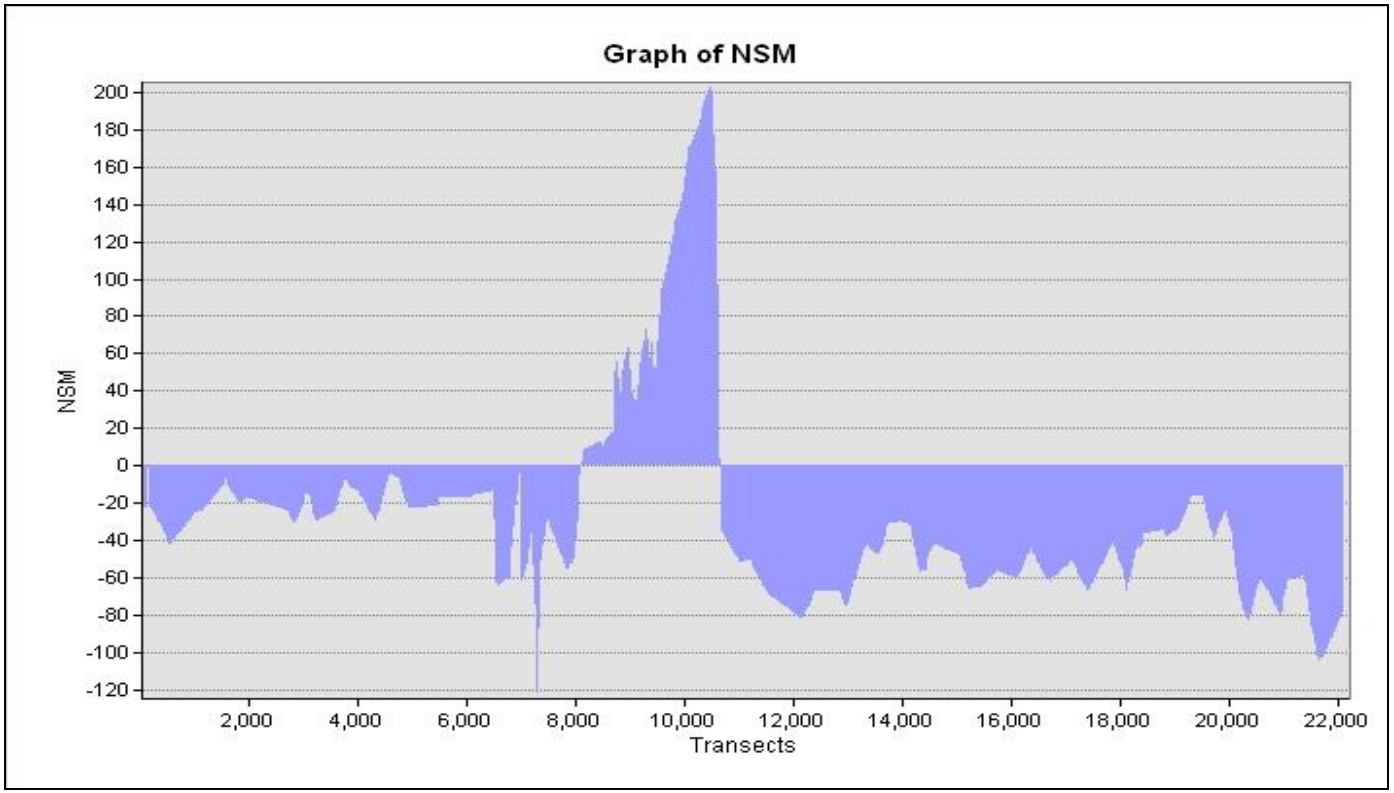
Comparing the results of this study to that of Kusimi and Dika (2012), one could draw conclusions that, the areas that have experienced advancement in the shorelines and high rates of deposition could have only occurred between 2008 and 2013 i.e. possibly after the year 2008 when Kusimi and Dika (2012) study has ended. The sharp

decrease in the rate of erosion can be attributed largely to the construction of the sea defence project. The construction of seven groynes began in May 2012 and ended in May 2013 with additional storm barriers of height 6m and +6m at very low beach areas. The 2013 shoreline assessed from the USGS website (http://glovis.usgs.gov) was acquired on the 24th of December 2013. The period between completion of the laying of groynes and the acquisition date of the image is significant for any changes to occur. This has also been confirmed by the Ghanaian representative on the Sea Defence project from the Ministry of Water Resource Works and Housing (MoWRWH) who indicated that, the groynes when inspected and compared with the initial periods they were laid exposes sand sediments beginning to accumulate in between these groynes.

He stated that as the groynes were built with an increasing length towards the Estuary which means that as sediments were transported to the east of the coast, those trapped by the groynes cannot move on since the additional increase in the length of the next groyne acts as an obstruction.

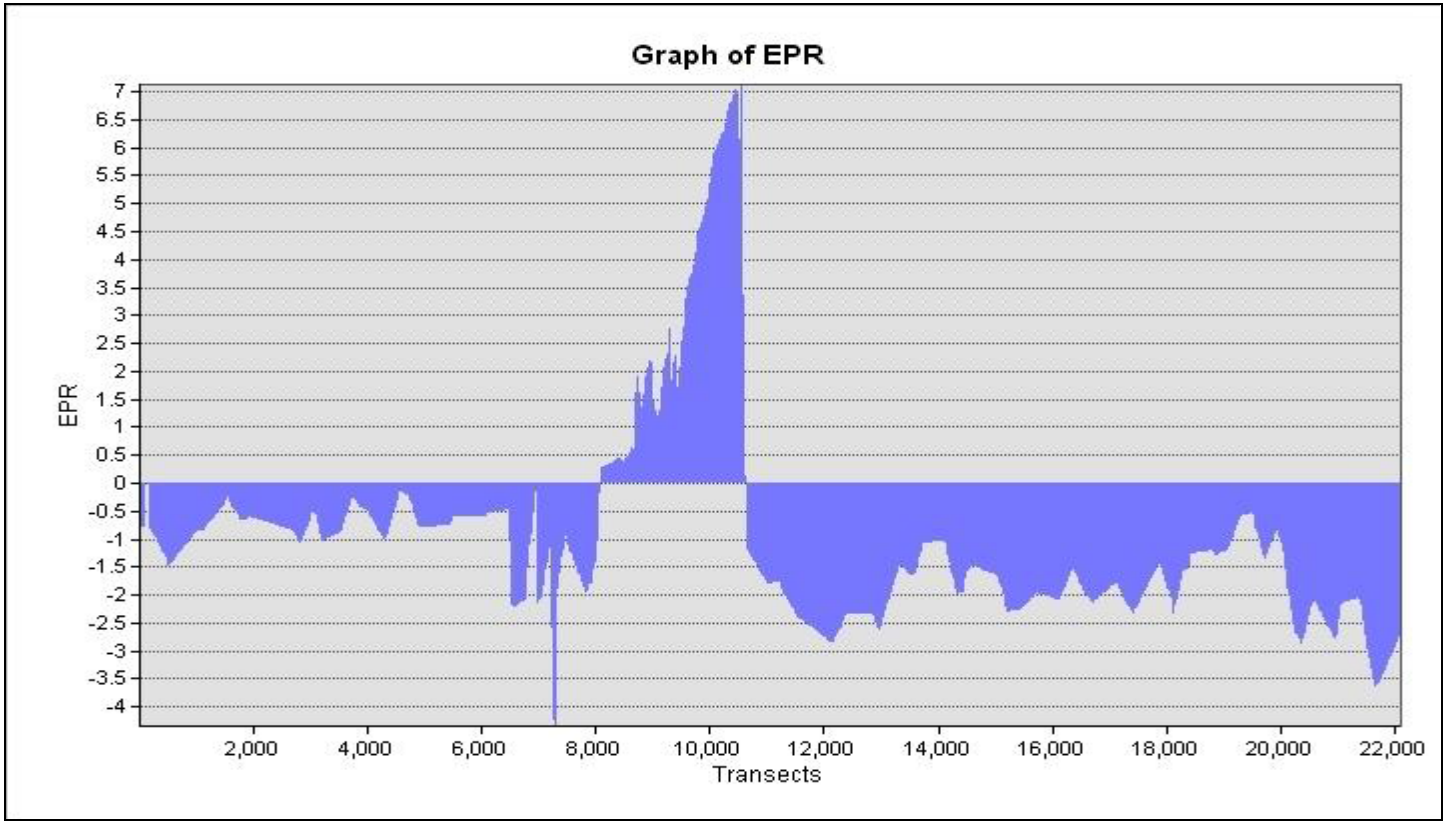
Additionally, a seabed evolution effect studies was conducted by the Dredging International (DI) at groyne D which shows the accumulation of sand between 22nd January 2013 and 02 February 2013 (Project progress presentation to MoWRWH assessed through MoWRWH). Additional information from the household surveys conducted also points to the fact that residents were noting some changes close to 8 months after the completion of the first phase of the project (Figure 5.6).

Figure 5.4: Net Shoreline Movement (NSM)



Source: Based on Field Data Collected (2014)

Figure 5.5: End Point Rate of Erosion (EPR)

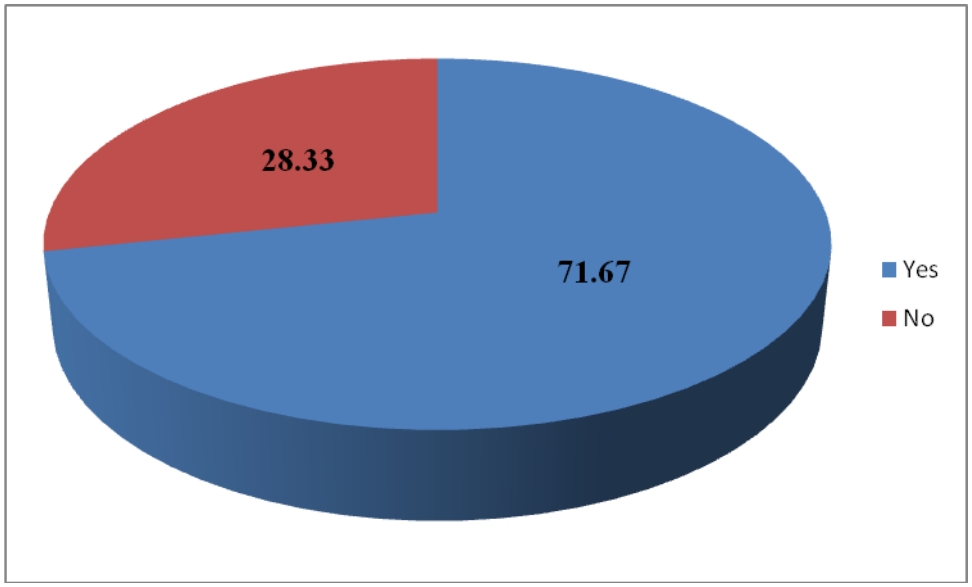


Source: Based on Field Data Collected (2014)

Local residents explained that, since the completion of the phase 1 of the project, there has been a drastic reduction in the thundering sound produced by the waves, fishermen especially noted the accumulation of sand along the Azizanya to Kewunor stretch of the coast. Coastal wave actions and tidal influence along the Ada East coast have continued to increase and hit the coastline directly at angles. The increased wave actions experienced is as a result of the continued increase in the length of the fetch distance from the Cape Three Points. The continued erosion along the coast again can be attributed to the absence of vegetation, low topography of the coast and the absence of rocky headlands that will act as a break on incoming longshore drift from the West towards the East. The geological composition of the Ada East coast comprising mainly of loose sand, clay and gravels which are all easily removable by wave actions along the unprotected coastline together accounts for the continues erosion.

The continued erosion along the Eastern Coast of Ghana narrowing to Ada East Coastline has been linked to human influences; of most concern was the construction of the Akosombo Dam (Ly, 1980; Dickson & Benneh, 1995). Boateng (2010) in his study on estimating the fluvial sediment input to the coastal sediment budget noted that prior to the construction of the Akosombo Dam, the total sediment discharge of the Volta River stood at $71* 10^6$ m^3/a in 1964 and reduced sharply to $7*10^6$ m^3/a. The drastic reduction in total sediment supply from the Volta River to the coast remains the single most important factor contributing to the ravaging sea erosion along the Eastern coast and Ada East District coast.

Figure 5.6: Residents Perceptions on the Sea Defence Project



Source: Field Data (2014)

5.3 Measuring Vulnerability Along the Coast Using the Coastal Vulnerability Index (CVI)

The study from the previous discussion has established the continuous erosion recorded along the coast till present. Again, the previous section established that, the coast has recorded some amount of deposition along the sections between Totope and Lolonya around the Songor lagoon area. The study developed a number of variables after Appeaning Addo (2013), including the mean elevation, mean shoreline displacement, local subsidence trend, tidal range and maximum significant wave height. Also the geology and geomorphology of the coast have been established from the tables provided in Appendix A1. Based on the three different tables established, new risks have been developed into relative risk factors for the three sections of the coast. From the final table, the CVI was computed to determine the relative vulnerability index for the three geomorphic sections. Figure 5.7 represents the map showing areas of high risk along the coast.

5.3.1 Vulnerable Areas along the Coast

Figure 5.7 shows that larger stretch of the coast remains highly vulnerable from the central section towards the Eastern section. The Western section however has been classified as a low risk area. The Vulnerability explained here refers to the relative susceptibility of the coast line to sea erosion hazard. The Coastal Vulnerability Index value (CVI) computed for the western section was 4.93 while the Central and Eastern sections recording 13.15 and 28.28 respectively. The CVI found in the current study fall between 4.5 and 28.5 with a mean value of 15.45 which is significantly higher than the CVI calculated for the Accra coast which stood at a mean value 7.7 (Appeaning Addo, 2013). The vast variation in the mean values of the two coasts is justified by the intense erosion on the eastern coast and its soft geology and geomorphology. Generally, the conditions influencing the Ada East District coast are very different from that along the Accra coast. The mean CVI value (15.45) computed for the coast falls within the high risk region of the ETC-CAA (2011) classifications cited in Appeaning Addo (2013). It implies the coast is generally vulnerable to sea erosion. The high values recorded for the Central and Eastern sections of the coast can be attributed to a number of factors. These factors include the generally low topography of the two sections with the coast virtually exposed without any vegetative protection, with few coconut trees and shrubs along the Volta Delta and the Songor lagoon areas.

The two sections are also characterised with a very soft geology comprising of sand, clay and gravels that are easily erodible with wave heights from 1.39 m and reaching heights of 3 m (Appeaning Addo, 2010). A notable feature along this stretch of the

coast is the long sandy shorelines with no rock headlands that could intercept and break down strong currents of longshore incoming easterly waves. On the other hand, the situation on the Western section of the shoreline is not so different from those earlier discussed. Its low vulnerability value can be attributed to a number of factors.

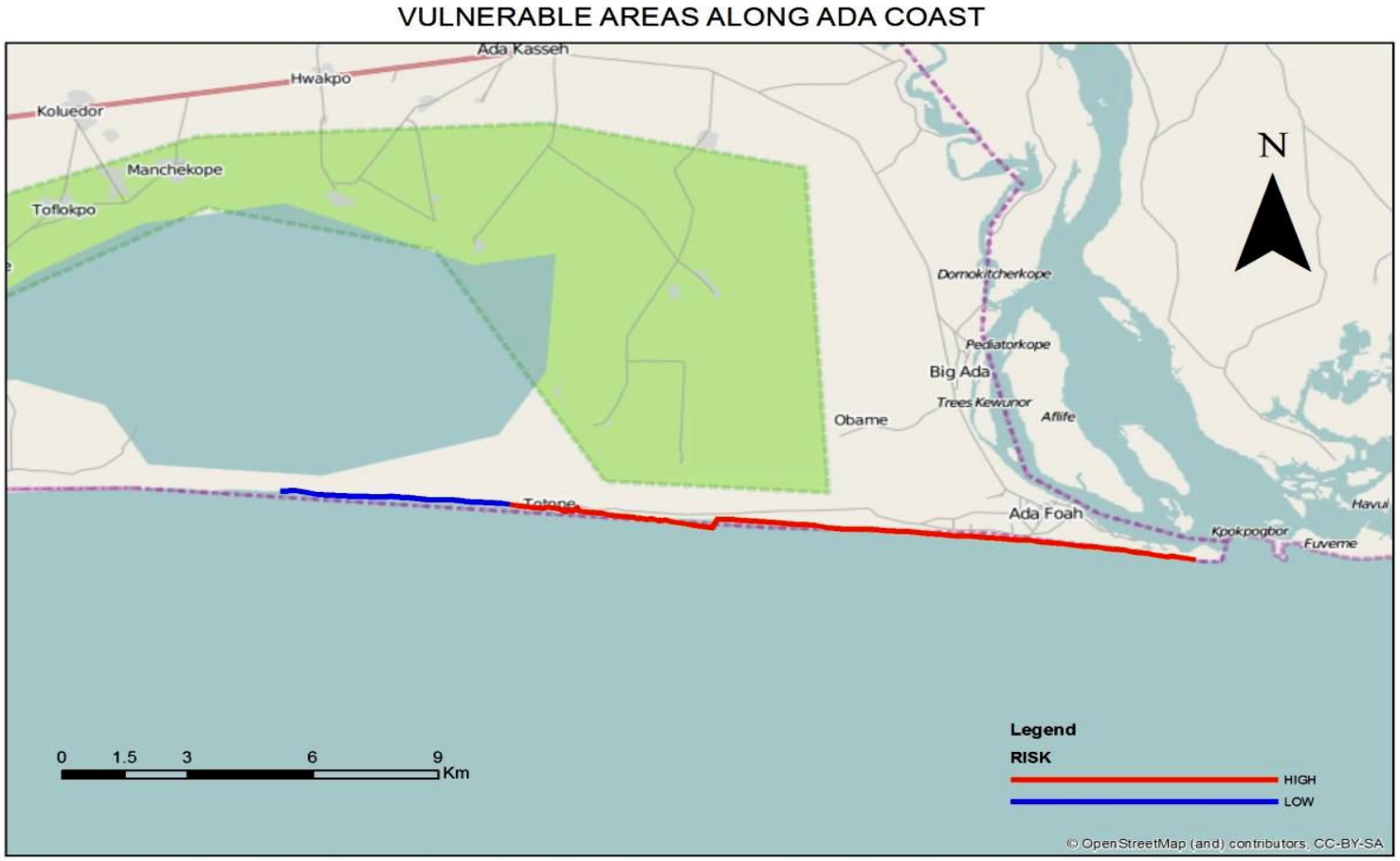
The Western section is on a relatively higher elevation with a more resilient geology than that towards the Eastern section. The geological composition along the western section of the coast is made up of consolidated sand and heavy clays coupled with the irregular shape of the coast line around the stretch. These conditions contribute to modifications on the general influence of wave actions which tend to increase strongly towards the eastern section of the coast. These combined conditions along the Western section of the coast contribute significantly to the low vulnerability along the coastal stretch.

5.4 Implications of the Coastal Vulnerability Index (CVI) for the Ada East Tourism Industry

5.4.1 Implications of the Vulnerable Coastline for Host Communities

In every tourism industry, host communities play a vital role in the management, protection and driver of the industry. Where tourism attractions are owned by communities, they become essential stakeholders in the management and organisation of the industry. The areas noted to be highly active zones for tourism activities along the Ada East coast are mostly from the central to the eastern sections of the coast. Communities located along this stretch of the coast include Kewunor to the extreme

Figure 5.7: Risk Map of Ada East Coast



Source: Author's Construct (2014)

east near the estuary, followed by Azizanya community and Ada Foah westwards towards the Songor lagoon. Since time immemorial, sea erosion has remained a major problem to the people of all three communities with Azizanya suffering the most severe effects. In an interview with the chief of Azizanya, he noted that

> *"The sea erosion as it is today started long ago as far as Gold Coast time, and Azizanya community today is about the 3rd or 4th. The first Azizanya is gone long time ago before the second in which I was born in 1936. Then where I was born, the sea erosion continued till around 1943 during the Second World War, we were affected, in my presence and we moved in to the 3rd place of settlement in 1979/80, the sea affected us again and we have to move to this place as our fourth home (4th)".*

The situation has deteriorated to the extent that host communities hopes and freedom to carry out activities have always continued to be in fear as they always believe the sea could take over their investments once again. Similar sentiments were expressed during an interview with the head of NADMO of Ada East stating:

> *"There used to be a large expanse of land that separated the sea and the river where all these communities are settled. But as the sea continues to erode the land, communities' have moved towards the river. This phenomenon has led to a reduction in the land available for community settlement. The Lolonya kope here we see today is the second settlement whiles Azizanya is about the 3rd or 4th since the community began".*

Likewise, the Kewunor community have also suffered from the severe and ravaging effects of the sea over the years. The community now is located on a dredged sand Island found between the extreme east coast and the Volta River. A critical field

observation made showed the land squeeze factor that is affecting these communities. The land squeeze factor sought to explain that as one moves from Ada Foah towards the Estuary at Kewunor, the land continually gets narrower between the sea and the river. Kewunor being the last community sees itself now a stone throw between the sea and river. During casual interactions with some community members, they continually ask the question, if we are affected by sea erosion and flooding again, where do we go next? To others the only solution is to move out of the zone and resettle among others in the bigger communities, a situation liable to cut family ties and community resilience. Those mostly along the coastal stretch of the coast in Ada Foah have also suffered severely from the coast. Houses were noted to be several metres away from the location of the current district assembly but this have all been lost to the sea with families migrating out of Ada or resettling into other communities. Fears for the destruction of the sea have led to a number of houses along the Ada Foah coast unoccupied. Host communities forms essential parts of the stakeholders in any tourism industry and the case of Azizanya, Kewunor and Ada Foah are not exceptions. The three towns therefore currently form a strong force in the tourism industry of Ada East. Their current location along the central and eastern sections of the coast makes them still vulnerable to sea erosion.

5.4.2 Implications of the Vulnerable Coastline for Tourism Infrastructures

The Ada East District Tourism industry is blessed with several tourism attractions that have continued to make the destination an attractive one to visitors. The increased visitation coupled with the fast growing industry has brought in several investors into tourism development at Ada. Over the last decade, the industry have witnessed the springing up of a number of tourism support facilities including hotels, guesthouses,

resorts and beach camps among others. Currently only few beach camps have located along the vulnerable Ada East District coast. This include the Maranatha and Midas beach camps near the estuary to the Eastern section of the coast and the Cocoloco and Dreamland beach camps to the central section of the coast. These beach camps are threatened by sea erosion over the years as Kusimi and Dika (2012) cited the case of the Cocoloco beach camp that has seen parts of its structures destroyed by sea erosion and still under threats of erosion. The Maranatha and Midas beach camps have also suffered from sea erosion but were able to rebuild the camps. The Estuary area used to host about 4 different beach camps but two have been displaced by the sea, including the Kemat establishment.

Apart from the beach camps located along the stretch of the coast, various attractions, including historical monuments are currently under threats of been eroded away. The colonial forts Kongenstein and the old cemetery have only parts of its structures remaining along the coast. Along the stretch near the district Assembly, the zone used to be very active hosting a whole list of companies, institutions, homes and business establishments which currently have been lost the sea erosion. According to Jones et al., (2008), erosion rates in Alaska have affected historical and cultural sites along the Beaufort coastline. They found out that over the years tourism facilities along the Beaufort coastline in Alaska have been lost to areas of high sea erosion rates. This falls in line with the discussions in this study as tourism facilities located near the vulnerable coast of Ada East stand at high risk to sea erosion.

The construction of tourism facilities along the coastal beaches must therefore be checked although the banks of the Volta River have become more attractive to

tourism investors. Although, the uncertainty around the sea coast has driven tourism investors towards the river banks, it is worth stating that, the sections along the river bank still remains relatively unsafe to sea erosion. Past historical records shows that, flooding caused by high sea-levels could travel long distances whiles inundating areas accessible. Oral histories show that when the Azizanya community suffered attacks from the sea, people beyond 2km from the coast were also affected.

5.4.3 Implications of Vulnerable Coastline for Eco-Tourism (Fauna and Flora)

The Ada East zone is also blessed with a number of fauna and flora contributing to its overall attractions chart and beauty. The tourism industry can boast of having a well thriving eco-tourism industry that has both flora and fauna beauties. Notable among the fauna species located in the zone is the marine turtles. The Wildlife Division of the Forestry Commission in Ada confirmed that there are three species including the leatherback, the olive ridley and the green turtle. These marine turtles have their nesting grounds on the shore of the beaches. With the loss of beaches along the Ada East Coast, the successful breeding of these turtles will be interfered with if the current trend of erosion is not checked. According to Bollen et al., (1963), continues erosion along the beaches will cause a steep topography which becomes unfriendly for turtle breeding as turtle nesting occurs normally above the high water level line.

The coastal zone of Ada East used to be heavily populated with coconut plantations. But this has been destroyed by the ravaging sea erosion with just strands of coconut trees left around the Volta Estuary area. The coconut trees have a very strong rooting system that helps to bind soils and therefore protect the beaches from erosion. It also beautifies the coastal environment for touristic purposes as tourist could sleep under them and enjoy the cool breeze from the sea. The coconut tree among other things

produces good fruit with tasty juice that offers taste to the tourism experience in Ada. Checking excessive erosion along the coast of Ada East also entails regenerating these coconut plants to serve its varied purposes. The chief of Azizanya noted that, the current coconut plantations found at Kewunor are all new plantations, noting that:

> *"They (Kewunor community) came to settle where my father and others cultivated large acres of coconut trees. So coconut is the main crop we cultivate, and the current trees left there are recently planted. All my 733 coconut trees excluding that of my father and others are all now lost to the sea".*

5.4.4 Implications of Vulnerable Coastline to Beach Formation

Again, the study noted that, the high rates of erosion recorded along the coast have ultimately affected for many years the formation of beaches. Beaches form an attractive feature for coastal tourism and its formation is essential to the survival of coastal tourism. Coastal tourism is traditionally built on the Sun, Sea and sand features. During the household survey beaches were noted by some residents as one of the attractions lost to sea erosion. Beach formation requires an uninterrupted cycle of sand transportation and deposition along the coast. Coastal sea erosion will affect this cycle and disrupt the cycle of sand deposition along the coast. With the high rates of erosion along coast, the sections noted as high risks areas vulnerable to sea erosion are also noted as poor areas of beach development.

5.4.5 Implications of Vulnerable Coastline to Marine Related Tourism Activities

Quite a number of activities are undertaken by tourist who visits Ada for tourism purposes. Such activities including swimming, fishing tours, speed boat racings

among others must be undertaken with care. The waves and tide systems on the Ada Coast normally gets stronger during the month of August making such marine activities a bit risky. Again, the intense erosion occurring along the coast, has made the sea not too suitable for swimming as near shore waters are deep just few metres away. During field data collections, local residents noted that the section of the coast near the District assembly is particularly not good for swimming due to believes that, debris and pillars of very heavy buildings that used to stand in the area are still underneath the sea. However, others disagree with this, saying that, if the sea can pull down the whole structure into pieces then the debris might have been washed away long time. With this confusion the area currently is not used by fishermen for fishing purposes. Tourism in Ada has shifted from extensive Sun, Sea and Sand tourism or beach tourism to River related tourism. Most touristic activities have now focused more on the banks of the Volta River to the estuary. This shift to riverside tourism is as a result of the destructive nature of the sea erosion that has taken away the beauty of the coast and its attractive power.

