

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF ARCHITECTURE AND PLANNING
FACULTY OF ARCHITECTURE**

KNUST

EVALUATION OF COMMERCIAL COMPLEXES IN GHANA

BY

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**A THESIS SUBMITTED TO THE DEPARTMENT OF
ARCHITECTURE IN PARTIAL FULFILLMENT OF
THE REQUIREMENT FOR THE AWARD OF
MASTER OF ARCHITECTURE
DEGREE**

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DECLARATION

I hereby declare that this submission my own work towards the Masters of Architecture, and that to the best of my knowledge contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

This project is dedicated to my dear father and mother for their love, commitment and encouragement throughout my education.

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ACKNOWLEDGEMENT

I wish to acknowledge my indebtedness to the Almighty God for his divine protection and assistance throughout my education.

I am also grateful to my lecturer and supervisor Mr. G.F. A. Olympio for his patience, constructive criticisms and valuable suggestions, which have made this, project a reality. To Mr. Botchway, I say thank you sir for your invaluable contribution. Dr. Kutin, you have been of immeasurable help and I say God bless you. I am also grateful to the administration of Accra Mall I say a big thank you for all the information you gave me in the research process. You have really been of a great help.

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ABSTRACT

Commerce has undergone numerous degrees of phases and changes over the years as man made one discovery after the other. The various stages of man's development in descriptive terms meant an agglomeration of certain types of goods and services within that particular era, which also can be interpreted into various systems and mechanisms of exchange within time and space. The commercial activities prominent within the district capital of Kumasi – (Central Business District – Adum) have developed to the stage whereby shopping which once used to be enjoyable and stress free has now become a much dreaded experience due to passenger vehicular conflict, traffic congestion, and its negative socio-economic and health implications. The thesis aims at solving or reducing this existing menace by providing the public with an alternative shopping unit – a one stop shopping center, which is designed principally to satisfy the needs of both the customer and the prospective sellers. This outfit by design solves the problems of circulation, ventilation, lighting, storage spaces etc – optimizing the use of space or land. Once the facility is operational, attention would more or less be drawn from the C.B.D, reducing the congestion and its related challenges in no small way, to a less congested zone where commerce can go on with minimal spacial restrictions – all things being equal. For these reasons, the project is sited at Abuakwa, a satellite town which is about 11.5km from the C.B.D.

