

## CHAPTER 1: INTRODUCTION

### 1.1 Introduction

This research contributes to the study of the architectural heritage of Maldives focusing on an important part of the architectural heritage: the architecture of the ancient coral stone mosques of Maldives. It identifies the surviving mosques, their state of condition, the influences to their evolution, and establishes a typology in terms of architectural features. The research contributes to improve the protection and management of the surviving coral stone mosques, by raising awareness about the uniqueness and condition of the mosques among the communities and stakeholders who influence future decisions.

The aim of the research is to define an important part of the architectural heritage of Maldives through enhancing knowledge of coral stone mosques. The coral stone mosques are a type of tropical mosque found throughout the Maldives, with the surviving ones built between 1403 and 1815. They are made using shaped and decorated interlocking '*porite*' coral stone blocks and an ancient assembly technique that is extinct now. The architecture of the mosques is influenced by many Indian Ocean cultures. The first objective of the research is to identify surviving coral stone mosques and collect information about them including their present state of condition. The second objective is to identify the influences in the evolution of the architecture of the mosque. The final objective is to identify the common features and establish the architectural typology of these mosques.

## **1.2 Background**

Maldives, inhabited for at least 3000 years and located in the center of the Indian Ocean is well known in the history of maritime travel in the Indian Ocean and is famous for its ancient Cowry shell trade. Its culture evolved over thousands of years through the survival in the center of the Indian Ocean; the most traveled ocean of the ancient times (Mohamed, 2008). Survival among small, coral islands with limited resources for thousands of years must have been the biggest primer of the culture of Maldives. The ways of life of the traditional island settlement is testimony to the human genius of survival and adaptation to the climate and nature. The settlement patterns, the vernacular buildings, the building techniques and use of materials are all examples of the sustainable existence under the specific environmental conditions. The culture that evolved out of these conditions is a culture where many lessons could be learned about living in harmony with nature.

Maldives played an important role in the Indian Ocean travel by being the transit port for some of the greatest seafaring civilizations of ancient times. The country was exposed to a great variety of travelers, and the continuous contact with diverse cultures was the also primer of the cultural heritage. With the increase of travel and trade in the Indian Ocean, people of many races from the Indian Ocean region settled in Maldives. Maldives became a melting pot of cultures and people from Arabia, eastern Africa, Sri Lanka, India, and the Malayan archipelago all the way up to China (Mohamed, 2008).

Thor Heyerdahl, the Norwegian researcher and adventurer, after his research on Maldives, claimed that early sun-worshipping seafarers, called the *Redin*, descending from the Indus Valley Civilization (beyond 1300 BCE) were the first who settled on the islands. Maldivian cowry shells found in the ancient port of Lothal, in the Indus valley, provided him with the evidence for his theory (Heyerdahl, 1986). There is evidence through the ancient Sri Lankan Chronicles, *Mahavamsa* that Maldives was also known to the people of south west India and Sri Lanka as early as 300-250 BCE (Mikkelsen, 2000).

The first Maldivians did not leave any archaeological remains. Their buildings were probably built of wood, palm fronds and other perishable materials, which would have quickly decayed in the tropical climate. The first people to leave physical evidence of an organized culture were the early Buddhists and probably Hindus when they started using coral stone structures. Despite the unavailability of a written history of the time, there is evidence of a 1400 year long Buddhist period, which has a foundational importance to the culture of the Maldives. Maldives transformed to Islam in 1153CE. The transition from Buddhism to Islam can be considered the most important event in the history of Maldivian civilization. Maldives transformed and prospered due to the increase in the trade in the Indian Ocean brought by the Arab traders. The famous Moroccan traveler Ibn Batuta describes the Maldives of early Islamic period in 1343 CE, its conversion to Islam and specifies the trade to India, China, and Yemen in cowry shells, dried fish, coconuts, coir rope, cotton turbans, fabrics and even copper vessels in the medieval book *Rihla*, written in 1355 recounting his travels (Mackintosh-Smith, 2003). Ibn Batuta in *Rihla* made the first notable reference about the ancient mosque of Maldives. He describes the mosques:

*" In each island of theirs there are beautiful mosques... every person entering a house must wash his feet... and wipe them from a rough towel of fiber matting... the same is practice is followed on entering a mosque... (Mackintosh-Smith, 2003, p. 232-233). When I arrived at these islands I disembarked at the one called Kannalus (now called Kinolhas), a fine island with many mosques" (Mackintosh-Smith, 2003, p.237).*

The old coral stone mosques are testimony to the rich architecture that emerged during the period of Arab trade in the Indian Ocean and remained till today as the most significant evidence of the architectural heritage of Maldives and the best physical evidence that shed light to the legacy of the past. Early accounts of the mosques include the accounts of Jean and Raoul Parmentier, commanders of two French ships; the *Pensee* and *Sacre*, in 1529 and Frederick de Houtman, a Dutch commander of the ship *Lioness* in 1598 but the most detail, description was given by Pyrard (Forbes, 1983). Francoise Pyrard a French navigator who stayed in Maldives between 1602-1607 and became known for his detail personal account of Maldives in 1611 admires the design and construction of the coral stone mosques and writes in great detail starting from how coral is cut from the seabed and how it is carved to finish the surface decoration (Pyrard, 1619). In 1611 Pyrard, describes the mosques:

*" Their temples are called Mesquits, which are well built of fair worked stone, well bonded; they have thick walls, and stand in the middle of a large walled square... The temple is square, facing west... They must mount eight or nine steps to the elevation of the temple. The paved floor of the temple is covered with pretty mats and carpets... The superstructure is of wood, the carpentry of which I admire much, for which it could not be better polished or worked. The walls are wainscoted with wood, worked and fitted in the same way; and the whole of the woodwork, outside and in, is put together without nail or bolt of any kind, and yet holds so fast that one could not take it to pieces unless one knew the artifice. You see large slabs, either of stone or timber... which are engraved letters and inscriptions in the Arabic language... throughout the temple, which is spacious... The temples, or mesquites, are very numerous in all the inhabited islands... (Pyrard, 1619, p.123-124)"*

Pyrard also admires and describes the process of coral mining and construction during the period. He writes:

*" Stone raised from the shallows of the sea, where they get as much as they want, both length and thickness. It is polished, and of good grain, very white, but a little hard in some cases for cutting and working; in time it looses its natural hardness and whiteness, and at length becomes quite black, after being beaten by rain or soaked in fresh water. The manner of drawing up the stone from the sea is remarkable. There grows, in these countries, a tree called Candou... It is the lightest wood possible, more so than cork... So when they have chosen the stone they want, and made fast their cable to it, they take a piece of this Candou wood, and fasten it to the cable close to the stone, or if the wood is pierced, run the cable through it, and above that thy add as many more like pieces of wood as may be necessary. That wood being marvelously light and buoyant, floats up the stone or heavy substance, even though it may be of weight of 100 00 pounds. I have seen this done nearly every day" (Pyrard, 1619, p.119-120).*

In 1940 H.C.P Bell, the retired Archaeological Surveyor of the British Government to Ceylon identifies 32 mosques in Male'. Bell traces some of the ornamentation of the coral stone mosques to Buddhist origins and describes the construction process (Bell, 1940). Articles by Carswell, Forbes, and Reynolds traces the preliminary history of the mosques and also traces some of its ornamentation and design to its Buddhist origins, but these articles were mainly focused on mosques of Male' (Carswell, 1976; Forbes, 1983; Reynolds, 1984). In 1984, the Department of Religious Affairs published a list of all the mosques of Maldives for the first time, but the list did not identify coral stone mosques. Roland Silva (Director General of Cultural Fund, Ministry of Cultural Affairs, Sri Lanka and also Archaeological Commissioner of Sri Lanka) in a UNESCO mission to the Maldives admires the mosques and highlights their significance. In his report of 1985, he describes the mosques:

*"These outstanding monuments have still not been appreciated by historians in recording the story of world of Islamic architecture (Silva, 1985, p.2). These are fine unique examples of Islamic Architecture and should be safeguarded at any cost.*

*The bases of the places for prayer are all fine coral masonry with no mortar joints. The roofs are constructed in a sophisticated manner based on applied lacquer-on-lathe work... The intricate woodwork of doors and windows, screens and pillars all require delicate handling by trained and experienced craftsman (Silva, 1985, p.16).*

In 1985 and 1986 UNESCO commitments to the mosques of Maldives produced two reports by Silva and Agrawal (Silva, 1985; Agrawal 1986) leading to the restoration of 4 important mosques. In 2008 UNESCO listed one of the coral stone mosques: Male' Hukuru Miski, enclosing cemetery and Minaret in its tentative list of World Heritage Sites bringing it to the world attention. UNESCO lists the mosques under its cultural criteria of selection I, IV and VI and describes the mosques as a unique type of coral stone architecture that emerged in Maldives and was not found in any other part of the world (Bolomey, 2010).

The uniqueness of Maldivian coral stone mosques was admired and described by many visitors like Batuta, Pyrard, Bell, Carswell, Forbes, Reynolds, Silva, Agrawal and Bolomey (Bell, 1940; Carswell, 1976; Forbes, 1983; Reynolds, 1984; Silva, 1985; Agrawal, 1986; Mackintosh-Smith, 2003; Pyrard 1619; Bolomey, 2010). Brief accounts, detail descriptions of individual mosques and short articles have been published since 1343, but so far no in-depth study or survey has been made to identify the coral stone mosques of Maldives or to study its architecture and construction.

### **1.3 Statement of problems**

Maldives is a country with an ancient history but very few heritage sites have survived. Many important sites have been destroyed due to natural reasons, neglect or to make way for new development. The old palace and old forts in Male' were demolished in 1969; out of 32 mosques identified in the capital island Male' by the former Archaeological surveyor of the British Government in Ceylon, H.C.P. Bell in 1940 (Bell, 1940) only 7 mosques remain; one of the oldest traditional timber houses was destroyed in the 2004 Tsunami and most of the old structures representing the vernacular architecture do not survive because of the durability issues of materials. Stakeholders like the government do realize the importance of cultural heritage for the development of the country, but action towards the development of the cultural heritage is slow to come and the architectural heritage of the country is now endangered. Today the earliest surviving buildings in Maldives are the ancient mosques, specially the coral stone mosques. These coral stone mosques provide important physical evidence to the past and have become the most important architectural heritage of the country, but till today there is not enough information about them. There is little information available about the surviving structures, their conditions and about its architecture.

Written information about the ancient mosques is scarce. The earliest description of mosques of Maldives is by the Moroccan traveler Ibn Batuta in 1343 who mentions the presence of beautiful mosques in each island and the first old Friday mosque of Male' (Mackintosh-Smith, 2003). The earliest detail description of the mosque was by the French navigator Francois Pyrard de Laval in 1602-07 who admires the quality of the mosques

(Pyrard, 1619). Later Descriptions were given by Bell followed by Carswell, Forbes, and Reynolds who traced the preliminary history of the mosques and their ornamentation to its Buddhist origins (Bell, 1940; Carswell, 1976; Forbes, 1983; Reynolds, 1984). Apart from the information given out by NCHLR, UNESCOs commitments to the protection of the mosques produced many reports notably those by Silva and Agrawal (Silva, 1985; Agrawal 1986).