5.5 Stakeholders Coping Strategies to Mitigating Sea Erosion.

5.5.1 Stakeholders Representations in the Tourism Industry

At the local level there must be a positive and strong collaboration between all stakeholders in order to take collective decisions on development and issues affecting the tourism industry. Currently, representation of all stakeholders in the tourism industry is unhealthy as the level of cooperation between various stakeholders in the industry is rather not encouraging. Efforts are underway to establish a common office for tourism in Ada East District. Although it is receiving some positive response from the hospitality industry, some boat operators, and gin distillers, the Wildlife Division

and beach camp operators it is still yet to have a solid grounding. Many differences exist as a result of the variations in individual desires to make profits for themselves among others and their seemingly doubts on the efficiency of joining one association. During an interview with the secretary to the newly established Ada Tourism Stakeholders Association (ATSA), he gave a picture of their current efforts

> *"The idea of all Stakeholders has been operating for long but the need is now been realised by all. Now we are trying to develop a common package for any tour where a fee is charged and all stakeholders have a share in the fee. So if we have a common package that has each other's services together, it will help us. We have been canvassing for this for a long time. Our first meeting was on the 16th of January 2014 but before that time, each group have been working to make sure we integrate well".*

The tourism industry in Ada is one that is not well organised even among old established tourism set ups. There are a number of routes to reach desired tourism attractions and stakeholders are more concerned with getting tourist to visit Ada through them for the monetary benefits. Further, current efforts led by a group of individuals do not as yet have any comprehensive plans to integrate concerns of host communities in their development and management plans. Over the years, the host communities have been neglected from the organisation, management and planning of tourism in Ada. The seemingly disconnect between the tourism industry and the host communities in terms of co-existing to contribute to the growth of the tourism industries. With investors coming in to set up tourism facilities in Ada, making contacts with the local community could assist them in making better choices for the location of particular services since they are well vexed with the community.

Environmental sustainability issues can only be achieved when community members are well integrated into the planning decisions and made to feel to be part of the tourism community. Tourism thrives in environmentally friendly and natural environments better than any other and host communities are a major deciding factor in Ada on maintaining hygienic and safe environments. The Wildlife Division have done their bit to engage communities in Ada on the need to protect the environment through a community engagement medium in tree planting activities among other communal activities. For stronger campaigns on developing tourism in Ada through comprehensive approaches, the current efforts to establish a strong stakeholder base must cover all interested parties including host communities and Island communities among the other known interest groups.

5.5.2 Coping Strategies of Stakeholders

The study also sought to assess the coping capacity of stakeholders in the Ada East Tourism industry. Coping capacities of stakeholders are temporal measures adopted to bring shocks and stressors under control as intermediate measures. Assessing the coping capacities of host communities during sea erosion or flooding disasters, local residents generally do not possess any form of capacity or strategy to respond to the impending hazard. Notwithstanding this shortfall, others noted their ability to create high platforms, moving to higher grounds which are safer or to families and friends in nearby communities among others.

Table 5.1 shows the coping strategies adopted by host communities during cases of floods and sea erosion. From Table 5.1, the situation varies mainly between the fishing communities and the District capital Ada Foah. In Ada Foah as many as 95.8

percent of local residents had no strategies during floods or sea erosion with only between 1 percent and 2.1 percent of respondents adopting the creation of higher platforms and moving to join families and friends in unaffected areas. Many local residents had no strategy simply because they have not suffered any form of erosion or flooding although they believe their locations are not safe enough. Although those in the capital hardly faces destructive sea erosion and flooding cases, close chats with some of them revealed that the breeze from the sea usually causes so much rusting effects of their iron sheets and electronics in the room. They therefore will usually cover all electronics with thick cloths or blankets when not in use as temporary measures to avoid rusting.

In Kewunor community the situation appeared to be a bit different from the capital as the community have suffered from the destructive effects of sea erosion and flooding from both the sea and the river. To them flooding from Volta River has become a daily affair especially in the raining seasons. From Table 5.1, 38.38 percent of respondents in Kewunor noted that they normally will create high platforms either in their rooms or outside and keep their belongings on it and sometimes children whiles they seek for safer places. Others will quickly seek refuge with their families and friends in nearby communities (17.0%). Again, some local residents accounting for 44.10 percent of total respondents in Kewunor noted that, during such emergencies they will normally move quickly to the nearest high ground for safety. The situation is not different at all in Azizanya which have suffered inundations many times and are currently at their 4th settlement. Similar strategies adopted in Kewunor are same in Azizanya as the two communities along the path of development grew together as

neighbours. Today it's only a footbridge less than fifty metres that separate the two communities.

Assessing the coping capacity strategies of other stakeholders showed that, most of them will rather opt to construct their establishments rather along the Volta banks and within the communities than nearer the sea shore. This explains why there is an over concentration of tourism facilities along the bank of the Volta River and at Ada Foah, Big Ada and other communities away from the sea shore. This most of them noted is the best way to cope with the ravaging sea erosion as they are constraint in mitigating the sea erosion problem. For the few tourism facilities constructed along the sea shore including the Maranatha, Cocoloco and Dreamland beach camps, there are no coping strategies whatsoever noted as they only keep moving inland to avoid their buildings from being threatened by the sea erosion.

Table 5.1: Community Coping Strategies During Sea Water Flooding

Community		Create high platforms	Family and friends	Move to high grounds	No strategy	Sand bags	Total
Ada Foah	Count	1	2	1	92	0	96
	% within COMMUNITY	1.00%	2.10%	1.00%	95.80%	0.00%	100.00%
Kewunor	Count	13	6	15	0	0	34
	% within COMMUNITY	38.20%	17.60%	44.10%	0.00%	0.00%	100.00%
Azizanya	Count	13	28	8	0	1	50
	% within COMMUNITY	26.00%	56.00%	16.00%	0.00%	2.00%	100.00%
	Count	27	36	24	92	1	180
Total	% within COMMUNITY	15.00%	20.00%	13.30%	51.10%	0.60%	100.00%

Source: Field Data (2014)

5.5.3 Early Warning Systems (EWS)

EWS are very useful in enhancing community and institutional resilience. The availability and knowledge on EWS helps stakeholders to plan and take precautionary measures towards impending hazards. The current study sought to find out the various EWS available to communities and institutions in Ada East to prepare against anticipated hazards.

From Table 5.2, local residents make use of a number of EWS to prepare against impending threats of sea erosion or flooding. These EWS appeared to be more visible in the two fishing communities of Kewunor and Azizanya where fisher folks still rely on traditional knowledge to get information on threats. In these two communities, local residents noted the loud thundering noise of the sea, sound of a sea and river bird (Horli, Kodogoli), an increase in the height of waves hitting the shore and also the appearance of incoming sea waves in the clouds. These EWS listed in the Table 5.2 has been widely circulated among community members which enhances information among all local residence as a major factor in building resilience. Local residents, especially fishermen noted that, over the years they have been able to tell when the sea is normal by listening to the sounds it produces when the waves gets closer to the shore. Any abnormal change in the sound therefore puts them on the alert. This signal is confirmed sometimes by the observation of the height of the waves coming on shore.

The waves will grow significantly in height and overflow the beaches when they hit the shores. When this occurs with a number of incoming waves then they can tell that more destructive waves could hit the shore and overflow into the community. Such

information‘s are quickly relayed to the whole community and every family and individual begins to search for safe grounds before the disaster strikes.

Table 5.2: Community Available Early Warning Systems

Community	Dead remains in Sea	Loud thundering noise	Not aware of any	Radio passes on information	Sound of bird (Horli/ Kodogoli)	Waves height increase	Waves in clouds	Total
Ada Foah	1	35	32	1	3	21	3	96
	1.00%	36.50%	33.30%	1.00%	3.10%	21.90%	3.10%	100%
Kewunor	0	8	3	0	4	12	7	34
	0.00%	23.50%	8.80%	0.00%	11.80%	35.30%	20.60%	100%
Azizanya	0	17	6	0	2	15	10	50
	0.00%	34.00%	12.00%	0.00%	4.00%	30.00%	20.00%	100%
	1	60	41	1	9	48	20	180
Total	0.60%	33.30%	22.80%	0.60%	5.00%	26.70%	11.10%	100%

Source: Field Data (2014**)**

They noted that, sometimes these predictions could fail but they still maintained it is very useful. Interestingly, the behaviour and sound of a unique sea bird described as having a curved but sharp beak is noted to give local residents signals of bad weather and likelihood of floods. The bird as narrated goes deep sea for food and when it suddenly flies from deep sea over to the Volta River area with a particular strange sound whiles swinging in motion, then it‘s an indication of chaotic waves deep sea. The bird is called “horli” or “Kodogoli” two Ewe names derived from the different sounds produced by the sea bird. This bird was mostly spoken of by residents of Kewunor community.

Further, some people noted that another form of EWS available to local residents is the appearing of wave forms on the clouds in the sky. They noted that when high waves are approaching the coast from deep sea, the waves tend to appear in the clouds. These waves form some lines like waves and could count up to seven and nine. When this happens, fishermen and old men especially are able to monitor the pattern with which the wave forms in the clouds disappear. They could tell whether the incoming waves by the time it reaches two and one if indeed this has the potential to cause large overflows. Although, these traditional EWS available to local residents have been used for many years past, the chief of Azizanya noted that

> *"Yes and no because there are no signals but there are certain periods the sea becomes violent, so it is this periods we read to know what is going to happen. There is really nothing that can tell you here that the sea will be rough or not but we know the seasons. Somewhere early May to August is the major period for the sea to get really rough".*

Also, to get clarification on the EWS on the waves appearing in the clouds, the chief of Azizanya again stated that:

> *"Yes, sometimes you see the forms of the waves in the clouds and the way they appear will tell you how the waves coming are. But mostly this happens during off periods and it's hard to tell in advance as local people, that this year or this period the waves are going to be high".*

Finally, the introduction of community radio, the Radio Ada has been credited with the release of weather reports that indicates heavy rains and bad sea signals. Mostly people listen to Radio Ada in the communities and are able to get first-hand

information on weather updates on surging destructive waves and tides and heavy rains that will cause flooding. A visit to most of the institutions revealed that, there are no emergency plans and no form of EWS exists. At the Tsarley Kopey beach resort, the acting manager made it known that although they cannot say they are entirely safe considering the historic advancement of the sea they also do not have any emergency plans or EWS during such occurrences.

> *"What I can say is that, we are only praying that it (sea erosion flood disaster) should not happen. Because if the sea consumes us here, there is no other available land here to re-establish. So we are praying to God since we don't also have any systems or strategies in place towards such emergencies."*

The comments above have been re-echoed by many establishments including those located along the main coast such as the Maranatha, Cocoloco and Dreamland beach camps. Most of them are of the view, it is a natural phenomenon and they as individuals can do less to nothing to arrest the situation.

5.5.4 Government Institutions at National Level

Government institutions remain a strong force in reaching out to communities which are overwhelmed by situations. The continued devastating and ravaging sea erosion has tormented and destroyed the Ada East District coast and communities along it for many decades. There have been several calls and proposals to the government to respond to the plight of the people in Ada who have been displaced by the sea erosion and inundation over the years and the potential destruction of the coastal environment. The Government also knew the value of coastal environments and has initiated a Sea Defence Project (SDP) after the completion of the project at Keta. The controversial

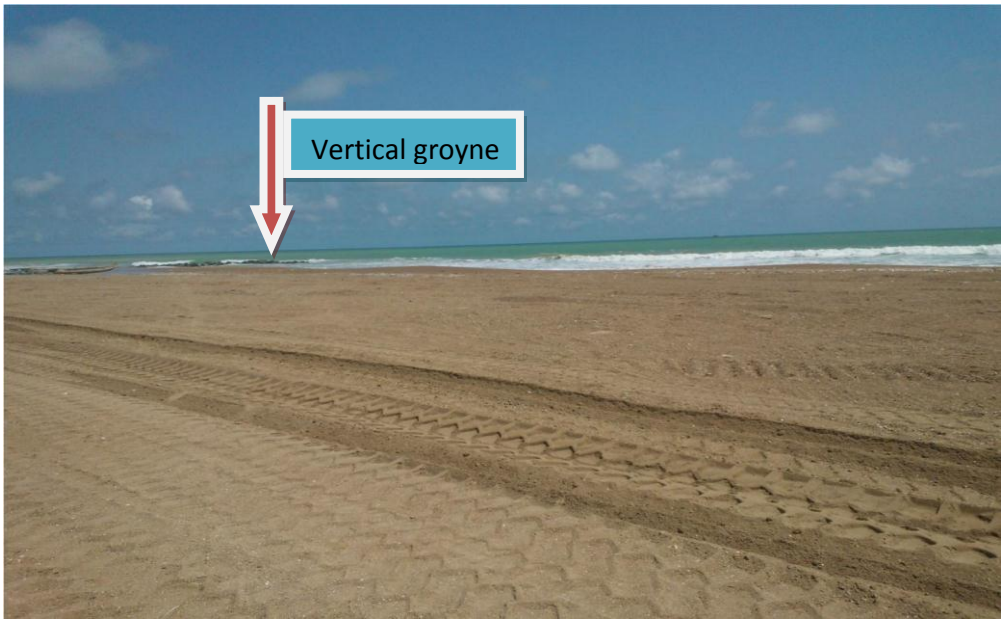
project in Ada Foah was to coast 68 million Euros and to cover some 30km of the entire 45km stretch of the Ada coast. The first phase has begun in May 2012 with the laying of vertical groynes into the sea at a 100m interval beginning from the Estuary and extending all the way towards to the District Assembly area of Ada Foah. A total of 7 groynes were laid at the first phase. Many community members were not happy with the style of groynes laid as they believe it should be horizontal as that of Keta to protect the entire coast. The Ghanaian representative on the project from the MoWRWH at Ada Foah in an interview noted that, the strategy is adopted because the two scenarios are different with Ada having a number of sea turtles that use the beach as a nesting ground, their habitats will be affected if groynes were laid horizontally. The design also took into consideration the fishing activities of the local people to be able to land their boats on the shore.

The phase two of the project involved dredging of sand to nourish the beach while increasing the beach elevation and simultaneously reclaiming beach land. Large dredging machines were brought onto the sea to dredged sand from the sea onto the beach to fill the spaces between the groynes. Plate 5.2 shows part of the newly reclaimed beach from dredged sand. The arrow on Plate 5.2 shows a vertical groyne laid into the sea. The concerns of the three communities expressing their hopes in the Sea Defence project currently ongoing in Ada has been summarised in the long quote of the chief of Azizanya:

Plate 5.1: The East of Groyne B Laid into the Sea

Source: IDMC (MWRWH, 2014)

Plate 5.2: Reclaimed Beach Along the Ada East District Assembly Area



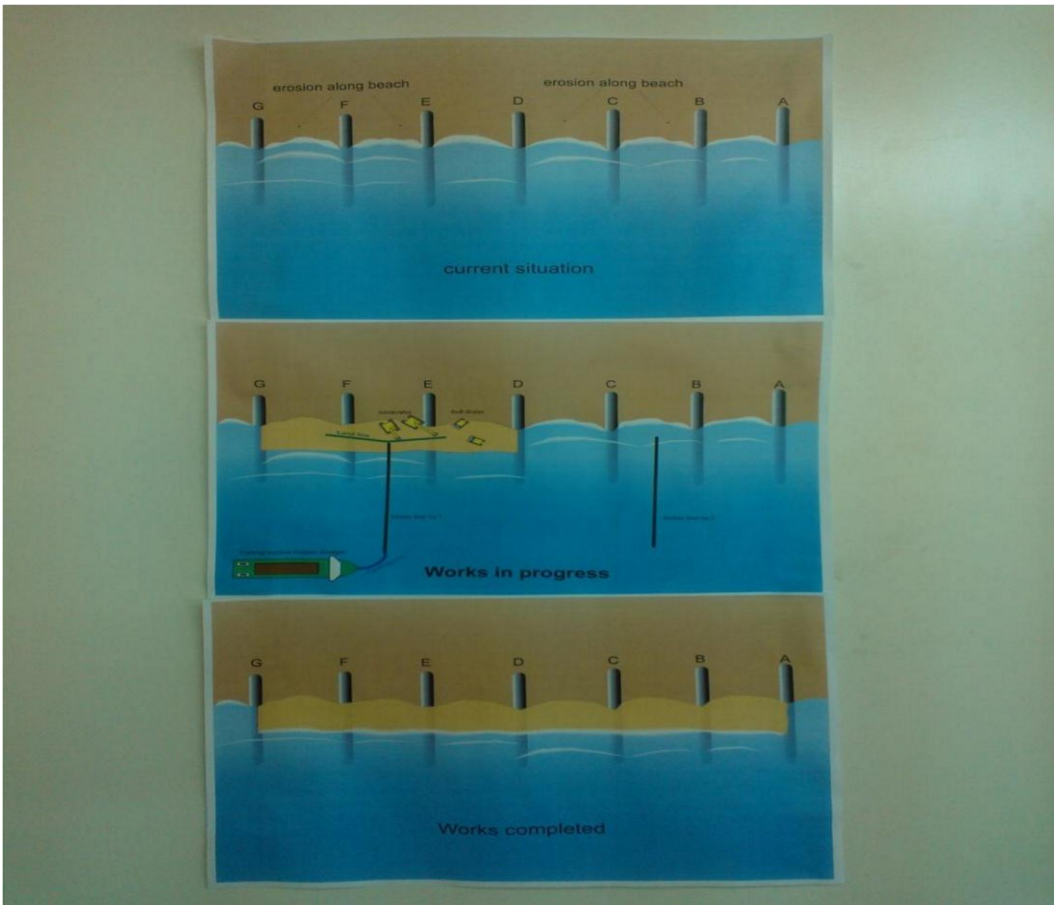
Source: IDMC (MWRWH, 2014)

> *"Formally, when the idea started, the stones were to be laid horizontal along the coast and the materials will come by sea from Tema harbour. This was to protect the roads in the town. Now when the new people came to start the work, they laid the stones or groynes vertically into the sea, and I personally told them it will not work. But they will not listen to me because it appears am a lay man and so nobody took me serious. They started from the estuary side and before they could move 2kms away, the first groynes were already washed by the sea with the rocks displaced. Now, the first contractors are gone and new contractors are now in. Their style is not so different, as a major difference is the sand dredging to fill in the spaces between the groynes. But I believe if the stones are not laid horizontally to protect the sand dredged, then am afraid in about 10years the sand will be washed again by the sea and the sea erosion will be back again. Yesterday I climbed the sand heap (sand barriers) and I realise that although the sand dredged makes the place nice, during high tides, the sea could easily rise above the dredged sand and the one heaped into the community. If they had used the stones as it is done around Tema and Nungua area the problem will be solved. So to me, if this is the end of the project, then am afraid it will not last".*

This exposes a very large gap between the communities and contractors on site. There has been very limited dialogue with community members to explain the details of the project and reasons for adopting the type of design used for protecting the coast. The current process adopted for the second phase of the project is shown in the Plate 5.3. The first stage shows the current situation after the groynes are laid as at the end of December 2013. The second stage indicates the dredging of sand from offshore to fill

the spaces between the groynes and the final stage depicting the hypothetical situation after sand nourishment is completed with the reclaimed land.