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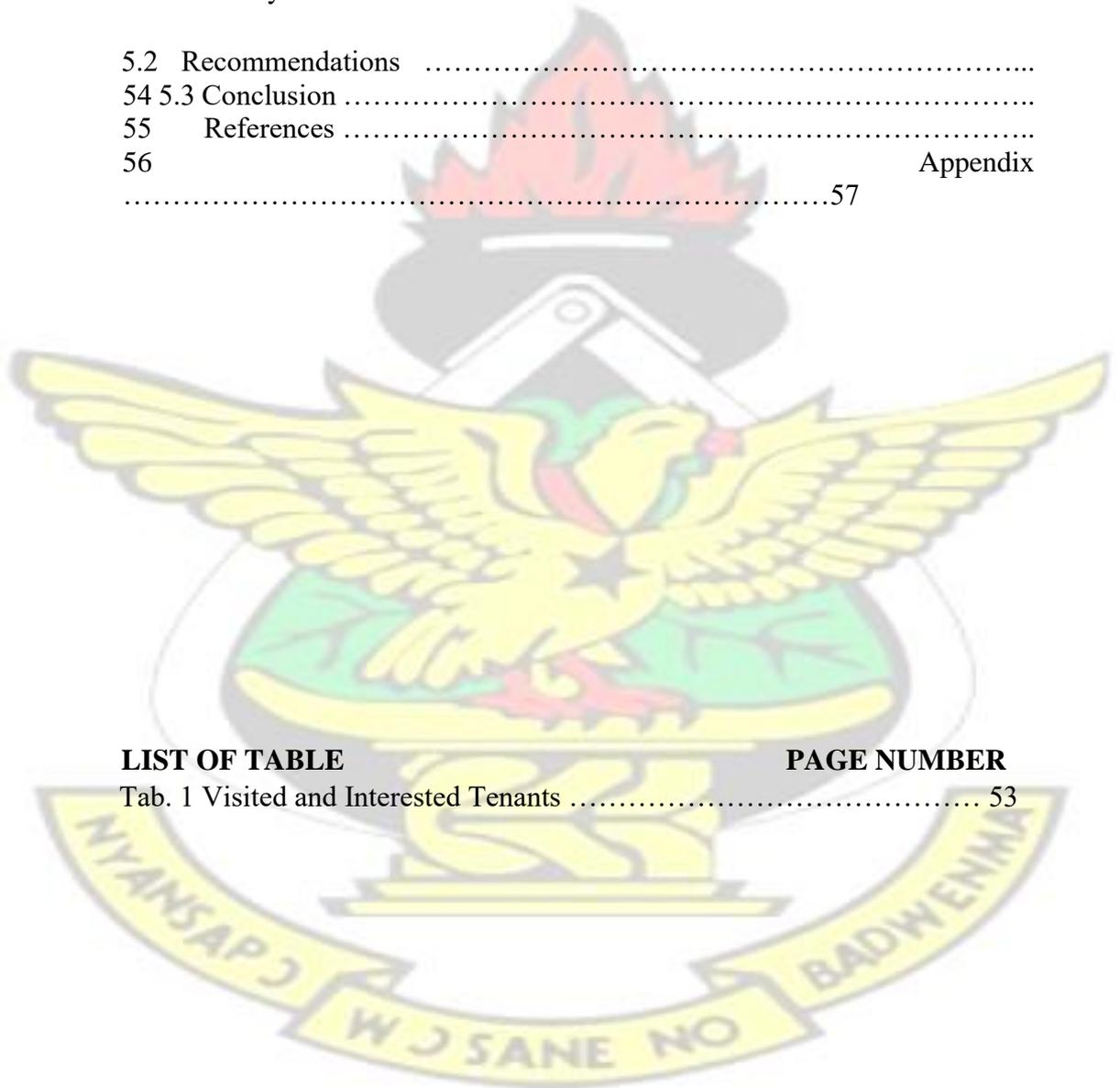
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CHAPTER 1

1.0 INTRODUCTION

Commerce which basically entails the activity of buying and selling has been with man from time immemorial. The barter system probably the first record of such activity in ancient times has graduated from the simple exchange of goods for goods and services to a more complicated mechanism which led to the introduction of money which became the main medium of exchange. In more advanced countries the handling of money in physical terms for transactions, is rapidly fading out and giving

way to the use of credit and debit cards. The changes in these trends, mediums and forms, and systems of exchange are associated with their spatial implications. Studies have shown that most developed countries have been able to organize their commercial spaces such that commercial activities are more comfortable, congenial and delightful, unlike developing countries which are mostly characterized with congestion and other inconveniences, making trading less comfortable and at worst a much dreaded experience.

Adum, which is the Central Business District of Kumasi, (the second capital city of Ghana) has streets which are mostly choked with vehicular traffic. Additionally, hawkers, squatters and street peddlers occupy pedestrian walkways with their products, indirectly pushing the pedestrians to compete with cars on the street for space. It is not surprising that the Kumasi Metropolitan Assembly, under the leadership of Mrs. Patricia Appiagyei, quiet recently undertook a series of decongestion exercises to enhance fluid circulation and comfort levels as far as pedestrians are concerned. It is however unfortunate that few weeks after these exercises, the squatters and peddlers found their way back to the streets and walkways.

1.1 PROBLEM STATEMENT

- The Central Business District of Kumasi is characterized with heavy vehicular and pedestrian congestion, primarily because it is the only major centre for commerce within the city where prospective buyers and sellers commute with the assurance of having their needs met one way or the other, while persistent growth of the city which invariably reflects in the growth of commercial

activities, has put pressure on the Central Business District, giving rise to negative socio-

economic implications like waste disposal and management problems, which also has challenging health implications in the city.

- It has been observed that the Central Business District has become too small for the growing populace of the city, some lawless street hawkers and shop owners have haphazardly sited their facilities – pushing pedestrians onto the streets, and in certain instances blocking vehicular accesses into vital areas within the district. This has in many instances compromised safety during fire outbreaks. Social vices like pilfering, pick pocketing, and indiscriminate refuse disposal are also encouraged due to excessive congestion of the Central Business District.
- Parking which is a very essential facility for commercial centers is too inadequate to meet the enormous needs of car users in the Central Business District.

1.2 OBJECTIVES

The objectives of the project are to design:

- A commercial complex spacious and well facilitated enough to accommodate the expected inflow and outflow of both humans, vehicles, wide range of merchandise and services efficiently and effectively at Abuakwa – providing an alternative to the CBD of Kumasi which is already choked.
- A well-structured commercial facility well equipped with the required waste disposal units at appropriate distances, where waste management and disposal mechanisms are practiced and enforced adequately.

- A Facility that seeks to address parking needs associated with a commercial center or area, taking into consideration the retail floor space which is a direct function of car parking space.

1.3 SCOPE

- The research would address the various functional requirements necessary to make a commercial complex a one stop shopping center, as well as examine how best to avoid or minimize the occurrence of vehicular pedestrian conflicts.
- Issues related to effective and efficient car parking systems adaptable to commercial complexes would be delved into, and effective waste management and disposal mechanisms applicable to commercial complexes considered.
- Good security functionalities including the appropriate use of CCTV systems would also be delved into.

1.4 METHODOLOGY

1.4.1 DATA COLLECTION

The research will employ primary and secondary sources for data collection.

PRIMARY

Primary sources of data collection will involve the conducting of interviews, personal observations, visual surveys and photographic recordings.

SECONDARY

The secondary sources of data collection will entail the use of the internet, library (books, journal, articles etc), and case studies.

1.4.2 DATA ANALYSIS

Qualitative method of data analysis which borders around beliefs, opinions, attitudes and feelings will be utilized.

1.5 ORGANIZATION OF THESIS

The thesis has been organized into five chapters. Chapter one gives an introduction to the research. The second chapter has to do with the literature review, and chapter three is about the methodology used by the researcher. Chapter four covers data presentation, analysis and interpretation. The final chapter deals with summary, conclusions and recommendations. After this chapter are the references and appendices.

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

Before the term “Commercial Center / Complex” is jointly defined, an attempt would be made to first all define the individual words which make up that phrase, for the purpose of a clear understanding of the subject matter. According to the Oxford Advanced Learner Dictionary, “Commercial” which is derived from the word Commerce, is “the activity of buying and selling especially on a large scale”. A Complex may be explained to indicate a unit or an entity which consists of many different and connected parts. Conclusively, a Commercial Center / Complex can be interpreted as a

Business Complex which contains a concentration of Business, Civic and Cultural activities, creating conditions that facilitate interaction and exchange. In simple terms, it is a building or set of buildings that contain a variety of retail units with interconnecting walk ways enabling visitors / consumers to easily walk from unit to unit to transact a business or perform a trading activity.

2.2 HISTORY

The first record of commercial activities begun with the barter system - a mechanism whereby goods were exchanged for either goods or services, until other systems and



passage in St Petersburg. mechanism of exchange were introduced with time.

Traditional small shop, usually specializing in one or two products, has undergone fundamental changes over the years. The “High Street”, a feature of many villages and towns, generally had numerous individual shops and a few larger departmental stores. Though the first departmental store is believed to be Bainbridge of Newcastle - in 1838, Isfahan’s Grand Bazaar, which is largely covered, dates from the 10th century A.D. The kilometer long covered Tehran’s Grand Bazaar also has a long history. The Grand Bazaar of Istanbul was built in 15th century and still is one of the largest covered markets in the world with more than 58 streets and 4000 shops. The Oxford Covered Market in Oxford, England was officially opened on 1st November

1774 and still runs today. Fig. 1 shows an example of the mid-19th century shopping mall: The

2.3 CONFIGURATIONS OF COMMERCIAL / SHOPPING CENTERS

Over the years, the configuration of commercial/ shopping centers have undergone evolutionary transformations partly due to the goods and services available at that particular time period/ era, or the associated functional problems encountered in the exchange of goods and services, which led to the development of various concepts translated into building spaces where commercial activities take place. These include the following concepts: The ‘Strip’ Shopping, The Cluster Shopping Center, Arcade, Shopping Mall, Department Store, Anchor Shopping Centers, Specialty Shopping Centers, Festival Market places, and Multi use Centers.

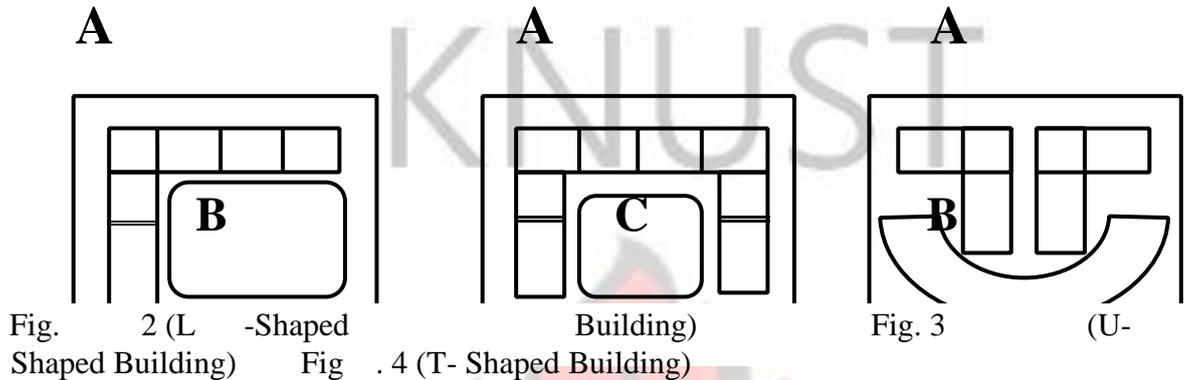
It must however be noted that some of these concepts which evolved stand single handedly while others are more like a blend of one or two concepts.

2.3.1 THE ‘STRIP’ SHOPPING CENTER

As the name implies, it’s more or less a straight line of shops usually set to the rear of a parcel of land. Customer parking is between the street, and service area between the building and the rear property line. The strip is ideally, not longer than 400 feet, and this became more or less like a standard, with the objective of keeping all shops within an easy walking distance of one another. Shop which did not adhere to this standard resulted in some inhospitable spaces requiring extremely long walks.

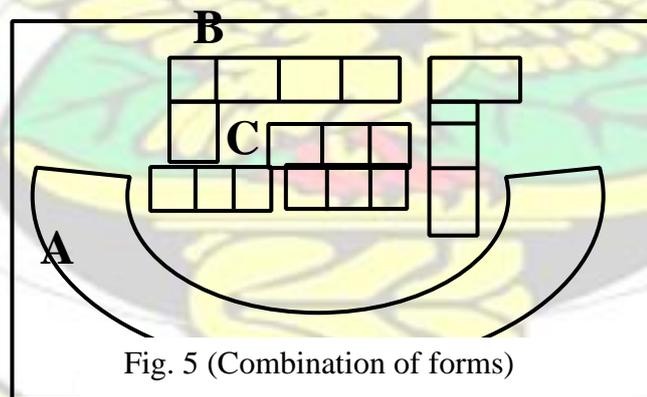
The Strip Shopping Center came with a variety of themes including the (the ‘L’, ‘U’ and ‘T’- shaped building patterns), designed to more efficiently utilize the parcel of

land and maximize leasable space. These configurations tend to make shoppers have a broader view of storefronts, while making the site appear smaller - visually. The illustration below further explains these variations:



2.3.2 THE ‘CLUSTER’ SHOPPING CENTER. (Tab.1-4, from Hall, 1992)

The cluster is essentially a combination of two or more of the themes under the ‘strip’ mall. Here the parking is ideally oriented to one side or completely encircling the buildings, the interior spaces begin to resemble a small village or the traditional downtowns of small communities, as shown in table below:



This form has been adapted well to specialty centers that cater to a tourist trade that expect shopping to be an exciting event. Smaller shops selling a wide variety of small goods do well in these situations, however the form does not adapt well to larger stores or anchors, which require larger service yards and visibility from accessing road.

The author perceives that the concept of the strip shopping center has the advantage of shop front exposure, especially with the 'L' and 'T' building patterns, the 'U' shaped however seems to create a kind of enclosure, which restricts fluid circulation to an extent. And that does not augur well for commercial complexes. The cluster shopping center system is also chaotic, looks noisy and disorganized, which presents a recipe for human traffic and congestion. Nefarious activities like pilfering and etc. will be encouraged. The concept of the 'L' and 'T' shaped form looks like a better option since shop front exposure is of paramount importance to traders, and fluidity of movement is also achieved.

2.3.3 ARCADE

The arcade concept was discovered overtime, and it is believed to have been invented in Paris in the early part of the 19th century as the solution to two particular problems. Firstly the streets were inhospitable to pedestrians; sidewalks did not exist; and the volume of horse-drawn traffic created dirty chaotic streets. (Wikipedia, the free Encyclopedia). Secondly burgeoning industrial development had produced large quantities of consumer luxury goods, which necessitated new means for marketing and selling them. The traditional market places could not satisfy the new demand for better distribution, faster sales and better promotion (Bednar, 1989).

The architectural evolution of the arcade spanned the 19th century. They were built in the two great urban centers of Paris and London, and their popularity expanded initially to many other European cities and then a few cities in the United States. The earliest examples of the arcade were narrow in width (less than 3 meters), had poor daylighting and were made of materials like wood and plaster. These arcades were

composed of independently accessible building units, usually with an apartment located above a shop. A good example is the Passage de Caire, built in 1799 in Paris, which although modest in section, is the longest of the Parisian arcades – with a total length of 370 meters, served by entrances. Located in a bustling but economically modest business area of the city, this arcade has direct gated entries from the street. Burlington Arcade in London was opened in 1819 in the Mayfair section of London. This particular arcade influenced the development of many of the subsequent arcades in England because of its pedestrian scale and the clarity of its design expression. It is a simple narrow passage which is 180 meters long and 3.7 meters wide. It is two storeys' high and is lined with shallow –depth shops apartments above. In order to reduce the effect of the long, narrow sloping space, the architect Samuel Ware divided it into seventeen sections, with firewalls and archways across the arcade. The shop varying widths, are designed with bay-front shop windows, which modulate the facades perceptually shorten the length. The overall effect is one intimate scale, created by mahogany shop fronts, located below white painted bay windows and a central row of hanging lanterns and planters. The Burlington Arcade remains in high use as a location for fashionable shops that attract upper class patrons and a place for leisurely strolling. Many new arcades were built during the years 1820-1840, by real estate speculators in Paris and in other mercantile cities of Europe. Fifteen new arcades were built in Paris in which architectural possibilities in plan geometry, sectional profile, façade articulation, and skylight structure were explored and developed. Structural possibilities of iron and glass roofs with skylights were exploited in the form of wider arcades with roof profiles like domes and rotundas. By 1830, the arcade was complete with all its parts fully developed (Saxon, 1986).

The Galleries St Hubert was the precursor for what most historians and critics consider to be the high point of arcade design – the Galleria Vittorio Emanuele II designed by Architect Giuseppe Mengoni, built in 1865 -77 in Milan (Italy). The relationship between the two arcades is based more on concept and scale rather than on direct design. In Mengoni’s design, which employs the monumental scale of imperial Rome, the concept of the arcade as a 19th century building type reached its zenith of development. The project was financed by a British development company and was built by Italian craftsmen. The completion of the Galleria in Milan resulted in a competition with the other Italian cities of Genoa, Turin, and Naples to build equal if not grander arcades. