

CHAPTER II

LITERATURE REVIEW

2.0 Introduction

This chapter covers case studies from the Stone Town of Zanzibar in Tanzania and the urban design of Chandigarh in India. The two case studies were selected due to their similarities in urban context to the study area of Mombasa Old Town. The overall urban design characteristics of the two case studies are analysed in terms of the historical context and also the physical attributes that constitute the overall urban form.

2.1 Stone Town of Zanzibar

2.1.1 Background Information

The Stone Town of Zanzibar is located along the East African Coast and is characterized by historical events that contributed to its urban form. Traditional coral stone buildings, narrow bazaar streets, massive carved doors and intricate multi-storied balconies are some of the built elements that constitute the urban context of Zanzibar, which is a unique blend of history, culture and architecture.

A conservation plan for the historic Stone Town of Zanzibar was prepared by the planning team that was coordinated by Francesco Siravo, an architect and conservation planner. The conservation plan was approved by the Zanzibar authorities in July 1994 and was a joint initiative of the Zanzibar Ministry of Water, Construction, Energy, Lands and Environment and the Historic Cities

Support Programme of the Aga Khan Trust for Culture. The name Zanzibar originated from the Arabic words 'Zangh' and 'bar', meaning; 'coast of the black people'. Zanzibar developed as a town on the main island of the Zanzibar archipelago known as Unguja. The urban development of Unguja was due to a number of factors such as tropical climate, fertile soil, availability of water and building materials.

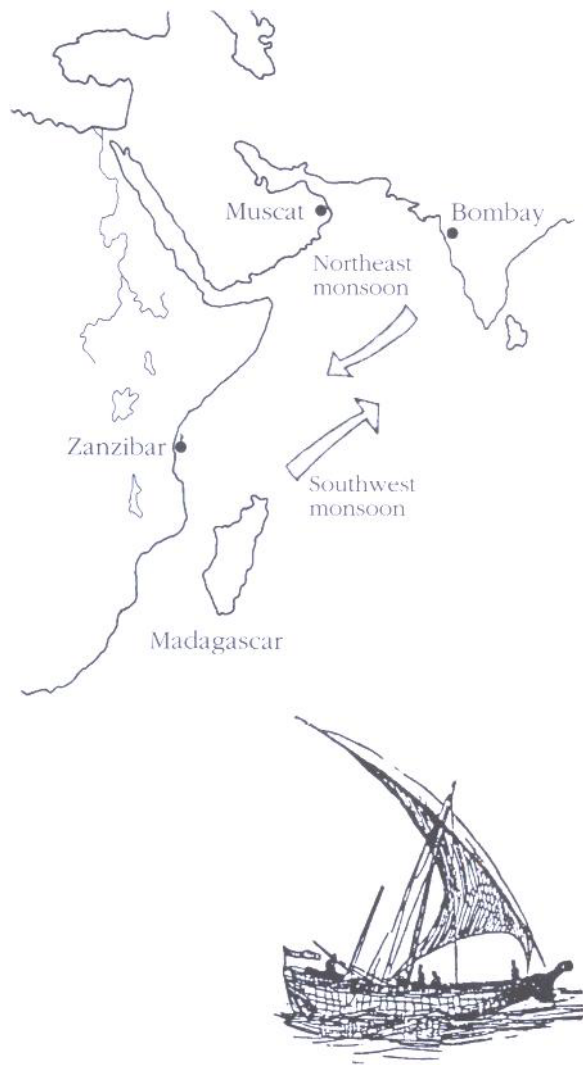


Fig. 2.1 Monsoon winds along the East African Coast
Source: Siravo et al, 1996

Fig. 2.1 shows the direction of the monsoon winds that carried large trading dhows between East Africa, Arabia and India. The items that were traded include porcelains from China, glass beads from India, cloth from India, Egypt and Somalia upon arrival to the East African Coast. The traders returned home with the south-west monsoon carrying ivory, timber, tortoise shells, iron and gold from East Africa.

Traders settled along the East African Coast and as a result, they brought a new religion, Islam, into the region between the ninth and the twelfth centuries. A series of trading centers were established gradually along the East African Coast from Somalia to Mozambique. A new culture called the 'Swahili' evolved as a result of this contact between the African population and the traders from Arabia, Persian Gulf and India.

The Island of Zanzibar was first mentioned by Vasco Da Gama in 1499, however, archaeological research indicates that settlements on the Island date from a much earlier period estimated to the year 1107. Most of the harbor towns along the East African Coast were affected by the Portuguese control of the Indian Ocean trade in the 15th Century. These towns include Mombasa, Kilwa, Lamu and Pate. The Portuguese built a chapel in Zanzibar, which was first documented by a Father Monclaro in 1569.

The Sultanate of Oman assisted the Swahili towns in 1652 in their struggle against the Portuguese invasion and rule. This led to the capture of Fort Jesus in Mombasa by the Omanis. During this period forts were built in Swahili towns such as Zanzibar, Lamu and Siu to consolidate the Omani hold on the Coastal region at the turn of the 18th Century. Zanzibar was therefore under direct Omani rule since 1785 and the number of Omani Arabs increased during the 19th Century. Sultan Sayyid Said of Oman visited Zanzibar in 1828 and later moved his court from Muscat to Zanzibar in 1832. The number of Omani Arabs and Muslim Indians grew rapidly during this period. This increase in population gave rise to the need for built structures such as Mosques, Palaces, shops and country houses. This resulted into a period of rapid growth of the town including Stone houses at the commercial quarter and mud houses towards the outskirts.