It is important to note that one of the techniques used for the construction of mosques, which is the art of shaping coral stone for construction, which predates Islam in Maldives is also extinct now. Coral stone construction is no longer possible because large boulder corals, which take many years to grow, are protected and has been banned from mining in Maldives. Thus, the coral stone mosques that exist today are the last of its kind and have become monuments of universal significance that needs proper study and documentation for the sake of future generations. It is also important to note that the surviving mosques are in continuous use by the local communities and as the mosque community grows these mosques are extended, remodeled or modified, and in many cases losing its authenticity and integrity.

The coral stone mosques are truly endangered, and the techniques used for construction are already extinct. Little is known about the condition of the surviving mosques and almost nothing about its architecture. There is an urgent need to study them and to raise awareness if its cultural value is to be appreciated and protected for the sake of future generations.



#### **1.4 Research question**

Coral stone mosques are the most important architectural heritage of Maldives and with the urgent need for research and study of the subject the research questions are as follows:

- What are the surviving coral stone mosques? What is the state of their condition?
- What are the influences to the evolution of the architecture of the mosques?
- What are the architectural typological features of the mosques in terms of its spatial plan form, architectural form, construction method and ornamentation?

#### **1.5 Aim and objectives of research**

The aim of the research is to define an important part of the architectural heritage of Maldives through enhancing knowledge of coral stone mosques. There are three broad objectives of research and they are as follows:

- The first objective of the research is to identify and list surviving mosques and gather information such as historic development and the state of their condition in terms of their heritage value.
- The second objective is to identify the different influences to the evolution of the mosque architecture by identifying the geo-cultural regions that influenced the cultural development of Maldives, and compare the architectural features of their similar structures to that of the mosque.

- The final objective is to identify the architectural typological features of coral stone mosques through analysis of the spatial plans form, architectural form, construction method and ornamentation.

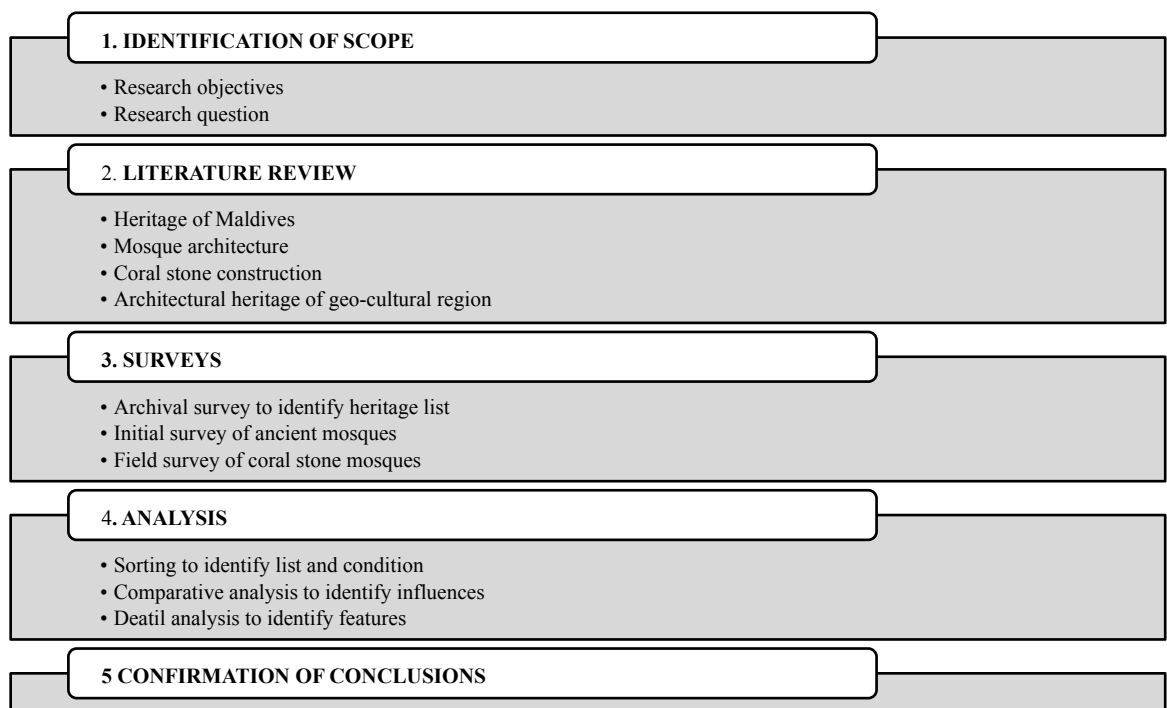
## **1.6 Research process**

First the research process involves identification of the scope of research. The scope of the research is derived through the identification of the research problems, the aims of the research and objectives of the research. After the initial scope of the research is identified, literature reviews are conducted on broad topics of heritage of Maldives including a historic background, general mosque architecture focusing on the regional typologies, typological studies of mosques, history and development of coral stone construction in Maldives as well as globally and finally on the architectural heritage of the geo-cultural regions of the Indian Ocean.

The literature review is followed by surveys, where data is gathered and analyzed using a qualitative research method. The surveys include an archival survey where the information is gathered from the Heritage Department of Maldives, National Museum and private collections. The archival survey is followed by an initial survey of telephone interview of the patrons or Island councilors who are in charge of the management of the selected sites and the final field surveys are done by a group of research assistants who has an architecture background and are specifically selected and trained for the purposed. During the different stages of surveys there are many levels of sorting and coding to categorize the

data. During the sorting of data of the last survey a list of the surviving mosques, their background and state of condition is confirmed.

The stage after the sorting of the data of the last field survey is the analytical stage where first a comparative analysis is made between some of the architectural features of the geo-cultural regions of the Indian Ocean and that of the coral stone mosque. The influences to the evolutions of the architecture of the mosque, is identified during this process. The final stage of analysis is a detailed analysis of the spatial layout and the architectural features to identify the common architectural features of the mosque. The final stage of the research process is the confirmation and summarization for the conclusions of the analysis, answering the questions.



**Figure 1.1. Research process**

## **1.7 Outline of research**

The dissertation is divided into six main chapters. The first chapter highlights the historic background of the culture and coral stone mosques of Maldives quoting early accounts of coral stone mosques. It identifies the research problems, the aims of the research, objective of the research and describes the research process. The research problem identified in this chapter justifies the needs for research and identifies the research questions. The aims and objectives define the scope of the research and leads to the development of research methods and process.

The second chapter describes the existing information collected on broad topics through literature reviews. It gives background information on the broad topics of cultural heritage of Maldives, general mosque architecture later focused on the regional typologies, typological studies of mosques, history and development of coral stone construction in Maldives as well as globally and finally on the architectural heritage of the geo-cultural regions of the Indian Ocean.

The third chapter describes the research method, surveys and provides summaries of the data collected during the surveys. Description and justification of the research methodology is given in this chapter and descriptions of the three stages of surveys are also given in this chapter. The three stages of surveys are the archival survey where the different types of Heritage sites are sorted and the types of ancient mosques are identified, the initial survey where the information about the ancient mosques are verified and revised and field survey where the list of coral stone mosques are identified including their information on historic

development and state of their condition. Finally this chapter outlines summaries of the data collected during the three different surveys.

The fourth chapter is about identification of the influences to the evolution of the mosque. The geo-cultural regions of the Indian Ocean that influenced the culture of Maldives are summarized as the South Asia region, the East African region, the South East Asian region and Middle Eastern region. It compares relevant features of the geo-cultural regions with that of the mosques to identify the similarities and conclude that the mosque architecture of the mosque is a fusion of many cultures of the Indian Ocean.

The fifth chapter consists of the analysis of the features of the mosque to identify a typology in terms of its architecture. It analyses the spatial form of the mosque, the architectural form, the construction and the ornamentation to conclude that there are common architectural typological features of the mosques. Upon identification of the common features a brief description of a typical coral stone mosque is given in the end of the chapter.

Finally it leads to the final sixth chapter where the conclusions include a summary of the findings of research, research limitations and future action. It summarizes answers to the research questions: What are the surviving coral stone mosques? Where are they and what is their state of condition? What are the influences to the evolution of its architecture? What are the architectural typological features of coral stone mosques in terms of the spatial plans form, architectural form, construction method and ornamentation?

## **1.8 Limitations of the research**

This research is an analytical product where conclusions were derived through a process of sorting and coding. This kind of research eventually depends on the comprehensiveness of the data, experiences and personal interpretation of the analyst and thus such research has many limitations. The main limitations of this research are the lack of resources, time and the difficulty in logistics to collect data. This research would be complete if further in-depth studies could be made into the coral stone mosque construction techniques and into the art of coral stone mosque decorations. The list of surviving Mosques would also be more definite if the whole Unofficial Heritage list were verified or cross checked with nationwide surveys to make sure that there are no unaccounted coral stone mosques in the country. Unfortunately such a scope of study is beyond the scope of a Masters research and requires more resources and complicated logistics.

This topic of study, which is the study of coral stone mosques of Maldives have got potential to be expanded into the study of coral stone architecture of the country and the whole region where other coral stone structures, processes and techniques of construction could be researched. It could also be expanded into the field of study of fusion of architecture in the Indian Ocean region or a study into the discovery of a common architecture of the Indian Ocean geo-cultural region.

## **CHAPTER 2: BACKGROUND AND LITERATURE REVIEW**

### **2.1 Introduction.**

This chapter is about review of current literature to provide background knowledge leading to the study of coral stone mosques. Topics include the heritage of Maldives, the mosque architecture, coral stone as a construction material and geo-cultural regions that influenced the culture of Maldives.

### **2.2 Heritage of Maldives**

Maldives being inhabited for at least 3000 years has a cultural heritage that is in need of better identification and appreciation. The intangible cultural heritage that provided Maldivians the continuity of identity from generation to generation consists of their unique language, faith, crafts, skills, festivals, music, food and the seafaring culture. Maldives posses a unique language called Dhivehi, spoken only in Maldives and Minicoy Island; an island next to Maldives. The history of the faith of Maldives and the transition from one religion to the other created habits and customs that fused into a new culture. The cultural heritage has its origins in a fusion of Buddhist/Hindhu cum Islamic customs and studies on these subjects are still limited. Festivals, music and dances are also fusions due to the exposure to many cultures of the Indian Ocean. The drumbeats are distinctly east African while the melodies are more Indo-Asian. From early times it has been noted that Maldivians were skilled people. Lacquer crafts, mat weaving and boatbuilding were some of the unique crafts that still exist but are changing fast. There is little study and documentation of these crafts and traditional designs of early Maldives (Maloney, 1980).

The seafaring culture is an important part of intangible heritage. It has unique boat designs, sailing techniques, fishing techniques, fish preparation techniques and even complex calendar to predict the seasons and weather. Maldivians also mastered the preparation of preserved foods, as it is necessary for the seafaring culture where a long times are spent on the traveling. There are varieties of preserved foods such as Maldives fish, *Rihaakuru*; a fish paste that are unique to Maldives. Unfortunately there is little literature available about cultural heritage such as traditional festivals, crafts, skills, food, music and local customs (Maloney, 1980).

Tangible cultural heritage is the main hard evidence of the past and consist of movable and immovable properties. While movable properties comprise of museum and antique collections, the immovable tangible cultural heritage of Maldives comprise of buildings, groups of buildings and sites of pre Islamic era and the Islamic era. It also includes underwater heritage sites where shipwrecks of historical significance have been identified.

Most of the pre Islamic tangible heritage is little known, as most of the evidence of the pre Islamic era remains as archaeological remains. The first Maldivians didn't even leave any archaeological remains. They may have been travelers and nomadic fishermen and their buildings were probably built of perishable materials, which would have quickly decayed in the tropical climate but the early culture is an important part of the history of the country and only extensive scientific study will provide a clearer picture of the distant past.



Today there are 78 pre Islamic Archeological sites identified by NCLHR in their unofficial heritage list but most remain without proper study. The few studies of the existing archeological sites reveal that Buddhism preceded Islam and that Hinduism also had existed at some ancient period (Bell, 1940; Mikkelson 2001; Mohamed, 2008). Description of the culture of the pre Islamic period is given by early writer: Sulaiman (850 AD), Al Masudi (916), Al Buruni (1030 AD) and Al-Idrisi (1150). Al-Idrisi described the people of Dibajat (Maldives) as accomplished and skilful craftsmen and also states that the islanders built 'sewn' boats made of small pieces of wood for travel in the sea of India and China and that, they built substantial houses and excellent buildings of hard stone. They are said to have constructed wooden houses that floated on water; these were probably the '*moodhuge*' (sea houses) that were built in shallow waters until 20<sup>th</sup> century to store coconuts (Mohamed, 2008). The most valuable contribution to understand the pre Islamic heritage was made by the archeological survey of Bell in 1920 (Bell, 1940) when he visited many islands that contained ancient mounds and investigated some of them. He was the first person to identify that Buddhism preceded Islam in Maldives and recorded many archeological sites belonging to this period. Thor Heyerdahl and Mikkelson did noteworthy excavation in Maldives (Heyerdahl 1986; Mikkelson 2000). The main hard evidence of the pre Islamic culture remains buried within the archeological sites and only further scientific study and excavation would reveal the answers to the pre Islamic culture of the country. Many artifacts of this period have been lost while those that exist remain in the new Museum. It is an era where extensive study is required before the past is clearly understood.

Maldives is blessed with a rich natural heritage consisting of coral islands, coral reefs and a rich marine life which forms unique coral reef ecosystems are significant both at

international and national levels. They form the seventh largest reef system and are among the richest in the world in terms of species diversity. It has two of the largest natural atolls in the world (Maldives, 2009). The natural heritage is the biggest resource of the country and traditionally the people of the Maldives have lived in harmony with the natural environment. Some of the best coral islands and dive sites in the world are in Maldives and a lot of international attention has been given to natural heritage of Maldives since the birth of the tourism industry. According to the World Travel Awards 2006, Maldives is the World's Leading Dive Destination and Indian Ocean's Leading Destination (World Travel Awards 2006).

At present 33 natural heritage sites are identified and protected by law (Environment Protection and Preservation Act of Maldives - no. 4/93) for their biodiversity and natural beauty. These sites include coral reef ecosystems, wetland/mangrove ecosystems and islands. 9 types of marine animals and 23 types of water birds are also protected while certain types of fisheries such as shark fisheries have been banned in specific areas. One of the natural heritage sites, Baa Atoll have been given formal international recognition and has been included as a UNESCO biosphere reserve.

The natural heritage or specifically the flora, fauna and marine life of the country was subject of many studies and effort has been put in the past for its protection. Food and Agricultural Organization of the United Nations made important studies and one of the most extensive studies of the organization was the Bay of Bengal Program, which was initiated in 1983. Recent plans and programs are the Maldivian National Strategy for

Sustainable Development 2009 and Third National Environment Action Plan 2009 by UNEP/GOM (Maldives, 2009).

Today coral mining, sand mining and activities affecting the natural environment are controlled, regulated and managed by government agencies and local authorities. Large developments are also controlled through mandatory 'Environment Impact Assessment' approvals and selective environment management planning. At present, there are 4 main laws that protect the natural heritage of Maldives. They are; the law no.77/78, regarding stone, coral and sand mining (Maldives, 1978), law no. 20/98, regarding uninhabited islands (Maldives, 1998), The Environment Protection law no 4/93 (Maldives, 1993) and Fisheries Laws of the Maldives no. 5/87 and 22/75 (Maldives, 1987; Maldives, 1975). Multiple agencies are involved in the regulation and management of the natural environment.

### **2.2.1 History of Maldives**

The origin of the Maldivian people is still unclear but most believe that the first people who settled descended from the Indus Valley Civilization (Heyerdahl, 1986) followed by people from many races from the Indian Ocean region, mainly from the parts of India and Sri Lanka (Mohamed, 2008). Different parts of the country were exposed to different cultures of the Indian Ocean region and thus Maldives became a melting pot of many cultures. The diverse physical characteristics among the people of Maldives are clear evidence of the strong cross-cultural influence to the country. From the west, Maldives was exposed to the influences of Arabia and eastern Africa with links to cities of Hadramat and Sa'naa in

Yemen. From the north Maldives had the influences of traders and travelers from Gujarat, Malabar and Sri Lanka with links to Mannar, Calicut and Cananore. And from the east it was exposed to Malayan archipelago all the way up to China through Malacca (Mohamed, 2008).

Maldives has been inhabited for at least 3000 years. Maldivian Cowry shells; a type of shell found only in Maldives called *Cyprea moneta*, was found in China and the Middle East as far back as 2000BC (Mohamed, 2008). It was even found among the ruins of the Indus Valley port of Lothal where the Indus valley civilization flourished between 3000-1700 BC (Mohamed, 2008; Heyerdahl, 1986), in tombs of China during Yin Dynasty of 1401-1122BC (Mohamed, 2008; Vilgon, L. 1991) and in graves of Northern Norway of 7<sup>th</sup> century AD (Mohamed, 2008; Mikkelsen. 2000). Cowry shells played an important role economically and socially in the early history of Maldives.

Sources of ancient Maldivian history are scarce but there are many references made about Maldives by early travelers from Rome, Arabia to China. The earliest probable mention of Maldives is in the Sri Lankan Buddhist chronicles *Mahavamsa* referring to events around 300-250 BC. According to *Mahavamsa*, one of the ships in the fleet of Prince Vijaya of Sinhapura in North India was blown off course and into the Maldivian Waters (Waheed, 1999; Mikkelsen, 2000; Mohamed, 2008). Buddhism probably arrived around 300 BC when Indian Emperor Ashoka (238 BCE – 265 BCE) dispatched Buddhist scholars to spread their religion in southern Asia. Ruins of Buddhist monastic buildings exist in various parts of Maldives. Most of these ruins remain as unexplored archeological sites.

The shell deposits found in one the oldest such archeological sites was dated between BC165-345 (Waheed, 1999; Mohamed, 2008; Mikkelsen. 2000).

The next group of references was made by the Roman and Greek writers from the period 90-522 CE. Ammianus Marcellinus made the most important reference of ancient times in 362 CE when he mentions about the Maldivian ambassadors at the Emperor Julianus court (Mikkelsen 2000). Chinese writers also made important references about Maldives from the period 630-792 CE. The most important was from 658 CE, which mentions about the Maldivian king Sri Baladitiya sending ambassadors bearing gifts to Emperor Kao Tsung of China. (Waheed,1999; Mikkelsen, 2000). These, same sources also mentions about the Maldives dependence on a king of south India showing the country's well-developed social and political relationship with both China and India (Mikkelsen, 2000).

Historical documents such as the *Sangam* writings of South India indicate South Indian rulers as early as 1<sup>st</sup> century CE made efforts to control Maldives. Among writings of the Cholas of South India a document was discovered that mentions that their King Raja Raja 1 (985-1014 CE) conquered all of South India, annexed the northern territory of Lanka and conquered Maldives (Waheed, 1999).

During 850-1150 CE when the Arab dominated the sea trade of the Indian Ocean there were detailed eye witnessed references about Maldives. Sulaiman (AD 850), Al Masudi (AD 916), Al Biruni (1030 CE) and Al Idrisi (1150 CE) were some of the reliable sources of references about Maldives (Mikkelsen 2000).

In the year 1117 CE Koimala, a Malabar of noble decent, arrived in the Maldives from India. He came with his entourage of followers and family and was invited by the islanders of Rasgetheemu in North Maalhosmadulu Atoll. Later he fought and beat the Cholas who had control over Maldives at that time and the country was unified under one leader for the first time in recorded history. The Theemuge dynasty started with this king who's Monarchic Name was Theemuge Mahaabarana Mahaaradhun (Waheed, 1999).

Maldives transformed to Islam when the king Sri Thiibuvana Aadheeththya Mahaaradhun accepted Islam in 1153 CE due to the counsel given by the scholar Maulaana Abul-Barakaathul Yoosuf-ul-Barbaree from Morocco. The king was later known as Muhammad Ibn Abdullah or Dharumavantha Rasgefaanu (Waheed, 1999). The earliest local record of Maldivian historic events is recorded in the Copperplate Grants from the 12<sup>th</sup> century called *Isdhu Loamaafaanu* and *Dhambidhu Loamaafaanu* which was after the country converted to Islam in 1153 CE. These documents mentions the names of kings and queens who reigned prior to it and mentions a pre Islamic king was once in the text of *Isdhu Loamaafaan*. Recorded history mentions that a queen ruled Maldives in 1341 CE. Queen Rehendhi Khadheeja reigned over Maldives three times over a period of 29 years and was the first queen recorded in Maldivian history. Many early writers mention about a queen who ruled Maldives whose wealth was to a large degree based on large quantities of cowry shells (Waheed, 1999; Mohamed, 2008; Mikkelson. 2000).

The earliest comprehensive description about Maldives is written by Ibn Batuta (Mackintosh-Smith, 2003), the great traveler from Maghrib in 1343 CE who describes in detail the history of the Maldives, its conversion to Islam and explains the trade to India,

China, and Yemen in cowry shells, dried fish, coconuts, coir rope, cotton turbans, fabrics and even copper vessels. Another great writer who wrote about Maldives is Ma Huan (Mohamed, 2008) who came to Maldives in 1414 with the fleet of Admiral Zheng He. He describes the Maldivian Islands, its produce, the people, and their customs and occupations. He records names of some islands and atolls write about Maldivians exporting cowry for sale to Kedah (Malaysia) and Bengal where they were used as money (Mills, 1970).

Maldives faced the consequences of the European presence in the Indian Ocean. In 1558 the Portuguese came to Maldives for the third time and martyred the King Ali Rasgefaanu and after a 15 year long struggle in 1573 Maldives was liberated by Mohamed Thakurufaan who ascended the throne as Sultan Al-Ghazi Muhammad Thakurufaanu-ul- Auzam Siree Savaadheeththa Mahaaradhun (Waheed, 1999; Bell, 1940). Pyrard de Laval, the French traveler who came to Maldives when his ship Corbin got shipwrecked in 1605 writes extensively about the Maldives people and culture. The Portuguese made few more efforts to gain control over Maldives and the last one recorded in 1649.

From an early time there were many efforts by Indian Malabar's specially the Rulers of Cannanore to control Maldives. In 1609 the Malabar's in a battle at the sea martyred Sultan Ibrahim III. During the 17<sup>th</sup> century Ali Raja of Cannanore helped Judge Mohamed Samsuddeen and his brother to gain control of Maldives resulting in the kidnapping of the Sultan, his nephew and some nobles. There was a continuous struggle between the Malabar's and Sultans until eventually they sought the help of the French in 1753 and later the English in 1828 (Waheed, I. 1999; Bell, 1940). The first British survey was done in 1835 and in 1940, the most comprehensive work about the history of Maldives with

archeological references was published by H.C.P.Bell. In 1887 Maldives became a British Protectorate. British had their Naval base in Gan Island in Addu during the wars.

In 1903 Sultan Shamsudhdheen ruled Maldives and during this time the first constitution was drafted and ratified. However this constitution did not survive long and it was in 1931 that a new constitution was ratified by the Sultan and proclaimed in 22<sup>nd</sup> December 1932. Maldives faced difficult times during the world wars. Scarcity of food and clothing left the country in a poor state. With the abdication of the Sultan Hassan Nooruddheen, followed by a public referendum Maldives became a republic in 1953 but did not last long. The country saw its full independence as a republic in 1965. The country was ruled under the same constitution though revised in 1997 until 2008 when a new constitution was ratified giving the form of a modern multiparty democracy.



**Table 2.1: Brief historic timeline**

Date	Historic events and milestones	Reference
1400 BCE and earlier	Maldivian Cowry shells were discovered in the Port of Lothal of Indus Valley providing evidence of habitation and trade in Maldives.	(Heyerdahl, 1986)
500 BCE	<i>Mahavansa</i> ; ancient Buddhist chronicles of Sri Lanka mentions that one of the ships of Prince Vijaya of Sinhapura was blown off course into Maldivian waters.	Mikkelsen, 2000
300 BCE	Buddhism probably arrived when Emperor Ashoka of India (238 – 265 BCE) dispatched Buddhist scholars to spread the religion in the region.	Waheed 1999.
100-800	<i>Sangam</i> ; ancient south Indian literature mention that south Indian rulers sent warships on sorties against the Maldives.	Mohamed 2007; Waheed, 1999;
165-1020	Scientific evidence of the existence of Buddhist monasteries through the carbon dating of Cowry shell deposits in sites.	Mohamed 2007; Mikkelsen, 2000
362	Delegation from Maldives presented gifts to Roman Emperor Julius. Written in the chronicles of Ammianus Marcellinus.	Mohamed 2007; Waheed, 1999;
658 and 662	Delegation from Maldives presented gifts to Chinese Emperor Kao Tsung of Tang Dynasty.	Waheed 1999;
985-1014	Chola King Rajaraja had some control over Maldives and Sri Lanka.	
1117	According to legend: Koimala, a Malabari noble arrived in Maldives and was invited by the people of Male' to become King. He fought the Cholas and unified Maldives.	Waheed, 1999; Bell, 1940
1153	Maldives embraced Islam in the hands of Maulana Abul- Barakaathul Barbaree. The first Muslim king was known as, <i>Dharumavantha Rasgefaanu</i> .	Bell 1940; Waheed 1999.
1153	The first Friday mosque was built on the location of the present Male' old Friday mosque, which was built in 1656.	Bell 1940; Mohamed 2007:
1347	Rehendhi Khadheeja the first queen recorded in history reigned over Maldives. She ruled the country three times and her reign covered 29 years.	Bell 1940; Waheed 1999.
1558	Martyrdom of Sultan Ali in the hands of the Portuguese and the beginning of Portuguese rule for 15 years.	Waheed 1999.
1573	Liberation of Maldives from the Portuguese after a long struggle lead by Mohamed Thakurufaanu and his two brothers.	Bell 1940; Waheed 1999.
1759-1767	The Malabar's ruled for 3 months and 20 days. Dhon Bandaarain, later known as Sultan Hassan Izzudhdheen with the help of the French liberated Maldives.	Bell 1940; Waheed 1999.
1887	Maldives became a British protectorate during the reign of Muhammad Mueenudhdheen II.	Bell 1940; Waheed 1999.
1932	The first Constitution ratified by the king.	Waheed 1999.
1953	The first republic was formed but it was short lived after a coupe removed he first president Mohamed Amin from office.	Waheed 1999.
1965	Maldives became an independent country on 26 <sup>th</sup> July.	Waheed 1999.
1972	Tourism was introduced to the Maldives.	Waheed 1999.
1976	International telecommunication at an international level started.	Waheed 1999.
1978	Large-scale fishing industry emerged by opening Tuna canning factory.	
1987	Unusual storm surges and severe flooding made the country realise how vulnerable it could be to global climate change and sea level rise.	
2004	Asian Tsunami, which was the worst disaster in its known history.	
2008	Maldives went for election with a newly introduced multiparty democratic system.	

### **2.2.2 The Architectural heritage of the Islamic Era**

Most of the architectural heritage that survive today is that of the Islamic era. They include mosques, mausoleums, cemeteries, historical buildings, the vernacular architecture and island settlements. In 2008 UNESCO put one of the mosques on its tentative World Heritage lists and 40 ancient mosques are among the many structures surviving from the early Islamic period of Maldives.

Maldives transformed to Islam in 1153AD (Bell, 1940). The twelfth century was a period when Arab and Persian traders crossed the Indian Ocean for the Spice Trade and Maldives was a regular port of call for the trading vessels needing water and supplies. Islamic faith and culture began to spread to villages and towns in the coastal region of the Indian Ocean. With exposure to foreign traders, the people of the Maldives transformed fast. After thousands of years of existence the spice trade in the Indian Ocean leading to the transition of the country from Buddhism to Islam can be considered the most important change in the history of Maldivian civilization.

Maldives became the interchange and melting pot for many cultures brought by the traders of the Indian Ocean. In 1899, Professor John Stanley Gardner collected anthropometrical data of Maldivians from many islands. Analysis of the data by Dr. Wynfrid Duckworth, suggest that there were migration from the peninsula of Hindustan with Ceylon, the coast of Arabia and Africa and from the western shores of the Malay Peninsula including the islands of the Malaya Archipelago (Mohamed, 2008).

Traditional Maldivian architecture that emerged during this period displayed a unique fusion of many maritime cultures of the Indian Ocean and displayed the very fine craftsmanship borrowed from the rich local maritime culture. The ancient mosques are testimony to the rich architecture that evolved and remain the most significant reminder of our architectural heritage of this era. The coral carvings and timber works including the lacquer decorations found in the mosques bear testimony to the skill of the craftsmen of the era. But little was appreciated internationally about its architectural heritage until 2008 when UNESCO put one of the mosques: Male' *Hukuru Miskiy*, the minaret, and enclosing cemetery on its Tentative List.

Since most of the Architecture heritage is not monumental and not long lasting the importance of heritage buildings are not properly appreciated in Maldives. Vernacular buildings are constructed from materials such as coconut thatching and timber that does not last long. And because of the scarcity of durable material only few structures such as mosques were made from durable materials. Many traditional buildings were demolished to make way for new development, especially in Male' where there is a severe shortage of land. Apart from ancient mosques only 5 buildings are identified in the unofficial heritage list of NCLHR. Important forts, the main palace and many mosques are destroyed.

### 2.2.2.1 Traditional mosque architecture

The most important architectural heritage of Maldives is the traditional mosques. They are the oldest surviving buildings and is the only physical evidence displaying the craftsmanship and skill of the ancient people. The earliest mosques built soon after conversion to Islam did not survive in its original state since they were rebuilt or renovated many times. The oldest mosques that survived without much change are *Gen Miskiy* and *Kedeyre Miskiy* in *Fuah Mulaku Atoll* which is believed to be built over the ruins of a Buddhist monastery in the 13<sup>th</sup> century (Mohamed, 2007) and the finest ancient mosques displaying the craftsmanship are the *Male' Hukuru Miskiy* rebuilt in 1657, *Male' Eid Miskiy* rebuilt around 1815, *Male' Kalhuvakaru Miskiy* built between 1779-1799, *Fenfushi Hukuru Miskiy* in *Ari Atoll* rebuilt around 1695, *Vadhu Hukuru Miskiy* in GDh Vadhu (Mohamed, 2007).

Three types of traditional mosques in terms of type and material used for construction are found in Maldives. They are *Hirigaa* or Coral stone mosques, *Veligaa* or coral sandstone mosques and *Thelhigaa* or coral rubble masonry mosques. All three types of traditional mosques stand in prominent locations in the island within a complex often marked by a low parapet wall. The complex contains fresh water wells for ablution, a sundial to show prayer times, a cemetery with tombstones usually made from coral stone and special trees such as Jasmine. Sometimes the complex contains bathing tanks and platform like short minarets. The mosque form remains the same in all three types of mosques. They had tiered roof structures with symmetric hypostyle prayer halls, raised platforms and verandas. The roof is made of timber structure covered with a finely woven coconut thatching or clay tiles. The

floors are lined with finely woven reed mats. The inner timber structure is often decorated and the amount of detail and decoration varies.

*Hirigaa* or Coral stone mosques are the most outstanding mosques among the traditional mosques. They are widely distributed through out the country and are the best examples displaying the skills and craftsmanship of the ancient people. Early literature reviews reveal that there are 21 mosques made from coral stone and their period of construction range from 1403 (Boadha Miskiy, Koagannu, S. Atoll) to 1815 (Male' Eid Miskiy). *Hirigaa* or Coral stone mosques are chosen as the subject of this research due to reasons that they are widely spread throughout the country representing the whole country and the only type that displays fully the craftsmanship of the people. The most holistic representation of ancient mosques of Maldives among the three types is by the *Hirigaa* or coral stone mosques.

*Veligaa* or coral sandstone mosques are the other type of stone used for the construction of traditional mosques (eg; *Gen Miskiy* and *Kedeyre Miskiy*). The stone is quarried from the beaches and even though they are easily accessible they are rough, difficult to smoothen or decorate and are unable to fully display the skill of the local craftsmanship. This type of construction is often found in areas where Porite coral stone is difficult to acquire. Early literature revealed that there are 12 mosques built from *Veligaa* and their period of construction ranges from 1397 (*Koagannu Miskiy, S. Atoll*) and 1878 (*Kandhuvalu Miskiy, Ha. Atoll*).

The next generation of traditional mosques evolved due to changes in the available material, technology and the demand to build more mosques at a quicker time period. This

type of mosques started emerging during the early nineteenth century when lime masonry and clay roofing tiles became available. The finest surviving examples of *Thelihigaa* or coral chip masonry mosques are *Bihuroazu Kamana Miskiy* rebuilt in 1919, *Henveiru Baa Miskiy* rebuilt in 1919 and *Fandiyaaru Miskiy* rebuilt in 1919. The primary elements in the mosque compound remained the same and the primary shapes and features changed little. What changed most is the simplification of the decorations. The walls became lime plastered masonry walls with decorative plaster moldings and the roof became clay tiles. The timber structures also became simpler with the lacquer interior decoration and calligraphy becoming simplified. With lime white wash to the walls and red clay tiles on the roof, the image of these mosques became very different from the earlier mosques. Early literature reveals that there are only 7 of these mosques identified in the Unofficial Heritage list of Maldives. There are many beautiful mosques of this type in the islands that are not identified or protected as part of the heritage. Many such mosques were demolished and are being demolished to make way to build modern mosques.

#### **2.2.2.2 Vernacular Architecture**

The history of vernacular architecture goes beyond the Islamic period, its building techniques and especially the traditional house form was developed over centuries as a result of the experience of generations. It is no doubt a response to socio-cultural needs, climatic conditions, materials available and available tools and technology. The sophistication of the designs and craftsmanship of the vernacular architecture are fine examples that in the past human interventions into nature were beautiful and in harmony with the environment. Unfortunately since the vernacular structures are not made from very

durable materials they do not survive for hundreds of years but it is important to note that ancient building techniques used in vernacular structures still survive.

The most important vernacular building is the dwelling or the traditional house followed by other examples of vernacular structures such as the *Odi Haruge* 'or boathouses, *Holhu Ashi* or beach houses, and structures like jetties. The traditional houses have two types belong to two different periods. The early houses were made of coconut thatch or depending on the prosperity of the owner was combined with timber. The next generation traditional houses were built from coral and lime masonry with clay roof tiles or corrugated iron sheets. The primary form and elements did not change with the change in materials and technology and every traditional house form had five main elements that were inter-related. They were the courtyard, the house, the kitchen, the granary and the well area.

Unfortunately, there is no complete vernacular houses of the first type left and with modernization the skills and the techniques of making such buildings are also slowly vanishing. Its architecture and the ancient building techniques are also in urgent need of further study and the reconstruction of such a dwellings are important before the memory of making such buildings totally vanish. The second type of vernacular houses still exist but none of these are yet recognized nationally as buildings of heritage value.

### **2.2.3 Heritage protection efforts of the past**

H. C. P. Bell did the first archeological survey of Maldives in 1922. He established that Buddhism existed before Islam in Maldives and identified many archeological sites of

Buddhist origin. Following that only a few formal scientific archeological studies were conducted until 1996 and 1998 by a research team from the University of Oslo, Norway (Mohamed, 2008). The only scientific conservation projects conducted were in 2001 when two mosques, the *Male' Hukuru Miskiy* and *Fenfushi Hukuru Miskiy* in *Ari Atoll* were conserved by a team from the National Research Laboratory for Conservation of Cultural Property, Lucknow, India and later in 2004 when *Male' Eid Miskiy* and *Dharumavantha Rasgefaanu Miskiy* were conserved. Conservation and maintenance of different quality of the heritage properties do go back into history but it has always had numerous problems due to lack of knowhow and facilities. Many sites are declared by the government, as protected and require permission for repair and maintenance. But often the repair and maintenance results in the loss of its authenticity due of lack of knowhow on restoration and misguided enthusiasm. Very few locals are trained in the field of conservation and archeological studies. Those who were trained were trained on site by the occasional visiting teams of archeologists and conservators from India, Sri Lanka and Norway.

In 2003 the government identified 90 cultural and natural heritage sites. Out of these sites 32 sites were directly maintained by the NCLHR. According to recent publications of NCHLR there are more than 203 potential heritage sites in Maldives (Mohamed, 2007) which forms the basis of an unofficial Heritage List. Upon study of the cultural heritage sites identified by NHCLR in 2003 and 2007, it is clear that attention was given only to archeological properties, old mosques, mausoleums, cemeteries, stately homes and sites of historical events. It is also very clear that the importance of vernacular architecture to the cultural heritage of the country is not understood.



There are few studies of the vernacular architecture of Maldives. One of the first noted studies was that of Mohamed Shafeegu, which was his dissertation for his degree in Architecture in 1989 (Shafeegu, 1989). The issue of protecting the Architectural Heritage of vernacular buildings and morphology of cultural island settlements were first raised when I presented a paper in the National Seminar on History and Heritage in 2007 but so far nothing has been done about it (Jameel, 2007).

With the introduction of the law of 1979 government of Maldives tried to address the issue of heritage. Genuine efforts were made to bring the issue to the international attention, like signing the UNESCO convention and nominating the sites since 1987. But lack of capacity, poor funding and a centralized approach within the government has resulted in poor management of heritage (UNESCO, 2003). The same problems that existed since the 80's which is lack of capacity and poor funding still remains within the government sector. Maldives signed UNESCO world heritage convention in 22 May 1986 and in 1987, 5 heritage sites were nominated to be included in the UNESCO tentative list and it was revised to 12 sites in 2003. In 2008 the *Male' Hukuru Miskiy* (Friday mosques) was included in UNESCO heritage tentative list.

The present constitution of the Maldives mentions the people's right to benefit from participating in cultural activities and that the country should promote and develop the culture and craft of the country (article 39). But the existing law (The Antiquities Law of Maldives - no. 27/79) regarding protection is inadequate and a drafting of a new law is in the process. The main law that protects the heritage is the 1997 law no 27/79; Law Relating to Sites and Properties of Antiques/ Archeological and Historic Value in Maldives. This

law is very basic and do not even require a management structure or an inventory. Apart from the main law there are indirect benefits to heritage protection from 1993 law no 4/93; Law on the protection and preservation of the Environment, 1996 law no 7/96; Law on Shipwrecks and the 2002 law no 1/2002; The Land Law.

Previously the government agency responsible for the protection and management of heritage is National Council for Linguistic and Historical Research (NCLHR), which was under the Ministry of Tourism, Arts and Culture. Apart from historic and linguistic research and conducting public awareness, the center was responsible for the coordination and regulation of all heritage activities. Thus the government under the supervision of this center, tried to manage all the heritage of the country. NCHLR directly managed the National Museum. A new heritage department was formed in October 2010 with a mandate to manage heritage, manage the museum and the national archives. It no longer has the mandate to do research and is directly under the ministry of Tourism, Arts and Culture.

### **2.3 Mosque Architecture**

Before starting to trace the origin of the mosque and identifying the different styles of the different regions it is useful to note the observations, of an architectural writer from Malaysia, Mohamed Tajuddin Mohamed Rasdi, which are relevant to Maldives as well. Rasdi warns of an emerging over simplified versions of Islamic architecture based on Middle Eastern style of architecture and warns that local non-Middle Eastern expressions of Islamic architecture are in danger of being lost, as they are often considered inferior. He also notes that that neither the Quran nor the Hadith mentions that the mosques need to

reflect the architecture of the birthplace of the religion (Rasdi, 2010). Most of the mosques built in Maldives in recent decades show Middle Eastern expression of Islamic architecture where eclecticism towards the birthplace of the religion has become a fashion worldwide. Local traditional mosques are less appreciated, their survival endangered and today interpretations of local architecture are less popular among the emerging architecture in Maldives because of such attitudes and poor awareness.

The word mosque or 'Masjid' in Arabic means a place for prayers or prostration and in ancient times would indicate any temple and included specifically the Ka'ba. When the Prophet Mohamed (PBUH) started preaching Islam in 610 CE, he met his followers secretly in homes and in the desert to teach Islam and pray. The prayer did not require a place.

The first house of prayer was built when prophet migrated to Medina in 622 CE. A small simple house of mud bricks on a stone foundation was built for him and his family. Opening onto the courtyard there was a shelter for prayers built with palm tree trunks, which supported a roof of palm leaves and mud. The prophet's mosque was the center of Muslim life. It was his residence it was the place for meetings, function and congregational prayer and it was also the school, the courthouse, the military base, hospital and the shelter for visitors. After the death of the Prophet, the first four Caliphs continued to use the mosque as he had during his lifetime. It remained humble and the center of Muslim life and was used within the traditions of the Prophet. Everything concerning the community took place in the mosque. In every Muslim city a single huge mosque was used as a gathering place for the Caliph to address the people and for daily business and administrative

activities. Sunni historians called this period as the period of the Rightly Guided Caliphs (Rasdi, 2010).

After the period of the Rightly Guided Caliphs came the Umayyad period. During this period the role of the mosque changed from the main center for Muslim life to a more specialized one in purpose. Different mosques were being used for different purposes. The rulers separated their residences from the mosque, the *Madrasah-mosque* emerged, the *Suffi* masters established separate mosques for their communities and the big city mosques for congregation and political status retained their roles. The Abbasid period that followed brought more developments to the typology of the mosque where most were the direct result of the concept of Islam by the Abbasids, the Shia and the caliphate. They started building tombs and mausoleums inside and nearby mosques. They also started building palaces with a grand mosque adjacent to it to symbolize the central authority on Muslim cities. This period saw the specialization of the palace or the governor's residence as the political and administrative center, the *Madrasah* as the educational center; the special courthouses to administer the law and the mosque became the place of ritual prayer, congregational sermons and public announcements.

Today the main activity of the mosque is the performance of the congregational prayers and it also acts as a center for religious activities such as religious learning and preaching, religious celebrations and religious administration. Over the periods many common features typical to a mosque have developed. For instance the first of such features was the *Mimbar* used by the Prophet to give sermons. The other was the *Mihrab* or prayer niche,

introduced by the Umayyad caliph in the 8thC CE. Even though these features were common they were all built in styles relevant to the styles that emerged in different regions.

Reviewing the literature on the subject it is realized that the early architectural historians like Fletcher and Fergusson drew their main attention to monumental mosques and often, small obscure but living mosques was given little attention (Rasdi, 2010). Creswell was the first to emphasize on the humble qualities of Prophet's own mosque and house and later other scholars and historians have been studying the historic diversity, spiritual diversity, typological diversity and the regional diversity of the mosques. Some of the recent contributions to the study of architecture of the mosque are by Grabar, Hillenbrand, Serageldin and compilations by Frishman and Khan (Frishman, 2004). But still today is it surprising to realize that when it comes to the architectural heritage of the mosque, there is still a lot that has not come to the attention of the mainstream literature of architecture of the mosque with the example of the subject of study of this dissertation, the Maldivian mosque. Maldives embraced Islam in 1153 and ever since remains an Islamic state. 200 islands of Maldives are inhabited and ever since every island had at least one mosque. As far back as 1355 Batuta describes that there are beautiful mosques in every island. Yet we hardly see any literature on the mosque of Maldives specially when covering the topic of mosque architecture. Petersen in his Dictionary of Islamic Architecture mentions Male' Friday mosque giving reference to the first academic study of mosques of Maldives by Carswell in 1976 (Petersen, 1996).

### 2.3.1 Features of the Typical Mosque

The mosque is defined as a building used for Islamic prayer and other religious activities. It is developed over the periods in different sizes and different styles relevant to different regions of the Islamic world. Mosques are found in three primary sizes responding to the needs and levels of prayers. First is the individual mosque or Masjid. These are small mosques used for daily prayers by individuals or small groups of people and not for Friday prayers. The prayer rug and prayer rooms too correspond to this level. The second level is a Jami Masjid or Friday mosque. These are larger mosques used for community level gatherings like the weekly congregational prayers and sermons. The third level is Idgah Masjid or the grand mosque used for large gatherings of whole towns and cities for prayers and sermons, for example Eid prayers (Michell, 2009).

The features of the mosque are varied in form, style, sizes and region it was built but yet a set of features typical to a mosque is identifiable. Frishman and Khan in 2004 give one of the clearest descriptions of such features when they describe the component parts of the mosque. They highlight that the mosque has standardized assembly of components parts, subject to variations depending on the size and location. They identify eight features or elements of the mosques, which are as follows:

- The prayer hall or demarcated area for prayer
- The *Qibla* wall and the Mihrab
- The *Mimbar* or pulpit in the mosque

- The *Dikka* or raised tribune in mosque for Quran and prayer recitals
- The *Kursi* or stand for placing the Quran in the mosque
- The *Maqsura* or enclosed area near Mihrab
- The pool or ablution area
- The portal or main entrance

Islam spread to the far regions of the world and different styles of mosque architecture evolved. Frishman and Khan highlights the differences in regional styles and compares it with a branching tree by writing:

*'A simple analogy would be a tree growing with a straight trunk until the eleventh century, when it divides to form numerous branches, each clad in its own distinctive foliage and representing a regional style' (Frishman, 2004).*

They also highlighted that the features of the mosque sectarian differences within Islam, for instances that between the Sunni and Shia did not affect the architectural appearance or style of Mosques and goes on to highlight that the only difference is in the choice of quotations from the Quran used as calligraphic decoration (Frishman, 2004).

The traditional Maldivian mosques are also built for individual prayers and for Friday prayers. Male' being the capital has a mosque called Male' Eid Mosque. Maldivian mosques did not always have the eight elements of the mosque mentioned above. This research identifies the elements visible in the traditional mosques specifically the coral stone mosques.

### **2.3.2 Regional typologies of the Mosque**

Architectural works have a functional and an artistic dimension. They also exist as styles in physical context and have meanings in a socio, cultural and economic context. The mosque does not have a specific style but have many styles defined through the regional differences with common typological features. Rasdi describes the regional styles when he writes that Islam proliferated cross-geographic and cultural boundaries and local traditions and available materials, along with its common features, dictated the architecture of the mosque that emerged. He identifies that the six main styles were from following regions (Rasdi, 2010):

- Arabian region
- Turkish region
- Iranian region
- Indian region
- Chinese region
- South Asian region

Serageldin describes regional styles that developed as the product of societal specificities and historic overlays of different regions of the world. Societal specificities mean social, geographic, climatic and morphological characters and overlays mean the historic and cultural context interactions of the Muslim and existing cultures (Frishman, 2004).

Frishman and Khan identify more detail regional styles. These styles are from the following regions:



- Central Arab Land
- Spain and North Africa
- Iran and Central Asia
- Anatolia and Ottoman region
- Indian Sub continent
- West Africa and Sub-Sahara region
- East Africa
- Chinese region
- South-East Asia

Maldives is located in the center of three regions namely the East African, The Indian and the Southeast Asian regions. Maldives being in the center of the Indian Ocean its architecture is influenced by these regions and because of the maritime trade links the interactions go beyond the adjoining regions to the Middle-east region as well as the Chinese region. This research identifies the influences by the regions.

### **2.3.3 Typological studies of mosques**

Early historian such as Creswell has highlighted typological diversity of the mosque (Khan, 1990). According to recent architectural historians Nader and Frishman and Khan the mosque does not have a specific architectural style but have many styles and features based on practice of Islam and regional diversities (Nader, 1979; Khan, 1990).

Nader analyses one hundred and thirteen mosques throughout the world from Spain to China and argues that the visual characteristics of mosque architecture depends on two aspects. First the typology emerged out of generic spatial form or features of the typical mosque, which includes the Mihrab, minaret, gateway, courtyard, portico, ablution area, plinth and dome. Second, the typology that emerged out of visual architectural features due to regional and cultural differences of 6 geographic regions.

Nader's analysis focuses on the aesthetics of mosque architecture, generic forms and typologies of spatial form to identify a definite visual language (Nader, 1979) and similarly this research on architectural typological study on coral stone mosque of Maldives also focuses on the visual characteristics based on typologies on spatial form and architectural features.

The spatial features identified by Nader (Nader, 1979) and features identified by Frishman and Khan (Khan, 1990) are used as the basis for the analysis of the spatial features of the coral stone mosques. The two-part analysis used by Nader, that is, analysis of spatial form and analysis of architectural features also forms the basis of the identification of architectural features of the coral stone mosques (Nader, 1979).

## **2.4 Coral stone for construction**

Coral was used as a building material throughout the coastal settlements of the tropical belt wherever coral was found in abundance. It was used by the ancient civilizations of the tropical belt and has evidence of coral stone construction in the Indian Ocean region, in Arabian and Persian Gulf, in the Red Sea (Archinet, 2010) and even in the Mayan island communities of the Central American region (McKillop, 2004).

The origin of coral construction is not well understood though the earliest use of coral in construction of buildings has been found on the coasts of the Red Sea dating as far back as the Hellenistic period 146-323 BCE. The earliest example was discovered at the site of al-Rih in the Sudan where a Hellenistic cornice made from coral was found re-used in an Islamic tomb (Archinet, 2010). From the Red Sea the construction techniques spread to the East African coast of the Indian Ocean where it thrived as the primary building material of monumental buildings for a long time.

Early coral construction existed in the Indian coastal cities, Sri Lanka, Maldives and almost all the Indian Ocean islands. Mikkelsen write about the ancient Buddhist sites in Jaffna, which was constructed with coral stone (Mikkelsen, 2000). Independent to the coral construction in the Red Sea and Indian Ocean region, there is also evidence that the Mayan island communities of the Central American region have used coral stone for construction. Excavations in the Port Honduras Region of Southern Belize show of such construction dating 900-1500 BCE (McKillop, 2004).

Today some of the finest examples of coral stone architecture are seen in the Swahili coast of East Africa and Maldives. The ancient trading towns of Lamu, Gedi and Jumba of Kenya are built of *porite* corals. Lamu old town, a World heritage site is one of the best, preserved Swahili settlements in East Africa, retaining its traditional functions. It is built of stone and mangrove timber (WHC-UNESCO, 2011e). Horton points out that the first stone mosques excavated in Shanga in Laamu region were built during an estimated period of 900 to 915 BCE. He describes that they were constructed of neatly shaped *porites* coral, bonded with mud with a white plaster face and suggests that the technique was of Red Sea origin pointing to Yemeni connections. Horton links the technique to the *porite* coral buildings on both sides of the Red Sea and the links with the Axum civilization (Horton, 1991) The stone town of Zanzibar, ruins of Kilwa Kisiwam and ruins of Songo Mnara shows fine examples of coral stone construction of 12<sup>th</sup> century (WHC-UNESCO, 2011h). The principal construction material of Zanzibar is coralline rag stone set in thick lime mortar and then plastered and lime washed while Kilwa and Mnara shows more interesting coral construction and carvings similar to the ancient coral carvings of Maldives. The early coral structures in Maldives found in the ruins from 500 CE (Mikkelsen, 2000) will be described later.

#### **2.4.1 Corals**

Coral reefs or ‘the rainforest of the sea’ are among the world’s most diverse eco systems, they are underwater structures made from calcium carbonate secreted by corals. Coral reefs are located within a narrow band of low latitudes, roughly confining to the tropics and concentrating in the Indo-pacific regions reaching from the Red sea, East Africa to the

Central Pacific. Its diversity is at its highest around south East Asia region. Darwin was the first to understand and write about the origin of the coral reef and identifies that corals are clearly the most important organisms when it comes to understanding the origin and nature of the coral reef (Spalding, Ravilions and Green, 2001). Darwin's theory was that the atolls were formed by the uplift and subsidence of the earth's crust under the ocean. His theory starts with the extinct volcanic islands and growth of a fringing coral reef and ultimately with the sinking of the volcanic islands to become atolls with a lagoon. He was also the first to predict that underneath the lagoon would be a rock base, which are the remains of the volcano.

There are many types of coral reefs and the primary types are the fringing reefs that are directly attached to a shore or borders it with an intervening shallow channel or lagoon, the barrier reefs that are separated from a mainland or island shore by a deep channel or lagoon and the atoll reefs which are more or less circular or continuous barrier reef extending all the way around a lagoon without a central island. As mentioned earlier atoll reefs with lagoons, faros, patches and knolls form Maldives. A coral reef habitat will have many zones diverse features. They have the islands with the beaches; they have the intertidal area where sand is accumulated and the formation of beach rock occur. They have the lagoon, which is the deeper sea between the shoreline and the fringing reef. And they have other features like the back reef, reef flat, reef crest and the reef front all specializing in different kinds of coral habitation (Spalding, Ravilions and Green, 2001).

Maldives represents one of the largest coral atoll groups of the world forming in 21 atolls and about 1200 small low lying islands. Out of the 1200 or so islands less than 200 are

inhabited. The length of the archipelago is 753 km while the widest point is 118 km. The total territorial area is 90,000 sq. km but the land area approximately 300 sq. km (Naseer, 1996). In every sense the country owes its existence to the coral reef, which provide the living base on which the islands survive. The structural base is the coral reef varying from open atoll formations with numerous islands, faros (ring shaped reefs), patches and knolls within an atoll lagoon to almost closed atoll structures of few lagoons, knolls and patches. The rim of the lagoons, the patches and knolls are built with a wide variety of reef building corals, especially branched and massive coral varieties. In geological times the filling up of the lagoons of faros by reef sediments has resulted in the formation of coral reef islands (Naseer, 1996). Naseer refers to Pre and Engelbrecht, 1991 and thinks that the islands of Maldives are situated on top of layers of Beach rock (about 1m thick) underlying the islands at about 30cm to 60cm above the mean sea level (Naseer, 1996).

#### **2.4.2 'Hirigaa' or Porite corals**

Reef corals are the living organisms that form and provide the habitat for coral reefs. There are a wide variety of corals and the most important variety that builds the reef is from the family of stony coral family. Stony coral or *Scleractima*, are a very large order of corals, which secrete a calcium carbonate skeleton. The breakdown of their skeletons during calcium carbonate accretion and especially after death provides material for the building of reef structures. As the main reef builder, stony corals and coral reefs have been the subject of intense study since Darwin and some 794 species of *Scleractima* or stony coral have been identified and their highest concentration is in the center of south East Asian region of the Greater Indo- Pacific region (Spalding, Ravilions and Green, 2001).

*Porite* corals are a type of stony corals or *Scleractima* coral family. They are among the most important reef building corals and are widely distributed and tend to dominate the back reef and lagoon areas of a reef. Massive corals of the *Poritidae* family are among the reef coral, which are mined most commonly for construction. Scientific name of the massive coral commonly taken for construction purposes was *Porites Lobata Dana*, 1846. They are large boulder like coral that are slow growing. Coral heads bigger than one meter in diameter are commonly found in Maldives. They are compact in vascular structure and thus have good strength in compression. These massive coral are often found in shallow water reefs and for instance the ones taken out for construction in Maldives it may take up to 50 years to recover (Brown, 1988).

Today there is a world wide environmental concern and an urgent call for the conservation of coral reefs because they are at risk of dying at a fast rate. Coral mining, agriculture, urban runoff, pollution, overfishing are all direct human interventions contributing to this phenomenon. Sea temperature rise, PH changes related to green house gas emissions and coral bleaching due to el-nino are other issues endangering the future of coral reefs.

#### **2.4.3 Coral stone construction in Maldives**

Coral construction existed in Maldives as far back as 500CE during the pre Islamic period. The earliest evidence of coral construction in Maldives is from the ancient ruins of the Buddhist period from 500CE (Mikkelsen, 2000). After the conclusions of the archaeological expedition of Kaashidhoo site by Mikkelsen it can be understood that coral construction in Maldives originated during the Buddhist period probably from the Jaffna

peninsula of Sri Lanka or the western coast of India where Buddhism also originated to Maldives. Mikkelsen writes about the origin of the structures of the Buddhist site of Kashidhoo;

*“The only Buddhist site on Sri Lanka showing similarities with Kashidhoo monastery is one at Kantarodai on the Jaffna peninsula. The ruined buildings there are also built of coral stones, and the great number of small round structures probably miniature stupas, are characteristic (Godakumbura 1968; Ragupathy 1987:168). In India there are many similarities in the type of construction found at Kashidhoo and in Ratnagiri in Orissa (Mitra 1981; 1983), Nagarjunakonda (Longhurst 1983; Ramchandran 1953) and Salihundam (Mitra 1971 (1983): 221-2) in Andhra Pradesh must be studied, as well as Taxilia in Northern Pakistan (Marshall 1951)”* (Mikkelsen, 2000).

J. Stanley Gardiner on scientific expedition to study the coral reefs of Maldives in 1903 was the first to observe that some of the Buddhist structures of Maldives were made from porite corals blocks (Bell, 1940). And later Bell in his archaeological expeditions in the Maldives identifies many Buddhist structures, which he believes are built of coral ashlar or *medrepore ashlar* (Bell, 1940). *Medrepore ashlar* means a type of stony coral cut to neat blocks for construction. Bell explains that the type of Medrepore they use for construction was the closest-grained of corals called *Hirigaa* by Maldivians. Bell also refers to some of the structures for instance in Addu to be built of ‘*Veligaa*’ meaning coral sandstone.

It is concluded that the pre Islamic period had experience in the use of both *porite* coral and coral sandstone construction. The moldings and carvings were of high quality resembling to the Buddhist carvings and moldings in Sri Lanka. Bell describes the buildings of this period;

*‘ The form of moldings universally utilized, it would seem, for all religious edifices once dedicated to the Buddhist cult at the Maldives finds its nearest equivalent in Ceylon in the debased duplicated type presented (eg.) by the existing Prakara wall*



*surrounding the Natha Devale, Kandy... It is seen in Kandy repeated actually to the full; but at Gan Island the heavy monotonous effect of doubling is softened down considerably by an upper-imposed series of moldings which dispense with intermediate "bull nose" member, while reducing satisfyingly to proportionate height.*

*Variant moldings all in Haddhumati atoll to the above broad general type met with in Maldivian Buddhist architecture are furnished by (a) the choice design marked by horizontal dentils lining the Vihare's portico revetment at Gan Island, (b) its quadrantal plinth triply recessed, at basement conjunction, and (c) the wholly unique corbelling given to the inner lip of the old well adjoining the Dagaba ruins at Munu Island.*

*The distinctive elongated balustrades, curvilinear and helix-ended, to the stairs mounting the Mundu Dagaba based platform are too weathered to justify criticism of their original ornamentation' (Bell, 1940).*

Bell also admires the skill of the Maldivian craftsmen when he writes;

*The few examples of figures sculpture which have search (eg the Buddha's face, the Bodhisat headdress, and the figurine of a sedent Buddha) give indubitable evidence of the skill possessed pre-eminently of old in Buddhist plastic art as at the present day in other fields of craftsmanship not excelled by any kindred work surviving in Ceylon' (Bell, 1940).*

Stone construction in Maldives became more refined during the Islamic period. The stone building culture of the east African Swahili region influenced the already highly developed skills of the Buddhist period as the contact between the Arab traders increased for the emergence of a new Maldivian architecture which is seen in the Male' *Hukuru Miskiy*. Bell admires the adaptation of skills by writing;

*'A race so innately artistic as the modern Maldivian Islanders could hardly have failed to give full rein to his bent in working out all forms of sculpture, before the crushing influence of Islam forced upon him complete abandonment of figure carving, and diverted energy into the exquisite elaboration of floral patterns (so fully displayed on the beautiful exterior basement of some Mosques at Male') and marvelous elaborate adornment of gravestones' (Bell, 1940).*

The quality of design and workmanship of the mosques was admired by many early visitors to the country. Andrew Forbes writes that some of the moldings of the coral stone mosques bear distinct Buddhist artistic inspiration on the basement (Forbes, 79). He also writes that in 1598 a Dutch captain, Frederick de Houtman recounts in his narrative that;

*'On the 1<sup>st</sup> June we fell among the Maldives... the small island close to which we lay had many beautiful buildings... among them one specially of an ancient structure, all of blue stone (lazulite), and round it also moldings, basements, capitals (pillars), friezes, and grooving on the steps of the entrance breast ways: and what surprised me most was that all this was put together without any lime or building material; yet everything was so closely bound together by means of hewn grooves that the point of a knife could not be put between them, while at each keystone held the entire work together'* (Forbes, 1979).

The most important of the early (pre-19<sup>th</sup> century) description of the Maldivian mosque was by Francois Pyrard de Laval, the French castaway whose account of the country remains unparalleled in detail and reliability even amongst modern works. He describes in details the mosque, and admires the skill of the people in coral mining and preparation of the *porite* corals for the construction (Pyrard, 1619; Forbes, 79; Didi, 1995).

Some of the early Mosques were constructed from coral sand stone or '*Veligaa*' (eg. *Kedeyre Miskiy* and *Gen Miskiy* in Gn. Fuah Mulah, Kolhufushi Gaze Miskiy built around 1573 and *Dharumavantha Rasgefaanu Miskiy* in Male' built in 1694). Grand coral stone mosques built using '*Hirigaa*' porite coral with fine elaborate carvings were built between 17<sup>th</sup> and 18<sup>th</sup> century. Male' old Friday mosque built in 1657 is the finest example of such mosques. History and available records show that it is the first of such mosques and the Eid Miskiy of Male' built in 1815 was the last of such mosque.

During the early 19<sup>th</sup> century the colonization of the region by the western powers changed the trading and travel patterns of the region. In Maldives region the British played an important part and Maldives became a protectorate of the British in 1887. Due to the changes in trade and travel patterns Maldives was exposed to new trading partners from the Indian and Sri Lankan region and with it came new technologies in construction. New ways of using coral was introduced. Coral rubble set in lime and sand mixes were used to build walls. The walls were finished with lime plaster and lime white wash. Roofing tiles made in the western coast of India was introduced and most of the new monumental buildings changed to this type of construction. This type of construction continued in Maldives until cement was introduced in the late twentieth century and coral rubble set in cement and sand mortar was used in Maldives until Coral mining was banned from house reefs in 1990.

#### **2.4.4 Types of coral stone construction in Maldives**

Construction in ancient times depended mainly on the local availability of materials. Maldives being an archipelago of small low lying coral islands, was totally dependent on the coral reefs and the produce of the small islands. The primary building materials were products of the coconut tree, which is coconut timber, coconut thatch, other types of local timber and coral stone. Coral stone was the longest lasting building material. It was abundant in all parts of the country. Thus until recent times coral stone was the main material for construction for buildings and structures built to last. During ancient time monumental buildings were made of coral stone and today the evidence lies in the archeological sites of early Buddhist structures and in the surviving coral stone Mosques.

Three types of coral stone construction are seen in Maldives. The first type is '*Hirigaa*' construction. They are finely shaped and decorated interlocking '*porite*' coral blocks, using ancient coral stone assembly techniques of grooves and pins. This type is the main focus of this study. This type of construction was more common from the 16th to 18th century and displays a highly sophisticated level of craftsmanship.

The second type of coral stone construction uses coral sand stone. They are shaped stone blocks that are much more coarse and not possible to do decorative work. '*Veligaa*' or coral sand stone are usually coastal sedimentary formations consisting of various beach sediments, lithified through the precipitation of carbonate cements. The cementing agent of beach rocks are composed predominantly of magnesium Calcite and Argonite appearing in diverse crystalline formations. Construction using this type of stone is not very common and mostly used in parts of the country where *porite* coral is not easily accessible or in very early construction. These blocks were not easy to be dressed to a smooth finish and difficult for carvings and decorations thus you would find mostly moldings and less intricate carvings when such construction was used.

The third type of coral construction is using coral rubble with lime mortar, which was introduced during the 19<sup>th</sup> century CE. Coral rubble consisted mainly of broken smaller pieces of *porite* coral as well as occasional coral beach rock.

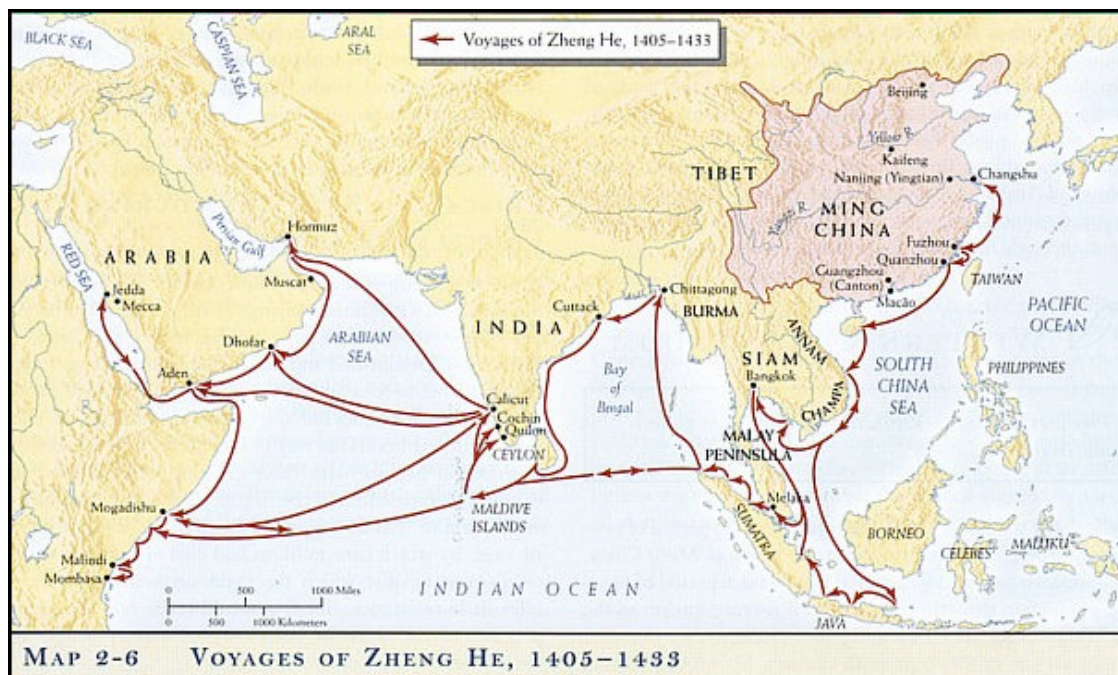
## **2.5 Areas of the geo-cultural region that influenced the culture of Maldives**

The vast Indian Ocean connecting and separating nations has knitted together diverse communities and shaped countries, cultures and ideologies through its maritime activities. The 2004 Tsunami, which destroyed communities from Indonesia to east Africa, is a stark and brutal reminder of how interconnected the many countries in the Indian Ocean rim can be and how insignificant national boundaries are when it comes to certain aspects. Scholars like, Bose, Pearson and Chaudhuri discusses about the interdependency of the people who lived around the shores (Bose, 2009; Pearson, 2003; Chaudhuri, 1985). Chaudhuri traces the maritime trade which stretches from South China sea to the eastern Mediterranean passing through rich urban emporia and makes an example that because of the maritime activities, what happens in the Andes and Meso America mattered in China, India, Africa and Europe (Chaudhuri, 1985). From discussions of Chaudhuri, Pearson and Bose it can be confirmed that the main cultural areas of the Indian Ocean are the Middle East, east Africa, South Asia and Southeast Asia.

Maldives being located in the center of the Indian Ocean was exposed to travelers and cultures from all these areas. It was exposed the Middle East where there is the strong links with the Arab and Persian traders. It was exposed the cultures of east Africa with folklore and historic evidence related to Zanzibar and Kenya. It has all the evidence of links with South Asia, with the Malabar coasts and other coastal India, Sri Lanka and Laccadive chain of Islands and finally it has evidence of links with Southeast Asia with Aceh and Malacca (Mohamed, 2012). The History of Maldives and analysis of earlier literature reviews can confirm that during the period of the construction of the coral stone mosques Maldives was

influences by the cultures of Indian subcontinent with Sri Lanka, the Swahili coast of east Africa, the western shores of Malayan archipelago and Arabia and Persia.

The important destinations of travel in the Indian ocean region during the period of Arab trade can be understood when the travel destinations of Cheng He who traveled to these important destinations in the Indian Ocean between 1405-1433 is identified (Mills, 1970).



**Figure 2.1: Example of ancient travel routes in the geo-cultural regions of the Indian Ocean.**

(Source: <http://factsanddetails.com/china.php>, date: 23.3.2012)

Based on the literature reviews and historical facts of Maldives and based on travel routes of travellers such as Admiral Zeng He. It is confirmed that the geo-cultural regions of the Indian Ocean that influenced the culture of Maldives are as follows:

- South Asia
  - Ancient South India
  - Malabar coast of India
  - Other coastal regions of south Asia
  - Minicoy and Laccadive group of Islands
  - Sri Lanka
- East Africa
  - Swahili coast of Africa
- South East Asia
  - Malacca Straits culture
- Middle east
  - Maritime regions of Arabia and Persia

### **2.5.1 Ancient South India**

The architectural heritage of ancient India has a wide variety that represents the diverse cultures of the Indian Subcontinent. The geographic and historical variety does not have a single or related identity. They had the identities from the Indus valley civilization with examples from the structures in Lothal, Mohenjo-Daro and Harappa, they had identities from the Indo-Islamic Mughal architecture with examples such as the Qutb Minars and Taj

Mahal (ASI, 2012) and they have identities from different empires such as Mauryan and Cholas in the southern India where they have examples of Jain, Hindhu and Buddhist structures.

Early Maldivian history is linked to the early Hindhu and Buddhist cultures of south India (Mikkelson, 200; Mohamed, 2008). Therefore, early Hindhu and Buddhist structures of south India region were researched. The ancient sites of Aihole and Pattakal in Karnataka had structures with similar features to the mosque. The architectural form and construction technique found in sites such as the Temple of Ladkhan in Karnataka, India (ASI, 2012; WHC-UNESCO, 2011b) can be compared to the coral stone mosques of Maldives.

### **2.5.2 Malabar coast of India**

The Malabar Coast of India is generally referred to the southwestern coast of India between the states of Karnataka and Kerala. It is an area exposed to maritime trade as far back as 3000 BCE with trade relations with ancient Egypt, Greece, Rome, the Arabs and the Persians. Some of the old ports are that of Calicut, Cannanore and Cochin (Pearson, 2003; Chaudhuri, 1985). The architecture of the region is strongly influenced by the maritime traders like the Chinese, Arabs and the Europeans. It is also influenced by the climate and previous civilizations such as the Cholas. The ancient mosques, palaces and the vernacular are good examples of the architectural heritage of the region.

History of Maldives is strongly linked to this region during the period of Arab trade in the Indian Ocean (NCLHR, 1981). The links with the Ali Rajas of Cannanore and the travel



and trade between Cochin, Calicut, Goa and Tutucurin are well documented. The coral stone mosques were compared with the mosques like the Jami Masjid, Muchchandipalli, Hadrapalli in Calicut, and Chembattapalhi in Cochin. They all have tiered roof forms, as well as the prayer halls with columns, antechambers, verandas, and coffered ceilings (Shokoohy, 2004). The classic Kerala architecture also has many features similar to the mosque features. Examples are found in the coffered ceilings of the Sree Padmanaphapuram Palace in Kerala (ASI, 2012).

### **2.5.3 Other coastal regions of South Asia**

All coastal regions of south Asia that had a influence on cultural development of Maldives. Other coastal regions of South Asia apart from the Malabar coastal regions, Laccadive group of Islands, Sri Lanka that had notable links with Maldives was the northwestern regions of India such as the coastal towns of Gujarat, the eastern regions of Bengal such as Calcutta and regions bordering Myanmar. During the Northwest monsoon season Maldivians traveled to the western coastal areas of South Asia and Southeast monsoon season, to the eastern coastal areas of South Asia for trade (NCLHR, 1981; Mohamed, 2012). All these regions are exposed to maritime trade as far back as 3000 BCE with trade relations with ancient Egypt, Greece, Rome, the Arabs and the Persians. The architecture of the region is strongly influenced by the maritime traders like the Chinese, Arabs and the Europeans (Pearson, 2003; Chaudhuri, 1985).

Carvings and decorative motifs of the features of the mosque had similarities in Gujarati region. Stone work from Khambhat (Naseema, 2008; Lambourn, 2004; Wikipedia, 2011),

timber carvings found in traditional houses in old Ahmedabad and lacquer turnings from Sankhedar in Vadodara (Gujarat, 2012) are all such examples. The lacquer works have even closer resemblance to the lacquer works of Myanmar (Isaacs, 2000).

#### **2.5.4 The Minicoy and Laccadive group of Islands**

The Laccadive group of Islands are the closest relative to the Maldives in terms of geography, culture and morphology. The history of the group also has similarities to that of Maldives with a pre Islamic culture based on Buddhism followed by Islam but unlike Maldives, later the Cholas and Rajas of Kannur controlled the islands. There is one special Island, Minicoy, which has strong links to the history of Maldives and is the only part of the world where they share the same language and culture. Travel was frequent between the Islands (Lakshadweep, 2012; NCLHR, 1981; Didi, 1979).

The cultural heritage of these islands has many similarities to that of Maldives. Comparing the mosques in the Laccadives, Minocoy and Amindivi group of Islands, Ujra mosque (the most famous), Mohiddeen mosque (the oldest) are both on Karavatti Island have some resemblance to that of the coral stone mosques. Ubaidullah mosque in Karavatti and Maa mosque in Minicoy are also notable for similarities. Many of the mosques have tombstones of carved coral in their cemeteries but the artistry is significantly less elaborate than that of the Maldivian counterpart. None of the surviving mosques in this group of islands are made with meticulous cutting and shaping techniques of coral stone that are used in the Maldives. Out of the mosques noted in the region none of them unite the elements of architectural form, design, or the craftsmanship and artistry that accompany the coral stone mosques of the Maldives (Lakshadweep, 2012; Wikipedia, 2012).

### **2.5.5 Sri Lanka**

The pre history of Sri Lanka dates as far back as the Paleolithic ages, but Buddhist kingdoms dominated the ancient history. The early Maldivian history is very much linked to the cultures of Sri Lanka. Some of the closest examples of architectural form of the mosques are seen in structures of ancient Sri Lanka. The mosque compound, use of wells, bathing tanks and the concepts of raised plinths have pre Islamic Buddhist origin found in Sri Lanka (Bell, 1940; Forbes, 1981). The architectural form and construction techniques descended from Sri Lanka can be seen in sites such as the Polunnuwara temple in Sri Lanka (WHC-UNESCO, 2011d). There are obvious parallels in form such as the platform base and moldings, but the Maldivian coral stone mosques stand apart with their floral motifs, coral stone building material and finesse, whereas the Sri Lankan counterpart is not made of coral stone and have animal motifs.

### **2.5.6 Swahili coast of east Africa**

The Swahili Coast refers to the coast or coastal area of East Africa mainly Kenya, Tanzania, Mozambique and the islands of Zanzibar region. The major settlements of the Swahili Coast include: Lamu, Malindi, Mombasa, Zanzibar, Dar es Salaam, Mafia Island and Comoros (Pearson, 2003). Maldives had trade and cultural links with the coastal settlements of the Swahili coast for centuries and was strong during the Arab trading period. Maldivian cowry shells played a major part in the trade and African slaves formed part of Maldivian population by the time Batuta came to Maldives (Forbes, 2005).

Apart from links to regions of South Asia coral stone construction of Maldives has its links to this region. Today some of the finest examples of coral stone architecture are seen in the Swahili coast of East Africa. The ancient trading towns of Lamu, Gedi and Jumba of Kenya are built of *porite* corals. Lamu old town, a World heritage site is one of the best, preserved Swahili settlements in East Africa (WHC-UNESCO, 2011e). Horton points out that the first stone mosques excavated in Shanga in Lamu region were constructed of neatly shaped *porites* coral, bonded with mud with a white plaster face and suggests that the technique was of Red Sea origin pointing to Yemeni connections (Horton, 1991). The stone town of Zanzibar, ruins of Kilwa Kisiwam and ruins of Songo Mnara shows fine examples of coral stone construction of 12<sup>th</sup> century (WHC-UNESCO, 2011d). Similarity can be observed in coral carvings of the tombstones of the mosque complex in Kilifi, Kenya (Kirkman, 1959).

One of the comparable mosques found in the Swahili coasts of Africa is the Kizmikazi mosque in Zanzibar. There are similarities in form and layout but there are major differences in the way coral stone is used (WHC-UNESCO, 2011i; Wikipedia, 2012).

### **2.5.7 Malacca straits regions**

Traditionally Malacca strait was the gateway and the main sea route linking the east world to the west. Merchants from Africa, India, Middle East, Europe and China passed by in quest of trade. The main regions of the Malacca straight include port towns of Sumatra and Malaysian peninsula (Pearson, 2003; Chaudhuri, 1985). The culture of Malacca strait is common with similarities in its architectural heritage (WHC-UNESCO, 2011f). Islam was

predominant in this region during the period of Arab trade and typical mosque architecture is evident in the region.

Maldives had strong trade and cultural links with this region. Mohamed notes that traders from Maldives and Aceh region travel made temporary settlements during their trade waiting for the monsoons to become favorable (Mohamed, 2012). Comparing the architectural form to that of the Maldivian coral stone mosque, there are many sites, which can be compared in this region. The roof forms and raised platform of Masjid Kampung Kling in Malaysia are prime examples (Fee, 1998; Frishman, 2007). They all have pyramidal and tiered roof forms with steep slopes and large overhangs. However there are fundamental differences when compared in detail.

#### **2.5.8 The Maritime regions of Arabia and Persia**

Arab and Persian trade existed in the Indian Ocean even before the Islamic period. The Arab and Persian trade increased in the Indian Ocean during the Islamic period and the religion spread to almost all the trading posts of the Indian Ocean. With the spread of the religion came influences of the Arab and Persian cultures such as that of Yemen and Shiraz (Pearson, 2003; Chaudhuri, 1985). Mosques construction and Islam was introduced as a direct result of the Arab and Persian traders in the Indian Ocean. Even though mosque designs were highly adapted and influenced by the regional requirements the fundamentals of Islam and Islamic decorations were visible in the interiors of the mosques. Details of doors, windows and calligraphic decorations using verses of the Quran were used in the decorations are good examples of the influence from these regions (Frishman, 2007; Michel, 2009).

Religious scholars from Yemen, Egypt and Shiraz had major influences in the history and culture of Maldives. History of Maldives mentions of scholars from this region who were given the throne and reign over Maldives for many years. The spread of Islam in the country was most influential in the transformation of the culture of Maldivians (NCLHR, 1981; Bell, 1940).