CHAPTER 3: RESEARCH METHODOLOGY AND DATA COLLECTION

3.1 Introduction

This chapter describes the research methodology, the process of data collection, coding and analysis of data and justifies the choice of a qualitative research method. This chapter also provides summaries of the data collected. The first survey was the archival survey along with literature reviews where the different categories of heritage sites in Maldives were identified. The second, initial survey, which was a survey through telephone interviews, identified the categories of ancient mosques in Maldives. And the final field surveys, which was detail site survey through observations, measurements and interviews provides the information for the analysis of mosque features and comparative analysis.

3.2 Research methodology

The objective of the research which is to identify surviving mosques, to identify the different influences to the evolution of the mosque architecture and to identify the architectural typological features of coral stone mosques lead to the exploration of research methods that needs empirical research method where a hypothesis is generated rather than tested. Features and influences to the architecture of the mosque emerge out of the sorting of a variety of survey data. Thus the qualitative research method is chosen because this research involves multiple stages of data collection and a variety of data. It is because the
conclusions need to be confirmed through a process of data gathering, data coding, analysis, theoretical categorization and sorting at different stages of data collection.

Figure 3.1 Diagram showing the research process.

After comprehensive literature search and reviews the first stage research is data gathering that included archival surveys. Archival surveys include gathering of information from institutions, unpublished reports and museum visits. National Center for Historic and Linguistic Research, The national museum, national library and later the Heritage
Department of Maldives are the main institutions that were visited. The unofficial inventory of heritage sites maintained by the Heritage Department is the primary source of identification of the sites. It is confirmed by cross-references to Interviews and other published literature.

The second stage is the initial survey that was conducted to confirm and revise the data collected from the archival survey and literature review. It collected information regarding the existence, history and material construction. Initial survey was conducted through telephone interviews of caretakers of identified sites. The first open coding starts at this stage. Existing mosques are identified, mosques built in different time periods and different materials are identified at this stage. Three types of mosques in terms of construction material are identified and the mosques for field study are also selected.

The third stage is the field survey, which is the survey that provided the detail information about the selected mosques. Research assistants were trained for the purpose and field surveys included making measured site plans and floor plans, collecting historic and photographic records to identify original and present architectural form, construction and ornamentation. It also identifies the present state of condition of the structures. The field surveys also included personal site visits, observations and interviews of local people with expert knowledge about the construction process and a continuous process of sorting was involved.

The final stage is the analytical stage of research started with the systematic sorting, focused and selective coding of the data until conclusions emerged to address the research
questions. First the data was analyzed to identify typology of architectural features of mosques in terms of design and construction. And the next stage was a comparative analysis of the features identified to the architectural features of cultures Maldives was in contact through the maritime trade. The geo-cultural areas and their architectural features were identified at the initial stages of literature reviews and those features were compared with that of the features of the mosque to identify common areas. Finally the last stage involves the confirmation and summarization of the conclusions were the list of coral stone mosques and its condition was identified, the features of the mosque is identified and the influences to its architecture is identified.

3.3 Literature reviews and Archival surveys

The first stage of the research included literature reviews to build up a case to understand the coral stone mosques, up to the completion of data gathering and first open coding or categorization. Literature reviews were conducted in two languages; English and Maldivian language Dhivehi, covering the topics of heritage of Maldives; general and regional mosque architecture, typological studies of mosques and background of coral stone as a construction material. During the process of literature review it was found that in general, literature regarding Maldives is limited. A few studies have been made regarding the archaeological sites but even less studies have been made about architectural heritage of the country. The main sources of the references are as follows:

- Library of University of Malaya.
- Hassan A Maniku Bibliography about Maldives. This bibliographic reference book is one of the most comprehensive bibliographic references of Maldives. This book has
1387 references about Maldives but only 21 references describe the architectural or archaeological heritage of Maldives. 2 references describe the traditional mosques and others only give a brief description of the traditional dwellings.

- Maldives National Library Bibliography. This book has 589 references about Maldives. 1 ref about the architecture. 1 ref about the conservation of Mosques. 47 refs about the Archaeology and history of ancient world and culture.
- Internet searches; Google scholar, British Library, Congress library, COPAC search engine, Amazon, UNESCO - WHC sites, ICOMOS, Government of Maldives websites for downloads of Laws/Acts and plans/reports.
- Private collection of Mohamed Jameel Didi.
- Private collection of Hassan Ahmad Maniku.

Archival surveys included gathering of information from institutions, unpublished reports and museum visits. National Center for Historic and Linguistic Research, The National Museum, National Library and later the Heritage Department of Maldives were the main institutions visited. The unofficial inventory of heritage sites maintained by the Heritage Department was the primary source of identification of the sites. It was confirmed by cross-references to Interviews and other published literature.

In 2007 the National Council for Historic and Literature Research, Maldives published a book ‘Maldivian Ancient Memories; Heritage places of the Maldives’ by Naseema Mohamed (written in Dhivehi Language) (Mohamed, 2007). In 2009 in an interview by the author, the Assistant Director of Heritage Department, Mr. Ahmed Tholal, informed that
there is no National Heritage Inventory or a National Heritage List and that they use an unofficial heritage list based on the information of the book published by NCHLR. The unofficial heritage inventory of Maldives contains following information.

Table 3.1 Summary of categories in the unofficial list of Heritage sites.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Archaeological sites from the pre Islamic era</td>
<td>78</td>
</tr>
<tr>
<td>2 Archaeological sites from the Islamic era</td>
<td>26</td>
</tr>
<tr>
<td>3 Ancient mosques</td>
<td>46</td>
</tr>
<tr>
<td>4 Mausoleums with ancient cemeteries</td>
<td>20</td>
</tr>
<tr>
<td>5 Other sites</td>
<td>33</td>
</tr>
<tr>
<td><strong>Total number of heritage sites</strong></td>
<td><strong>203</strong></td>
</tr>
</tbody>
</table>

3.4 Initial survey

The initial survey was conducted between January 2011 and April 2011 to verify and revise data collected from the archival survey, interviews and literature reviews regarding the list of heritage properties used by the government of Maldives. It was conducted to collect further information regarding the existence, historical development and material used for construction of the mosques identified in the list. The unofficial list of NCHLR and ‘Maldivian Ancient Memories; Heritage places of the Maldives’ by Naseema Mohamed (written in Dhivehi Language) (Mohamed, 2007) provided the information about ancient mosques. The survey was conducted through telephone interviews of caretakers of the properties who were the island chiefs responsible for the administration and management of
the island community. The first open coding started at this stage (refer Annex 1). 46 ancient mosques were indentified from the list. Their caretakers confirmed the existence of the mosques and provided information about its existing conditions, material of construction and the history. The information gathered was crosschecked with the information collected from the archival surveys and literature reviews. It was discovered that some of the mosques mentioned in the list does not exist anymore and some of the mosque sites had more than one mosque. Therefore the figure of 46 mosques were adjusted as follows:

- There were a total of 51 mosques referred in the unofficial list.
- 40 mosques out of the 51 mosques exist today and 11 have been destroyed.
- Three main types of mosques in terms of use of materials were identified.
- 21 mosques are made out of coral stone blocks of reef coral or Porite origin. Their period of construction ranges from 1403 (Boadha Miskiyy, Koagannu, S. Hulhudhumeedhu) to 1815 (Male’ Eid Miskiyy, Male’).
- 12 mosques are made from Coral sand stone which are consolidated sedimentary rock or a combination of reef coral and coral sand stone. Their period of construction ranges from 1397 (Koagannu Miskiyy, Hulhudumeedhu) to 1878 (Kandhuvalu Miskiyy, Utheem).
- 7 mosques are made from coral rubble and lime masonry. Their period of construction ranges from 1919 to 1940. It was also noted that these 7 mosques are historic mosques but there are more mosques of this type built during the same period and the information about these masonry mosques are not complete.
The research analysis was further revised to add another category as it was observed that some of the mosques used mixed methods of construction using a combination of coral stone, coral sand stone and masonry.

Table 3.2: Revised analysis of the mosques identified in the unofficial list

<table>
<thead>
<tr>
<th>Type no.</th>
<th>Mosque types in terms of construction material</th>
<th>No. Of mosques after first analysis</th>
<th>No. Of mosques after the revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mosques built in coral stone</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>Mosques built in coral sand stone</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Mosques built using coral masonry</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Mosques built using mixed methods</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td><strong>Total existing listed mosques</strong></td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>

3.5 Field survey

21 mosques identified as coral stone mosques in the initial survey were selected for a detailed field survey. The rationale behind the selection of these mosques, were for many reasons. Firstly that this was the most common type in terms of numbers and the type that fulfills the purpose of the study. It was the type that represented the unique construction methods displaying the skill of the ancient and extinct art form. This type also represents a large historic era from 1403 to 1815 and covers the whole geographic regions from north to the south of Maldives. It would have been better if all the 40 mosques were studied but with the limitation of resources, funding and time it was felt that it is better to focus on the
best type or category in terms of numbers and representation of the geographic region and historic time.

The field survey was the survey that provided the detail information about the selected mosques. Research assistants were trained for the purpose and field surveys included making measured site plans and floor plans, collecting historic and photographic records to identify original and present architectural form, construction and ornamentation. It also identified the present state of condition of the structures. Following information was recorded in a systematic manner through measured drawings, photography, visual observations and interviews:

- Identification/ location (Name; Address; Coordinates; Google or other maps)
- Date/ history (Date/s of construction; renovation or reconstruction; Historic commentary)
- Description (Site details with a measured drawing of the site plan and site component; A measured drawing of floor plan of mosque building with orientation; Description of main building elements to include roof, walls, floor and others; Description of construction and ornamentation to include decorative details)
- Status/Conservation/ preservation (General condition of site and structures; Past work in renovation or extensions).
- Documentation/ references (Published or unpublished literature; Previous maps, plans, drawings and photos).
Field surveys were made from May 2011 till September 2011 for the 21 mosques identified as mosques built from blocks of reef coral. The mosques were located at various location throughout the country from the northern most HA atoll to southern most S atoll. Four teams of research assistants were mobilized to different parts of the country and logistics of site surveys were difficult to manage due to the remoteness of some of the sites. The field surveys also included personal site visits, observations and interviews of local people with expert knowledge about the construction process. The data collected was analyzed first to identify the common features of these mosques in terms of architectural form, construction and ornamentation. The next stage was to do a comparative analysis to identify the influences of other cultures, past cultures and the vernacular of Maldives on the features of the coral stone mosques.
Summary of the field survey data of 21 mosques

1. Ihavandhu Old Friday Mosque, HA atoll.

Built in 1701, it is a mosque with side Dhaala and no Mihrab Chamber. The mosque has tiered roof form, raised coral stone platform and post and beam construction. It has fine exterior carvings, interior lacquer work and calligraphy. Original form is compromised due to extensions but the old mosque is in good condition and has high quality workmanship.

Figure 3.2: Description of Ihavandhu Old Friday Mosque

2. Kelaa Old Friday Mosque, HA atoll.

Built in 1692-1701 it is a mosque with side Dhaala and no Mihrab Chamber. The mosque has, raised platform and post and beam construction. It has fine interior lacquer work and calligraphy. The Original form is lost due to extensions.

Figure 3.3: Description of Kelaa Old Friday Mosque

3. Nolhivaram Old Friday Mosque, HDh atoll.

Built in 1699 it is a mosque with side Dhaala and no Mihrab Chamber. It has interior lacquer work and calligraphy. Original mosque form is lost due to extensions and only part of the original mosque remains.

Figure 3.4: Description of Nolhivaram Old Friday Mosque
4. Meedhu Old Friday Mosque, R atoll.

Built 1705 approximately it is a mosque with Dhaalas and Mihrab chamber. The mosque has clay tiled tiered roof form, raised coral stone platform and post and beam construction. It has fine exterior moldings, interior lacquer work and calligraphy. And quality of workmanship and condition is good.

**Figure 3.5: Description of Meedhu Old Friday Mosque**

5. Huraa Old Mosque, K atoll. Cannot be classified as a coral stone mosque anymore.

Built period not clear and it is mosque without Dhaalas and remodeled with Mihrab niche. Original mosque and coral construction is no longer visible due to extensive modification.

**Figure 3.6: Description of Huraa Old Mosque.**

6. Male' Old Friday Mosque, K atoll. In UNESCO Tentative World Heritage List since 2008. Rebuilt in 1657 it is a mosque with side Dhaalas and no Mihrab Chamber. The mosque has tiered roof form, raised coral stone platform and post and beam construction. It has fine exterior carvings, interior lacquer work and calligraphy. Original form and the old mosque are in good condition and have high quality workmanship.

**Figure 3.7: Description of Male' Old Friday Mosque**
7. ‘Male’ Eid Miskiy’, Katoll.

Built in 1815 it is a mosque with side Dhaalas and no Mihrab Chamber. The mosque has tiered roof form, raised coral stone platform and post and beam construction. It has the finest exterior carvings, interior lacquer work and calligraphy. The mosque has been extended on three sides but the old mosque is in good condition and has the highest quality in workmanship.

Figure 3.8: Description of Male’ Eid Miskiy

8. ‘Kalhuvakaru Miskiy’, Katoll.

Built in 1789 it is a mosque with Dhaala and no Mihrab chambers. The mosque has, raised platform, post and beam construction and has fine interior lacquer work and calligraphy. It has very high quality workmanship with some of the timberwork in Ebony. Mosque relocated twice but condition is good.

Figure 3.9: Description of Kalhuvakaru Miskiy

9. Fenfushi Friday Mosque, ADh Katoll.

Built between 1692-1701 it is a mosque with Mihrab chamber and no Dhaala. The mosque has, raised platform, post and beam construction and has fine interior lacquer work and calligraphy. It has very high quality workmanship and is condition is very good.

Figure 3.10: Description of Fenfushi Friday Mosque
10. Veyvah Old Friday Mosque, M atoll.

Built 1620 approximately it is a mosque with Dhaala, no Mihrab chamber and medium quality workmanship. Condition poor and deteriorating.

**Figure 3.11: Description of Veyvah Old Friday Mosque**


Built period not clear, it is a mosque with Dhaala, Mihrab chamber and medium quality workmanship. Original quality is compromised due to poor repair.

**Figure 3.12: Description of Bileddhu Old Mosque**

12. Nilandhu Old Friday Mosque, F atoll.

Drawings not available

Built period unclear it is a mosque with Dhaala and Mihrab chamber. The mosque has important preislamic coral stone gateway. Original mosque form is lost due to extensive remodeling.

**Figure 3.13: Description of Nilandhu Old Friday Mosque**
13. Kudahuvadhu Old Friday Mosque, Dh atoll.

Built 1692 - 1701 it is a mosque with Dhaala and no Mihrab chamber. The mosque has important preislamic coral stone gateway. Original mosque form is lost due to extensive remodeling.

Figure 3.14: Description of Kudahuvadhu Old Friday Mosque


Built 1400 approximately it is a mosque with Dhaala and no Mihrab chambers. Original mosque form is compromised due to remodeling.

Figure 3.15: Description of Guraidhu Ziyaaraiyy Miskiy

15. Fonadhu Old Friday Mosque, L atoll.

Built period unclear but it is a mosque with Dhaala, Mihrab chamber and quality workmanship. Original form is lost due to extensions.

Figure 3.16: Description of Fonadhu Old Friday Mosque
16. Isdhu Old Mosque, L atoll.

Built 1701 it is a mosque with Dhaalas, Mihrab chamber and high quality workmanship. It has tiered roof form, raised coral stone platform and post and beam construction. It has the fine exterior moldings, interior lacquer work and calligraphy. Original mosque form intact and in good condition.

Figure 3.17: Description of Isdhu Old Mosque

17. Kondey Old Mosque, GA atoll. Cannot be classified as a coral stone mosque anymore.

Originally built around 1657 it is mosque without Dhaalas and remodeled with Mihrab niche. Original mosque and coral construction is no longer visible due to extensive modification.

Figure 3.18: Description of Kondey Old Mosque

18. Vadhu Old Friday Mosque, GDh atoll.

Built 1736 approximately. It is a mosque is with no side Dhaalas, Mihrab chamber, two prayer halls and high quality workmanship. It has raised coral stone platform and post and beam construction. It has the fine interior lacquer work and calligraphy. Original mosque is intact but condition is very poor.

Figure 3.19: Description of Vadhu Old Friday Mosque

Built 1403 approximately, it is a mosque without Dhaalas or Mihrab chamber. It is a very basic mosque with no decorations or raised platforms. Original mosque quality is compromised due to remodeling.

![Image of Hulhumeedhu Boadha Miskiy](image1.jpg)

**Figure 3.20: Description of Hulhumeedhu Boadha Miskiy**


Built 1586 approximately it is a mosque without Dhaalas or Mihrab chamber. It is a very basic mosque with no decorations or raised platforms. Original mosque is in tact but the state of condition is poor.

![Image of Hulhumeedu Fandiyaaru Miskiy](image2.jpg)

**Figure 3.21: Description of Hulhumeedu Fandiyaaru Miskiy**


Built period unclear it is mosque without Dhaalas and remodeled with Mihrab niche. Original mosque and coral construction is no longer visible due to extensive modification.

![Image of Maradhu Dhadivaru Miskiy](image3.jpg)

**Figure 3.22: Description of Hulhumeedu Dhadivaru Miskiy**