Plate 5.3: Stages of Work on the Ada Sea Defence Project (ASDP)



Source: Field Data, IDMC (2014)

5.5.5 Assessing the Role of Local Institutions in Strengthening Community Capacity

At the local level government institutions were assessed on their contribution to resilience building capacities to coping with the problem of sea erosion. Although the District Assembly and NADMO were present in the district, the most visible on the ground was the Wildlife Division of the Forestry Commission of Ghana in Ada. Since its establishment in 1991 and designation as Ramsar site, a lot have been achieved amidst its resource constraints. Currently the Division have achieved major successes

in reducing the harvesting of coastal sand from the beaches and mangroves for fuel wood, regenerated mangroves covering over 100 hectors of land spread within 30 communities (Plate 4.4). These achievements have gone a long way to contribute to protecting the environment including the beaches against extensive sea erosion.

Plate 5.4: Restored Mangroves Along the Volta River

Source: Wildlife Division (2014)

Calgaro and Lloyd (2008) noted the unequal distribution of state resources and lack of access to resources as major factors in reducing Khao Lak resilience and coping capacity against hazards that contributed to their vulnerability. The ability of Khao Lak to organise strong Associations to advocate for additional resources and a more equal distribution of resources has contributed to their post tsunami community resilience and coping capacities. With the tourism industry in Ada, the lack of organised front and collaboration among all stakeholders, including community

incorporation into the decision making and organisation exposes the weaknesses in building stronger social resilience and coping capacities among stakeholders. With a strong Association incorporating all interest groups to form a tourism community in Ada, there could be strong advocates for additional resources from government and assistance from external donors.

Again, the EWS play very vital role in the management of tourism in any destination region. The absence of formal EWS plans and emergency plans is particularly exposing a destination to impending hazards. it is believed that adequate EWS measures will contribute significantly to the overall vulnerability of a destination to shocks and stressors that could have long run effects on developing destinations. Calgaro and Lloyd (2008) noted that governments and communities affected by the tsunami in Khao Lak were happy after the establishment of the UNESCO-led Indian Ocean EWS to help prepare the Khao Lak destination against future shocks and emergencies. This was done on the backdrop that the absence of a comprehensive community destination emergency and EWS plans contributed to the vulnerability of Khao Lak. In Ada, apart from the communities traditional EWS used, no other institution has any comprehensive EWS or emergency plans despite their full knowledge on the numerous weather related hazards. Due to the highly unorganised nature of tourism in Ada, the absence of the industry comprehensive EWS and emergency plans cannot be questioned. Although, the EWS used by the local community‘s efficiency cannot be fully assessed, it is however seen as inadequate and must be supported with modern scientific systems.

Finally, the adoption of hard and soft engineering methods as a solution to sea erosion has been criticized heavily although a blend of the two still remains the best available strategies adopted by many nations in mitigating sea erosion. Kusimi and Dika (2012) noted that hard engineering methods involving the construction of groynes and revetments in Keta, Sakumonor, Cape Coast and La among others are temporary measures that tends to transfer the problem to adjoining coastlines (Oteng-Ababio, 2010; Appeaning Addo, 2011). Soft engineering methods as have been adopted in Ada is more environmentally friendly as it allows local residents to go about their fishing activities without obstructions on landing sites as well as supporting marine turtle nesting (Kusimi & Dika, 2012). The project adds to the overall resilience of communities as it seeks to mitigate sea erosion. The continuous education of community members and using best available strategies to integrate local residents in managing local resources have contributed to the resilience of community members and contributing to mitigation against sea erosion. The contribution of the Wildlife Division of the Forestry Commission in reducing excessive sand winning and harvesting of mangroves fall in line with Kusimi and Dika (2012) who noted that the efforts of the Wildlife Division of Ada in barring and reducing sand wining and mangrove destruction will go a long way to reduce sea erosion and flooding in addition to the sea defence structure.

5.6 Proposition 1

The current study was able to demonstrate that, tourism remains an unrestricted from of industry that can survive within varied environments. Although the tourism industry in Ada is quite young, knowledge on the threat posed by the sea erosion has since been known for over seven decades. The research was able to establish through a CVI, NSM and an EPR analysis, that the Ada East environment remains a

vulnerable one to sea erosion and therefore, a hazard to the tourism industry. However, the Districts location near the Volta River as well offers a quick alternative to the tourism industry. The research established that, most of the tourism developments occurring in Ada are rather along the Volta River bank with reduced activities along the sea beaches. This has offered an alternative to the tourism activities, although the study noticed the absence of emergency plans and formal EWS at individual tourist facilities which is not a healthy one. Despite the narrowing distance between the sea and River as one move towards the

Estuary along the river bank, natural hazards such as sea erosion and flooding could be unpredictable. Findings of the current study therefore supports the first proposition that, tourism industry have the ability to continue to expand and achieve significant growth in regions' considered to be vulnerable to natural and human related hazards.

5.7 Summary

This chapter was devoted to data analysis and discussion on the vulnerability and coping strategies for coastal erosion and tourism development. The section was divided into two parts. The first section focused on establishing the vulnerability of the coastal zone to sea erosion and the mitigation strategies adopted by the stakeholders in the Ada East District tourism industry. The second section concentrated on the effects of sea erosion along the Ada East District coast to the development of tourism in the district.

The first section specifically dwelt on the characteristic features of the Ada coast that contributes to its vulnerability by examining a number of variables. The variables included the nature of the geology and geomorphology of the coast, the coastal soils

and vegetation types along the coast. The study assessed the rate of erosion, the net shoreline movement and lastly the combined factors that makes the Ada East District vulnerable.

The second section was dedicated to the implications of the vulnerable coastline of the Ada East District to the tourism industry in the district was examined. The implications for the tourism industry were discussed in relation to the host communities, tourism infrastructure, eco-tourism, beach formations and marine based tourism. The final section discussed the mitigation strategies adopted by stakeholders in preventing the extensive sea erosion. The strategies were discussed under the broad themes, stakeholder representations, coping capacity of stakeholders, early warning systems available to stakeholders, capacities of government institutions and existing policies and regulations for the tourism industry.

CHAPTER SIX

SUMMARY OF KEY FINDINGS, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

Tourism remains an important economic resource to many nations blessed with natural and man-made attractions. The wide spread economic hardships over the years among especially resource constraint countries, have necessitated the diversification of most nation's economy. Tourism has been promoted as a panacea for leveraging stagnant economies from economic hardships through the generation of foreign revenues and provision of employment to local residents. The over concentration and promotion of tourism as a solution for all to sinking economies have seen the neglect of environmental sensitiveness sacrificed for economic gain. Coastal zones have remained very important zone giving livelihood to large number of world's population with active economic activities. The complexity has made the zone prone to a host number of human and natural hazards.

The coastal zone of Ghana remains highly active and complex over the years due its economic value. The zone also has been known to be host to a number of hazards including sea erosion that has been a major threat to the costal zones of Ghana. Ada East District coast has been experiencing coastal erosion and its related effects since 1926 (Kusimi & Dika, 2012). Despite the growing effects of sea erosion, tourism has emerged as a new form of livelihood growing in length and breadth by day. The current study has therefore unravelled the economic contribution of tourism to the livelihood of local residents, established the areas of high vulnerability to sea erosion

and its impact on the tourism industry. Lastly, the study also assessed the strategies adopted by various stakeholders in coping with coastal erosion.

To achieve these lofty objectives, study used a mixed method strategy that included, a questionnaire survey, in-depth interviews and Digital Shoreline Analysis System (DSAV v.4.2) to gather and analyse both qualitative and quantitative data.

6.2 Summary of Key Findings

From the analysis and the discussion thus far the major findings of the study can be summarised as follows:

1. The entire coast of the Ada East District is under severe threat of erosion at a rate of 4.34 m/year which impacts on tourism activities. The factors accounting for the erosion is due to site specific conditions.
2. Coastal tourism is poorly and highly disorganized and do not have well laid-down coping strategies in place to improve its resilience to coastal erosion.
3. Increase competition and conflict for land use, uneven access to resource for livelihood development, exclusion of host communities in the process of tourism planning and management is a fundamental challenge facing the development of tourism in the area.
4. Even though tourism has a great potential for improving livelihoods of communities, practically the contribution from tourism has very little impact on socio-economic life of the people; this explains why a greater percentage of people in the communities still heavily depend on fishing-the main traditional source of livelihood.

5. Institutional involvement in the tourism business is low hence; the only active agent is the Wildlife Department in the district who performs oversight responsibilities of monitoring and management.

6.3 Conclusion

The study has succeeded in demonstrating that, the coastline of Ada East District continues to experience severe erosion. The age old erosion in the Ada East District is attributable to both natural and anthropogenic causes. The natural causes established by this study includes the weak geological and geomorphological composition of the coast, the long sandy beaches with no apparent headlands, patches of coastal vegetation, strong waves and wind energy systems, rise in sea levels and the generally low elevation of the coastline and beaches. These factors have been confirmed by earlier studies including Kusimi and Dika (2012), Appeaning Addo et al. (2012) and Boateng (2008) On the other hand the human causes remains largely the low sediment supply to the coast as a result of the construction of the Akosombo Dam and growth in coastal population necessitating encroachment on mangrove vegetation and beach lands. Sand winning has been widely and significantly controlled.

The tourism industry in the Ada East District remains very vulnerable to sea erosion. The underlying factors contributing to the vulnerability of the tourism industry remains varied including environmental, social, political and institutional. Environmentally, the tourism industry‘s physical location near sea coast exposes it to sea erosion hazard and its attendant shocks including flooding and inundation. Socially, scaled and unequal access to resources, conflicts in land acquisition for tourism development as against residential purposes, low standards of living with

much dependency on the traditional fishing and trading activities remains key issues under social vulnerability.

The absence of the political will to develop tourism exemplified in the absence of tourism specific laws and policies at the local level and most importantly the absence of tourism specific department at the district assembly exemplifies the low political support for local tourism development. Finally, the absence of tourism institutions and stakeholder associations has led to a highly unorganised tourism industry, lack of tourism emergency plans involving coping strategies and early warning systems in Ada East District. These factors were examined within the Destination Sustainability Framework of Calgaro and Lloyd (2008). The tourism industry remains highly exposed, less resilient and lacks the coping and adaptation strategies to keep the industry ready at all times against shocks and stressors.

6.4 Recommendations

The current study has revealed that tourism in Ada East District has good resources to propel its growth and development of the local economy, notwithstanding the historical ravaging sea erosion in the Ada East District. In the light of expanding and practicing sustainable tourism in Ada East District, the following recommendations have been made for consideration:

1. The Ada East District Assembly together with the Wildlife Department and Tourism stakeholders should embark on the restoration of coconut plantations along the coast of Ada East District. The roots of coconuts will serve as protectors

to the loose sandy shoreline and consequently reduce the vulnerability of the coastal environment to sea erosion;

2. Also, the Ada East District Assembly should immediately create a resourced department under the Ada East District Assembly to respond directly to the management of tourism in the district for greater efficiency. The local tourism department will also be responsible for policy implementation and the making of local bye-laws towards local development.

3. The current land disputes as a result of the desire to develop tourism should be carefully revisited. The idea of selling lands to tourist entrepreneurs/developers should be conducted in a cordial environment involving thorough dialoguing with all parties to the land. The bigger case of the Kewunor community facing eviction from their land together with the Maranatha beach camp to a foreign tourist investor must be quickly resolved through the appropriate government agencies responsible. Because the district assembly has taken sides in the matter, there should be a national intervention through the regional minister as the situation has the potential to escalate and threaten the peace enjoyed in Ada.

4. Furthermore, current effort to establish the Ada Tourism Stakeholders Association should be given urgent attention to its full realisation. The composition may include boat operators, hotels, guesthouses, resorts, beach camps, local chop bars, restaurants, chalets, wildlife division, District Assembly, traditional council/leaders, community opinion leaders, NADMO and host communities among other smaller groups together. This stakeholders association will

coordinate and make major decisions on the sustainable development of tourism and local development; and

5. Finally, the Wildlife Division of the Forestry Commission in Ada charged with the management of the Songor Ramsar site should be encouraged and supported to continue their local strategies in reaching out to communities on the need to protect the environment.

6.5 Areas for Further Research

1. There should be additional researches to unravel the complete post project assessment of the Sea Defence Project on-going at Ada East in the near future. This will help to understand comprehensively the projects response to the sea erosion problem.

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APPENDICES

APPENDIX A1

Table 1: Showing Relative Risk Factors for Geology

Variables Scales	Clay	Loose sand	Consolidated sand	Gravel	Fluvial Deposits
1					
2					
3			*		
4	*			*	
5		*			*

Source: Field Data (2014)

Table 2: Showing Relative Risk Factors for Geomorphology

Variables/ Scales	Poorly developed beaches	Embayed nonrocky coast	Delta coast	Barrier coast	Land erosion	Marine with wave erosion	Irregular non-glacier coast
1							
2							*
3						*	
4	*				*		
5		*	*	*			

Source: Field Data (2014)

Table 3: Risks Factors for Mean Elevation (m), Mean Shoreline Displacement (m/yr), Local subsidence trend (mm/yr), Mean Tidal Range (m) and Maximum significant wave height (m)

	Mean elevation (m)	Mean shorline displayment (m/yr)	Local subsidence trend(mm/yr)	Mean tidal range(m)	Maximum significant Height (m)
1	>30	> 2.0 accretion	< -1 land rising	< 1 microtidal	≥ 0 and < 3
2	>20 and ≤30	> 1 and ≤ 2	≥ -1 and 1 ≤	≥ 1 and < 2	≥ 3 and < 5
3	>10 and ≤ 20	>-1 and ≤+1	> 1 and ≤ 2	≥ 2 and ≤ 4	≥ 5 and < 6
4	>5 and ≤ 10	>-2 and≤ -1	> 2 and ≤ 4	> 4 and ≤ 6	≥ 6 and < 6.9
5	≥ 0 ≤	≥-2 and erosion	> 2 land sinking	> macrotidal	≥ 6.9

Source: Field Data (2014) Table 4: RISKS VARIABLES FOR IDENTIFIED VARIABLES IN THREE

GEOMORPHIC SECTIONS

	WESTERN SECTION	CENTRAL SECTION	EASTERN SECTION
Mean elevation (m)	3	4	5
Mean shoreline displacement (m/yr)	3	4	5
Local subsidence trend(mm/yr)	1	3	4
Mean tidal range(m)	0.7	0.7	0.7
Maximum significant Height (m)	3	3	4
Geomorphology	3	3	4
Geology	3	4	5
SUM	170.1	1209.6	5600
CV1	24.3	172.8	800
CV5	**4.92950302**	**13.14534138**	**28.28427125**

Source: Field Data (2014)

Product Mean $CVI_1 = X1*X_2*X_3*X_4 \ldots X_N / N$

Square root of Product mean $CVI_5 = [CVI_1]^{1/2}$

Where,

i) X_1= mean elevation trend

ii) X_3= Geology

iii) X_5= mean shoreline displacement

v) X_2= local subsidence

vi) X_4= Geomorphology

vii) X_6= significant wave height iv) X_7= mean tidal range

APPENDIX A2
UNIVERSITY OF GHANA

DEPARTMENT OF GEOGRAPHY AND RESOURCE DEVELOPMENT

This survey is conducted by a student of the above Institution as a requirement to the award of an Mphil in Geography and Resource Development. The current study seeks to **assess the vulnerability of Coastal Tourism to Sea Erosion in Ada**. The study among many other things will seek to contribute to policy strategies to make the local tourism industry more resilient and sustainable for higher economic prospects. This survey is designed to cover selected host communities along the coast of Ada and destination workers. Respondents are assured that all responses are strictly for academic purposes and will be treated confidentially.

PART I Tourism attractions and associated Local Developments

1. Are you aware of the existence of the Ada tourism industry?
   a) Yes b) No
2. What do you know about the tourism industry in Ada?
   .....
   ....
3. What are the various forms of tourism activities undertaken at Ada?
   a).....b).....
   ....
   .....c).....d).....
   ....
   .....e).....f).....
   ....
4. Do you think the industry is a vibrant one?
   a) Yes b) No Explain.....
5. What attractions will you consider the most popular visited by tourists? Please rank with 1 as most popular and 5 as least popular.

Attractions	**Ranks (1most popular – 5 least popular)**
Sea, sun and sand	
Sea Turtles and migratory birds	

Islands	
Historical monuments	
Others	

6. Do you think the tourism industry has brought any form of development to your community?
   a) Yes b) No Explain.....

7. Do you think the presence of the tourism industry has brought infrastructural benefits to your community?
   a) Yes b) No

   List the key areas that have been developed?

   If No, explain why no development has taken place? .....

8. Do you think the tourism industry has offered significant employment opportunities to people of the community?
   a) Yes b) No If yes, what key development opportunities has been created?.....

9. Do you provide home accommodation to tourist?
   a) Yes b) No

10. If yes, do you do this for financial benefits or out of goodwill? .....

11. Apart from tourist activities what form of activities do you engage in with visitors during their stays?
    a) Organise local drama to entertain them
    b) Engage them in supporting town social projects
    c) Prepare local dishes and share with tourist
    d) Other.....
    ....

12. Do you think the Ada tourism industry is making significant income from tourist‘s visit over the years?
    a) Yes b) No

    Explain.....
    ..

13. Do you think the community is benefiting enough from the revenues accrued from tourism?
    a) Yes b) No Explain your choice of answer above

14. Do you think the Ada tourism industry could be the lead driver for the local economy‘s development in the future?
    a) Yes b) No Explain choice of answer above.....
15. Do you think the Ada tourism industry will see greater developments in 5 to 10years to come?
    a) Yes b) No Explain your choice of answer above. .....
16. Has the tourism industry affected the traditional source of livelihood of the people? Please rank with 1 as most affected and 4 as least affected
    i) Agriculture ii) Fishing iii) Salt mining iv) Trading
17. In what ways have the traditional sources of livelihood affected tourism activities?

PART II

Assessing the Livelihood opportunities in Ada

18. Has tourism become a livelihood option for you since its establishment in Ada?

a) Yes b) No

19. If No, what economic activity do you depend on as your source of income?
    a) Agriculture b) Fishing c) Salt mining d) other.....
20. What sector within the tourism industry are you employed?
    a) Hotel/Restaurant b) Accommodation c) Local food joint
    d) Souvenirs shop e) others.....
21. Are you able to make enough income from this business to sustain your livelihood?
    a) Yes b) No
22. What seasons within the year do you consider peak periods for your sales?
    a) Festivals b) National Holidays c) Christmas
    d) Easter e) other.....
23. How much are you able to earn at the end of the week/month/year
24. Do you depend solely on tourism or you support your income from other sources?
    a) Yes b) No

    If No, what other activities do you engage in?

25. Are you able to sustain yourself and family's needs with the income?

    a) Yes b) No

26. What assets are you able to acquire for yourself or family as a result of the income earned?
27. Has the establishment of tourism in Ada brought any improvement to the following aspects of your life? Please tick

INSTITUTION	RESPONSE/Explain YES NO
Health	
Education	
Access to water	
Sports and Recreation	
Housing/Accommodation	

28. How has tourism contributed to your overall empowerment?

    a) Yes b) No

    If Yes , how have you been empowered?

    If No, why?

29. Has the establishment of tourism brought any negative impact on your livelihood?

    a) Yes b) No

    Explain

30. Do you consider tourism a viable option for a sustainable livelihood?

    a) Yes b) No Explain

PART III

Socio-ecological Factors contributing to vulnerability of coastal tourism.

31. Describe the relationship between the host and guests or visiting tourist in your community?

    a) Very Cordial b) Cordial c) Hostile d) Very hostile

32. Do tourists penetrate into the daily lives and activities of the hosts in your community?

    a) Yes b) No Explain the extent penetration

33. Do you think tourist attitudes towards traditional life and customs is hostile?

a) Yes b) No Explain

34. Do you think the local culture faces any form of danger as a result of tourists' visits?

a) Yes b) No Explain your choice of answer

35. Do you consider any of the tourist groups hostile or friendly?

36. Do you think the relationship between the tourist and the host community is in anyway affecting tourism growth in Ada?

a) Yes b) No Explain your choice of answer above..

37. Do you think the pervasive sea erosion is a source of worry to the community?

a) Yes b) No Explain your choice of answer above.....

38. What environmental practices are contributing to sea erosion in the community? a) .....b).....c)..... d).....

39. Do you think the environmental practices of local community members are affecting the growth of the tourism industry?

a) Yes b) No

Explain your choice of answer above

40. Do you encounter any challenge due to the expansion of the tourism industry?

a) Yes b) No Explain your choice of answer above

41. Do you think the expansion of the tourism industry is competing with other sectors for land and other resources?

a) Yes b) No Explain your choice of answer above..

42. Do you think the rapidly eroding coastline of Ada is having any effect on the tourism industry?

a) Yes b) No Explain your choice of answer above

43. What factors do you think enhances coastal tourism in Ada?

44. What factors constraints the development of coastal tourism in Ada?

PART IV

Stakeholders Preparedness, Adaptive Capacity and Resilience Strategies.

45. Have you ever suffered from any disaster due to sea erosion?

a) Yes b) No

46. If yes what type of disaster have you suffered and what was affected?
47. If yes, how did you recover from such a disaster?
    a) Personal resources
    b) Family and friends support
    c) Government and NGOs support
48. What materials did you use in putting up your building?
    a) Cement b) Bricks c) Thatch
49. Do you have any special reasons for the choice of building material?
    a) Yes b) No Explain
50. Where is your building located?
    a) Along the coast b) Near the shore c) Far inland
51. Did you ever have to relocate as a result of the threat of sea erosion?
    a) Yes b) No
    If yes, can you trace your previous location
52. Do you think your current location is safe enough to withstand any threat of sea erosion?
    a) Yes b) No Explain, your choice of answer above
53. Does the community play any major role in the management of the tourist attractions?
    a) Yes b) No
54. If yes, what specific role do community members play in managing the tourism industry?
55. If No, do community members feel disregarded in the control and management of tourist attractions?
    a) Yes b) No Explain your choice of answer above
56. What strategies do you adopt in controlling the effects of sea erosion?
57. Do you have any defined warning systems you make use of during sea erosion?
    a) Yes b) No
58. What warning systems do you make use of in responding to impending hazards?

59. Do you think government's sea defence engineering project will mitigate or prevent the pervasive sea erosion?
    a) Yes b) No Explain your choice of answer
60. What changes have you noticed since the sea defence project began?
61. Do you receive any form of capacity building from the local government on safe guarding the environment?
    a) Yes b) No
62. If yes, what form of capacity building have you ever received from the local government?

APPENDIX A3

GENERAL SEMI-STRUCTURED INTERVIEW GUIDE FOR STAKEHOLDERS

SECTION A: Tourism attractions and associated Local Developments

1. What forms of tourist attractions exist in Ada?
2. Do you think the present tourist attractions in Ada are able to attract tourist to the area?
3. What forms of attractions in the Ada tourism industry are able to attract the most tourists?
4. Can you describe the trend of tourist visitation in Ada over the years?
5. What types of tourists dominate the visitation list of Ada? Domestic or International
6. Do you think the Ada tourism industry is witnessing any major development?
7. What economic opportunities does the tourism industry in Ada offer?
8. Do you think the tourism industry in Ada is doing better than the traditional livelihood options of the community? (Fishing, Agriculture and Salt mining).
9. What infrastructural investments exist in the industry? (Hotels, Restaurants, Food joints etc).
10. Are these infrastructural investments owned by Ghanaians or international investors?
11. Do you think the industry could be suffering from high leakage of revenues?
12. What major challenges face the Ada tourism industry in its quest to increase visitations and revenues?
13. Do you see tourism taking over as the lead contributor to local revenues for development?

SECTION B: Assessing Livelihood opportunities in Ada

15. What are the traditional livelihood opportunities available to the people of Ada? (Agriculture, salt mining, fishing).
16. Do you think these traditional livelihood options have been a sustainable one?

17. What type of livelihood opportunities have been offered by tourism?
18. Do you think that tourist visits to Ada over the years have helped to improve people‘s assets and capital endowment? (Human, physical, financial, social and natural capital)
19. Has tourism contributed to the well being of the Ada people? (health, education, portable water, housing among others)
20. Do you think the introduction of tourism has helped in making the people of Ada less vulnerable? (Economically and socially)
21. What physical structures have the communities benefited from as a result of tourism?
22. Does the tourism industry in Ada make significant revenues over the years?
23. Do you think the local people are actually benefiting from the revenues from the tourism industry?
24. How is tourism revenues distributed among beneficiaries? (What percentage goes back to the community for development)
25. What is currently done to boost the development of the Ada tourism industry?

SECTION C: Socio-ecological Factors contributing to vulnerability of coastal tourism.

26. Do you think the environment of Ada offer good grounds for the development of touristic activities?
27. What environmental processes and structures in Ada poses challenge to the development of the tourism industry?
28. What environmental practices among the people contribute to the vulnerability of coastal tourism? (Sand winning activities, lost of coastal vegetation among others)
29. Do you consider coastal erosion a major threat to the existence of the Ada tourism industry?
30. What factors account for the high rates of erosion along the Ada Coast?
31. Do you think some major attractions and tourist activities face sustainability threats from the ravaging effects of sea erosion?

32. Do you think the geological composition of the Ada coastal environment contributes to its vulnerability? (Nature and type of soil).
33. Will you consider the physical location of some tourist attractions as contributing to their vulnerability?
34. Do you think the coastal environment is better managed and protected through the current tourism practices?
35. How is the Ada tourism industry managed? Does it involve local participation and give opportunity to locals to work?
36. How is the host-guest relation in Ada affecting tourism prospects in the area?
37. Do you think there has been a change in the traditional way of life of the people due to cultural influx of tourist?
38. Do you consider access to land for development as a challenge in Ada?
39. What challenges do stakeholders face in harmonizing social and ecological factors contributing to the vulnerability of the tourism industry?
40. Do you think government‘s role in developing tourism as a livelihood option in rural areas (Ada) is yielding dividends?

SECTION D: Stakeholders Preparedness, Adaptive Capacity and Resilience Strategies.

41. What coastal environmental management laws and policies exist in Ghana and how are they applied to achieve coastal environmental sustainability?
42. Does your institution have any special unit or department designated for disaster prevention and management?
43. What institutional structures are specifically put in place by your department in mitigating and preventing sea erosion? Policies and strategies
44. Has your establishment ever faced any threat of sea erosion? How did you cope with the situation?
45. What other institutions do you work with in mitigating and preventing coastal erosion? (Collaborations among tourism establishments, government departments and agencies and local community)

46. Do you think government‘s scientific engineering approach to sea erosion is effective and appropriate? (arguments that engineering methods are temporal and only seeks to transfer the problem to adjoining areas)
47. What local or traditional (strategies adopted by institution) approaches are employed by your institution in protecting the tourism industry?
48. Do you make use of any form of Early warning systems (EWS) when faced with threats?
49. Are these EWS scientific or locally improvised?
50. Do you think the tourist attractions in Ada have the mechanism to withstand the effects of coastal erosion?
51. Do you think stakeholders have the capacity to manage the coastal environment? (knowledge, techniques, finance, human resource and commitment)
52. Do you engage community members in any form of environmental sensitization? (Education on best practices, building locations, livelihood strategies)
53. Have you heard of the Inter coastal zone management (ICZM) strategy and do you adopt this in your management practices?
54. Can the tourism industry continue to make gains in the mist of these coastal hazards? (Challenges faced by stakeholders).