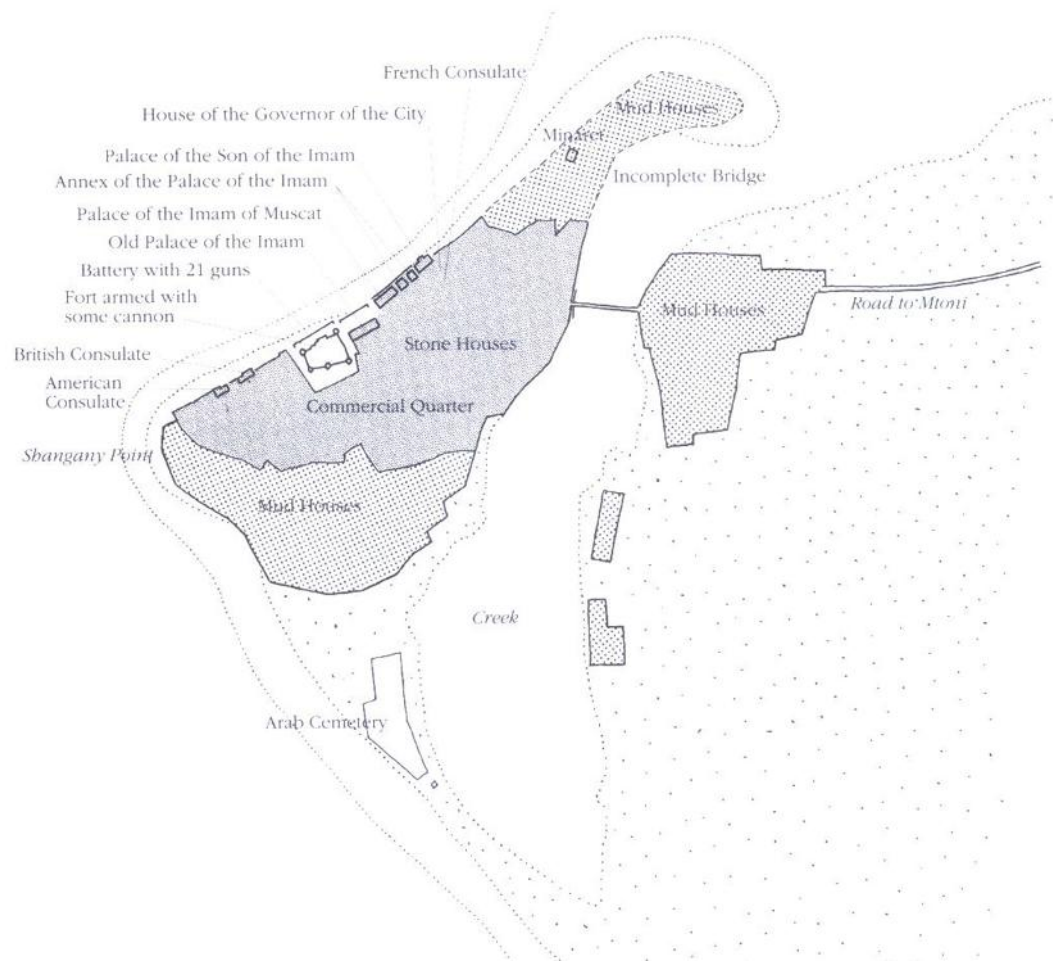


Fig. 2.2 A sketch plan of Zanzibar based on Captain Charles Guillain's map of 1846
 Source: Siravo et al, 1996

Fig. 2.2 shows the development of the Stone Town surrounded by mud and thatch houses. The commercial quarter shown on the sketch indicates the area that developed into bazaar streets within the Stone Town as early as 1846.

The development of Zanzibar took a different turn during the rule of the third Sultan Sayyid Barghash who reigned from 1870 to 1888. Sultan Barghash initiated the improvement of public facilities such as roads and buildings.

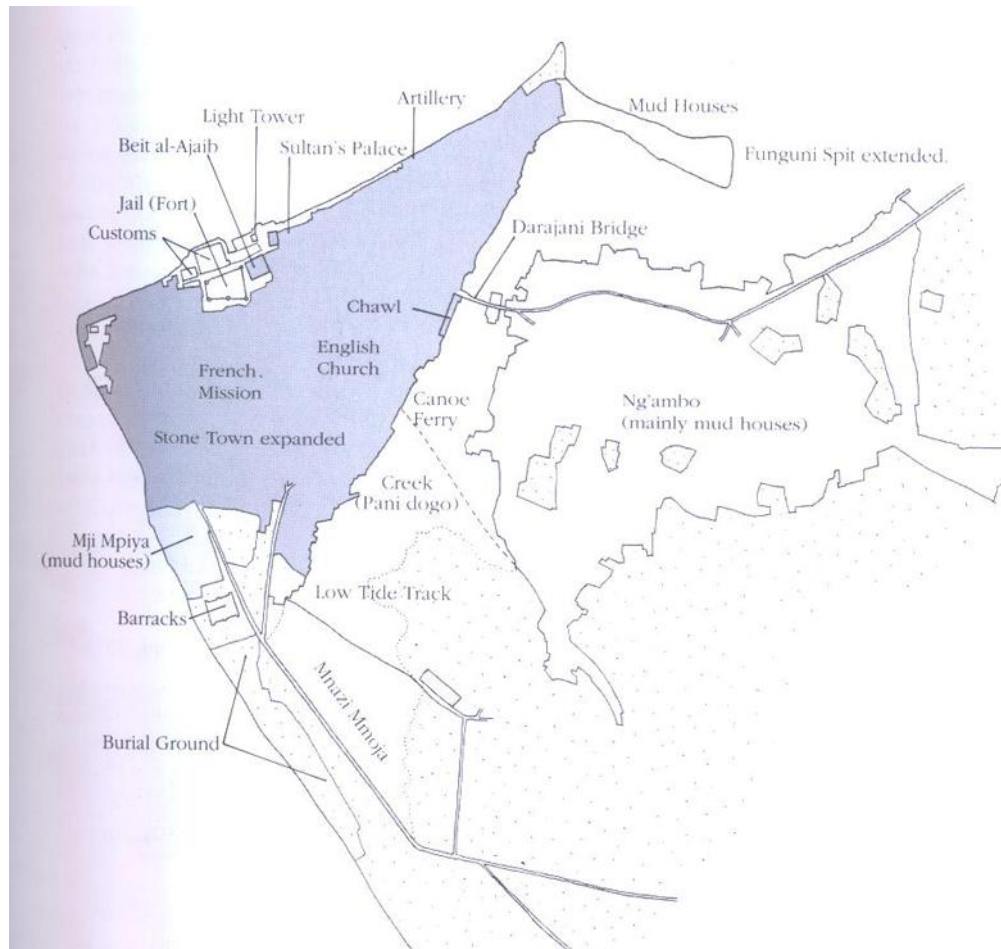


Fig. 2.3 A sketch plan of Zanzibar based on the survey map of 1892
 Source: Siravo et al, 1996

Stone buildings spread across the Stone Town with landmarks being established as part of the development of Zanzibar. Fig. 2.3 shows these principal landmarks and the town's development.

The first map indicating the street patterns and the different 'mitaa' of the town was drawn in 1892 by the survey of India.



Fig. 2.4 Map of Zanzibar drawn by the Survey of India in 1892
 Source: Siravo et al, 1996

The map drawn by the Survey of India indicated accurately the street patterns and the names of the 'mitaa'. A cluster of houses is known as 'mtaa' in Swahili language. The plural of 'mtaa' is 'mitaa'. The basic configuration of the Stone Town including the street pattern indicated on the 1892 map has not changed significantly as compared to the present day Zanzibar.

In 1896, the British bombarded the waterfront of Zanzibar seriously damaging important buildings such as the Beit al-Sahil, the Old Palace and completely

destroyed the Beit al-Hukm. The Sultan's palace was rebuilt in a reduced size with Beit al-Ajaib escaping the bombardment unscathed.

British administration managed the Stone Town of Zanzibar for sixty years after the close of the 19th Century. New public buildings were built during this period, which also included new districts with broad avenues contrasting the compact and urban character of the Stone Town. Vuga south district is an example of such developments designed as a European quarter at the southern edge of the town.

The construction of the railway line in Zanzibar in 1909 marked another major urban development within the Stone Town. The railway ran for seven miles starting from the Fort along the waterfront to Malindi, Darajani Bridge, Saateni, Mtoni and finally to the coastal village of Bububu.

Sultan Khalifa ruled the Island from 1911 until his death in 1960. It was during this period that Stone Town achieved its final configuration including public infrastructure schemes such as the filling of the creek, which was completed in the 1950s. part of the creek was drained and converted into a public recreation area in 1915.

A new deep-water wharf and cargo handling and storage facility was created in the 1920s in form of a new port. This radically transformed the shape of the waterfront with new landfills created and the demolition of large mansions. The

first formal town plan for Zanzibar, completed in 1923 by Henry Vaughan Lanchester, outlined these changes as urban improvements. Water supply systems, sewer lines and drainage systems were also installed within the Stone Town during this period. Narrow streets were paved and roads were widened to improve traffic flow. Some buildings were demolished and others altered to accommodate the demands and needs of the 20th Century.

The Stone Town experienced decline and deterioration after the 1964 revolution that resulted into economic and social changes.

2.1.2 Urban Space Characteristics

Narrow streets and haphazard building arrangements within neighborhoods called 'mitaa' characterize the Stone Town of Zanzibar. Pedestrianised scale of streets as shown in Fig. 2.5, forms the typical urban form within the Stone Town. Mixed-use buildings consisting of commercial facilities on the street level with residential units above are the predominant typologies found within the Stone Town. Such buildings encourage commercial activities along the streets thereby increasing human activities. Fig. 2.6 shows an example of a 'mtaa' in Kajificheni which consists of shop front buildings within narrow streets. Buildings are very closely built adjacent to each other forming a typical urban form common to most old towns along the East African Coast.



Fig. 2.5 Typical urban settings in Kajificheni and Vuga villages in Zanzibar
Source: Siravo et al, 1996

The street patterns shown in Fig. 2.5 resulted from uncontrolled development that takes the form of irregular geometric configurations and narrow street widths. The width of streets was established in part I of this study as one of the urban design characteristics that influence human activities. This street pattern however has both advantages and disadvantages. Environmental control through sun shading, breeze regulation and others are some of the advantages of narrow streets. The irregular street patterns offer unique urban experiences as one walks through such streets. Serial vision as described by Gordon Cullen is achieved through such street configurations.



Fig. 2.6 Typical block at Kajificheni in Zanzibar
 Source: Siravo et al, 1996

Fig. 2.6 shows a typical layout of a neighborhood called Kajificheni with doors opening into the street. Part I of this study established that the number of doors along a street influences human activities, therefore the street in Fig. 2.6 encourages these human activities. The edge of the street is not uniform and quite an unpredictable configuration thereby creating a unique experience. Visual qualities differ from one street to the other.

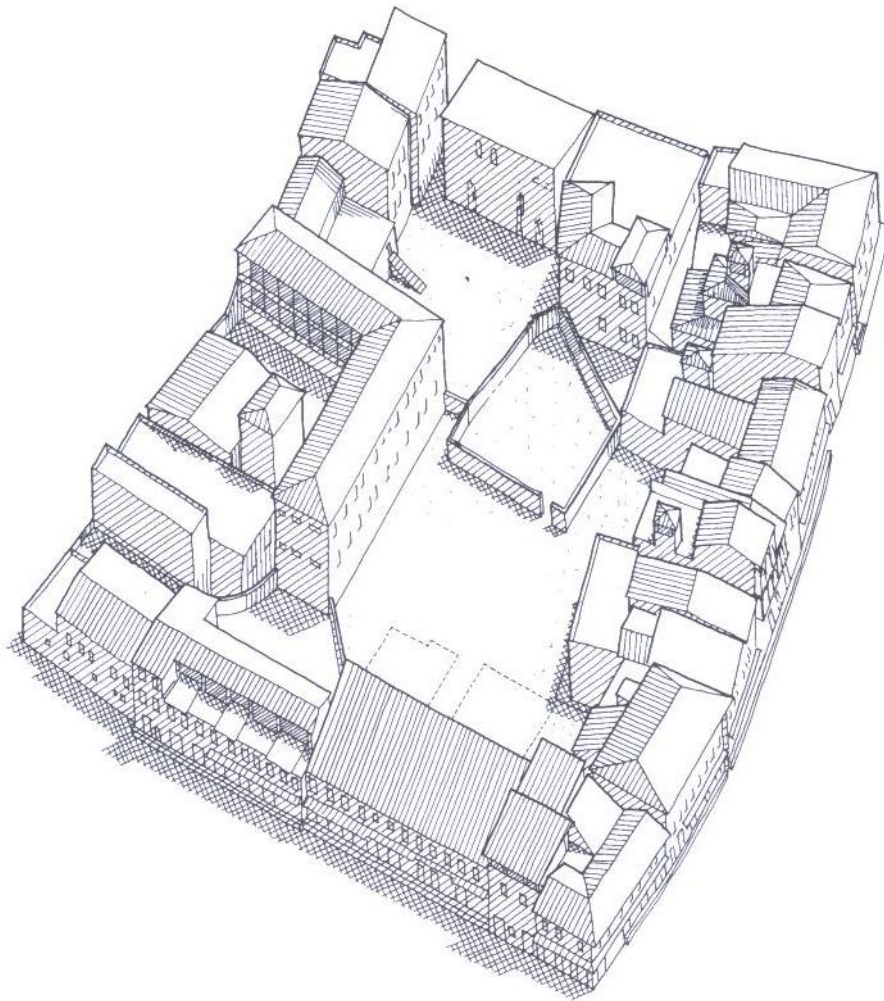


Fig. 2.7 Axonometric view of typical block at Kajificheni in Zanzibar
Source: Siravo et al, 1996

2.1.3 Building Height

The axonometric view on Fig. 2.2.7 shows the building heights of a typical urban block at Kajificheni in Zanzibar. This is a cluster of mixed-use buildings consisting of two and three storey buildings. The scale of these buildings creates narrow and shaded streets that enhance human activities. Such qualities of urban space represent the predominant street character within the Stone Town.



Fig. 2.8 Steet profile at Darajani in Zanzibar
Source: Siravo et al, 1996

The three storey buildings along the edges of neighborhoods create urban spaces that accommodate the human scale as shown in Fig. 2.8. Human activities are enhanced through the creation of such space characteristics.



Fig. 2.9 View of Forodhani waterfront in Zanzibar
Source: Siravo et al, 1996

Fig. 2.8 and Fig 2.9 show typical building heights along the streets and the waterfront within Zanzibar. The heights vary from two floors to three floors, thereby forming a distinctive definition of the skyline within the Stone Town.

2.1.4 Building Functions

Commercial facilities such as retail shops are found along the streets within the Stone Town. Fig 2.10 shows existing land uses within the Stone Town. Part I of this study established that residential buildings influence social activities along the street. Shop front buildings as shown in Fig. 2.11 also enhance commercial activities along the street. Shop front buildings increase the number of doors along the street, which in turn enhances human activities. With the increase in number of doors, the street edge becomes more porous thereby encouraging spaces and activities to flow between inside and outside of buildings and into the street. Doors assist in creating character of spaces along the street. The character created therefore, influences human behavior, as people tend to concentrate where there are openings along the street.



Fig. 2.10 Map showing existing land use within Zanzibar
 Source: Siravo et al, 1996



Fig. 2.11 Shopfront buildings along Gizenga Street in Zanzibar
Source: Siravo et al, 1996

Streets are usually filled with human activities due to the presence of commercial facilities that attract activities. Fig. 2.11 shows a typical street with shop front buildings and concrete platforms in form of benches that accommodate social and commercial activities along the street.

2.1.5 Visual Access

The narrow bazaar streets that form the main character of the Stone Town provide a unique quality of visual experience along the streets. Serial vision is achieved through such street profiles and geometrical configurations. The scale and proportion created by the narrow bazaar streets within the Stone Town enhance visual quality.

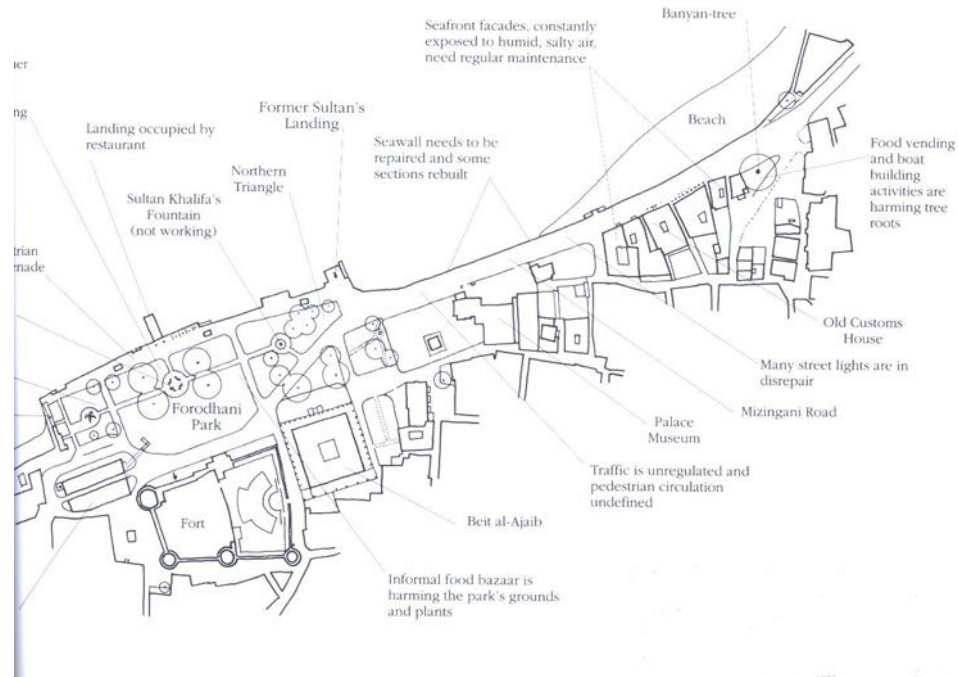


Fig. 2.12 Proposal for Forodhani area in Zanzibar
 Source: Siravo et al, 1996

Design proposals for the redevelopment of the Stone Town provide opportunities for enhancing visual qualities of the urban environment. This improvement of the urban environment is shown in Fig 2.12 outlining the proposal for Forodhani area in Zanzibar. Green areas have been introduced to enhance visual access as well as creation of aesthetically appealing urban environment.

The street profile shown in Fig. 2.13 demonstrates the typical visual qualities found within the Stone Town. Narrow streets with buildings arranged haphazardly provide this unique urban experience of the Stone Town. The street geometrical profiles create focal points that give character to the streets within the town.

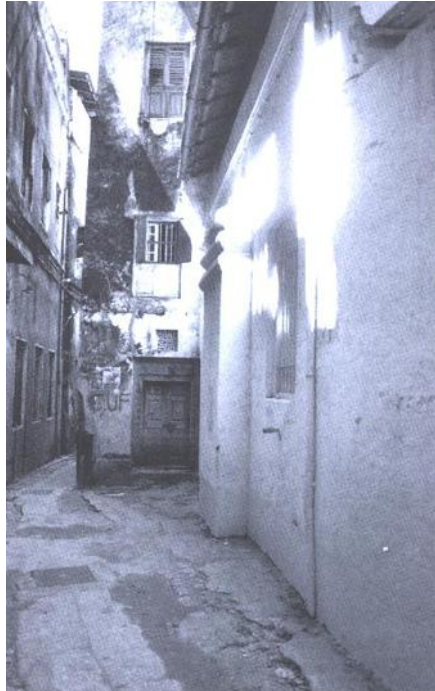


Fig. 2.13 Typical street profile in Zanzibar
Source: Siravo et al, 1996

The geometrical pattern of the street is such that one has to walk through it to experience the quality of the urban spaces along the street. Combinations of concave and convex urban spaces are created with such geometrical patterns thereby making the street attain spatial hierarchy through these changing configurations.

2.1.6 Material Use Along the Streets

Whitewash plaster is the predominant wall material used within the Stone Town together with decorative elements such as doors, timber balconies and concrete benches. The streets were recently paved with concrete blocks as part of restoration programme in Zanzibar. These materials and decorative elements have created spaces that integrate and accommodate human activities along the streets.

For example, doors have been established to influence human activities within urban spaces.



Fig. 2.14 Typical shop front buildings along the streets in Zanzibar
Source: MOTCO

Whitewash with colored decorative plasterwork on openings along the streets as shown on Fig. 2.14 forms part of the materials used along the streets within the Stone Town. Arched openings are also common and they create the overall character within the Stone Town. These openings are used in defining urban spaces by accommodating activities.

Some traditional Zanzibar doors still remain unchanged in terms of color and texture. Fig. 2.15 shows a typical carved door along the streets of the Stone Town. Such doors are part of the architectural and historical heritage of the Stone Town and therefore contribute to the overall character of the Stone Town.



Fig. 2.15 Typical timber Door along the streets of Zanzibar
Source: MOTCO

The door has unique attributes such as workmanship, materials, scale, location on the street and historical significance that contribute to the character of the street. The door way is composed of elements such as concrete plinth finished with hardwood doorstep and concrete skirting on both sides of the door thereby

assisting in defining urban spaces along the street. Privacy levels are established through such decorative and functional details along the street. Such details also define transition spaces between public and private spaces. These are the semi-public and the semi-private spaces that are typical of Swahili spatial characteristics.

2.1.7 Vegetation Along the Streets

The typical characteristics within the Stone Town are those with minimum vegetation within the streets, however, there are some public recreation areas that are characterized by vegetation cover. Forodhani area in Zanzibar is an example of such public facilities.



Fig. 2.16 Garden area in front of Beit Al-Ajaib in Zanzibar
Source: MOTCO, 2007

The Forodhani area is well covered by landscaping efforts as part of revitalizing the urban experience within the Stone Town. This includes the frontage to the

historical building known as ‘Beit Al-Ajaib’, an Arabic word that means ‘House of Wonders’. These landscaping efforts have enhanced human activities within the Stone Town by providing essential urban facilities such as resting places, social meeting points, spiritual gardens and commercial outlets within these parks.

2.1.8 Nodes

Important nodes within the Stone Town include the Seafront, the Port entrance, Malindi and the Central Market area. These areas are characterized by intense human activities. Such areas serve as nodes within the town and are therefore earmarked for redevelopment to enhance human activities, ensure economic sustainability and improve the character of the Stone Town.

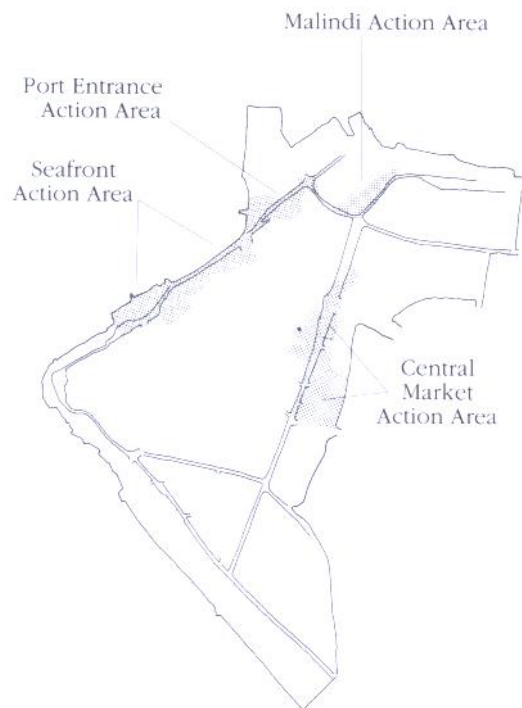


Fig. 2.17 Some nodes within Zanzibar
Source: Siravo et al, 1996

The locations of some of the important nodes within the Stone Town are indicated in Fig. 2.17, which includes the action areas identified in the design proposal prepared by Siravo and others.

The central market area, for example, is an important node within the Stone Town due to its activities. In the design proposal, Siravo and others recognized the need to redesign this node and enhance human, social and economic activities that take place within such a facility. Fig 2.18 shows the existing urban space characteristics of the central market area. This includes areas that need to be re-organised and re-designed.

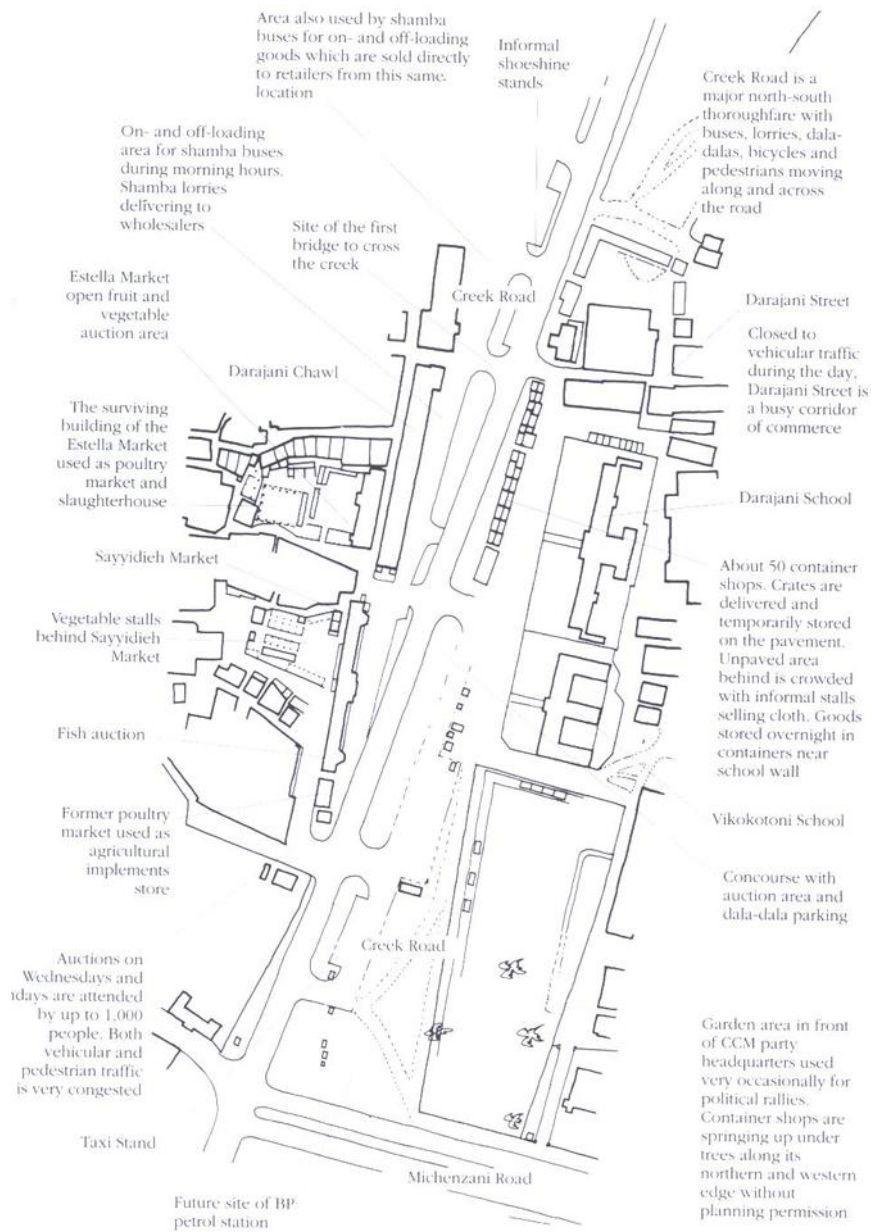


Fig. 2.18 Plan showing the existing Market area of Zanzibar
Source: Siravo et al, 1996

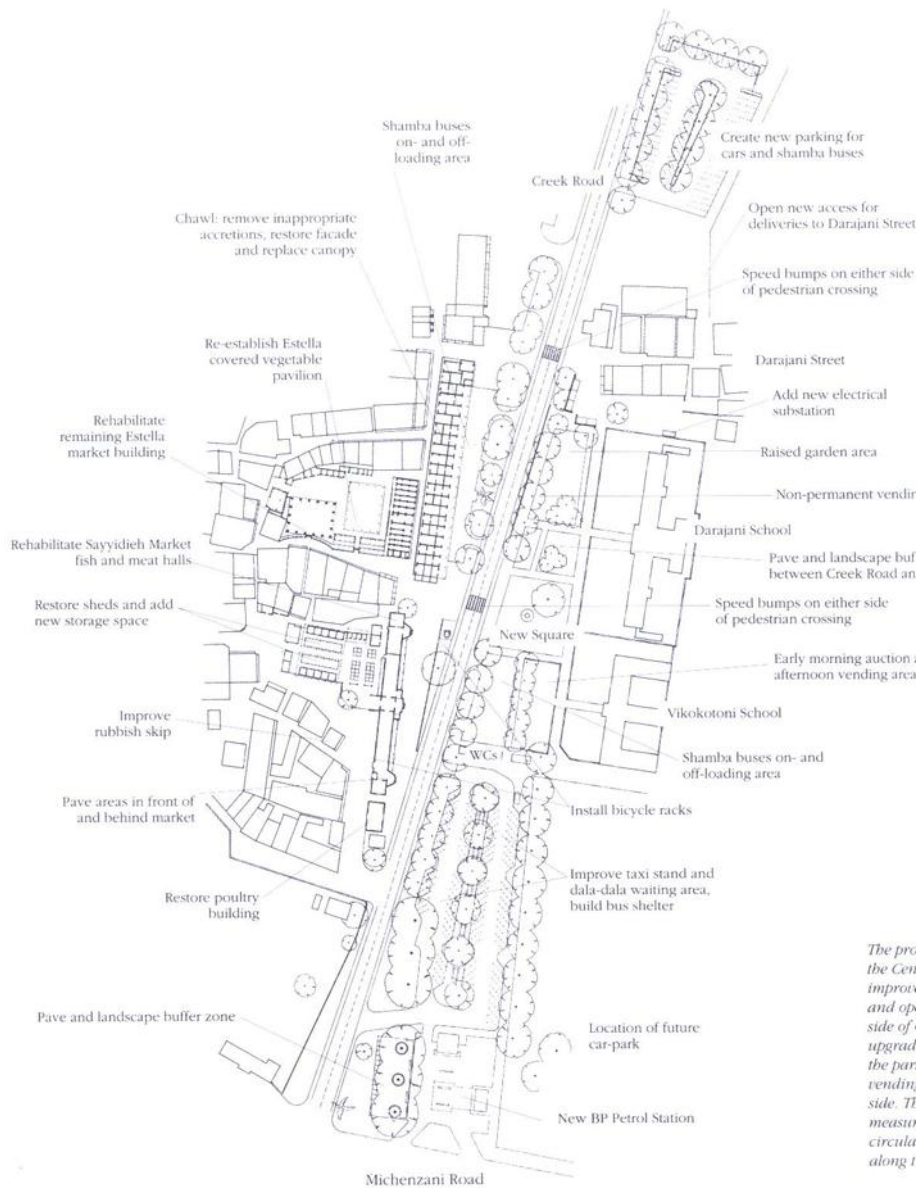


Fig. 2.19 Plan showing the proposed design of the Market area
 Source: Siravo et al, 1996

The design proposal for the Central Market area is presented in Fig. 2.19. The proposal incorporates the re-organisation of activities and the re-design of public areas to enhance the spatial configuration of the Market area as a node within the Stone Town. Plant material and landscaping elements are used in defining spaces within the Market area.

2.1.9 Paths

Fig. 2.20 shows the existing circulation pattern for the Stone Town. These patterns include the vehicular and the pedestrian paths, which are defined in the design proposal. The overall circulation patterns for the Stone Town provides a framework for the redevelopment of the overall image of the Town.

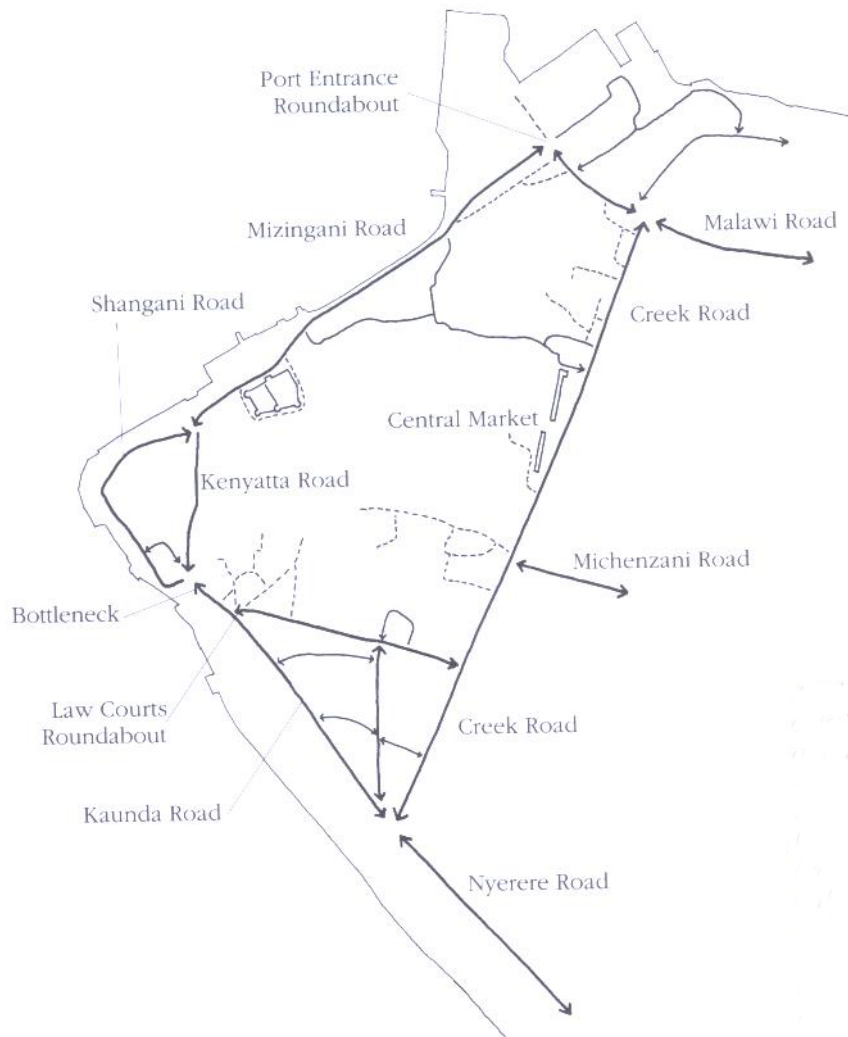


Fig. 2.20 Plan showing the existing circulation pattern within Zanzibar
Source: Siravo et al, 1996



Fig. 2.21 Typical street within Zanzibar
Source: Siravo et al, 1996

The street is a path used by pedestrians and vehicles as seen on Fig. 2.21. This is a typical example of poorly defined paths that often result to a failure of circulation within public spaces. Accidents are bound to occur in such spaces as a result of poorly defined circulation patterns.

2.1.10 Edges

The edges are well defined within the Stone Town with buildings limited to three floors as a result of construction technology applied during the development of the town. The waterfront is a typical example of a balanced and rhythmic edge that contributes to the overall character of a densely populated town and an urban civilization such as the Stone Town of Zanzibar.



Fig. 2.22 Buildings along the Forodhani waterfront in Zanzibar
Source: Siravo et al, 1996

The edges shown in Fig. 2.22 and Fig 2.23 demonstrate the interplay of solids and voids within the urban form while at the same time responding to the general topography of the site.

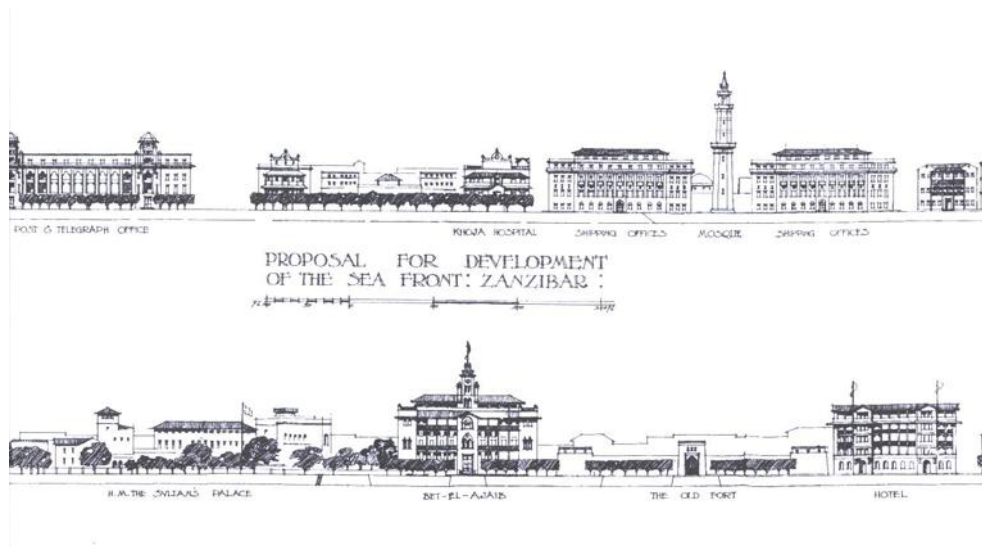


Fig. 2.23 Proposed elevations for the sea front in Zanzibar
 Source: Siravo et al, 1996

2.1.11 Landmarks

Important landmarks that include the built and the natural physical environment characterize the historic Stone Town of Zanzibar. The Sea Front also known as the Water Front, which is called Forodhani in Swahili, is one of the landmarks within the Stone Town. Other landmarks include Beit Al -Ajaib, the High Court, the Fort, the Mosques and the Churches.



Fig. 2.24 Beit Al-Ajaib in Zanzibar
Source: Siravo et al, 1996

'Beit Al- Ajaib' is an important landmark due to its historical significance and architectural qualities. The building and the open space around it contribute to the spatial and historical character of the Stone Town, which contributes to the overall image of the Town. Residents are able to associate themselves with such buildings due their attributes.



Fig. 2.25 The High Court building in Zanzibar
Source: Siravo et al, 1996

The High Court is another example of the important landmarks within the Stone Town of Zanzibar due to its historical and architectural significance. Apart from its history, the high court is a fine example of Arabic influences on architecture and urban design found within the Stone Town. Such landmarks assist in way -

finding for residents and visitors to the town and also create the image of the town.

2.2 Conclusion

The character of the Stone Town of Zanzibar is enhanced by several factors such as historical attributes, culture of the people, the economic activities and the physical environment.

The design of public facilities enhances the urban experiences within the Stone Town. These facilities are in form of open spaces such as Forodhan i and other nodes within the Stone Town. Specific space defining elements such as the width of the street, the number of doors, building heights and building functions, have been established by the case study in enhancing urban spaces and influencing human activities.

A unified and controlled built environment enhances the overall character of the Town. Paths, nodes, edges and landmarks are some of the important urban elements that are considered in the design of a historic town such as the Stone Town of Zanzibar.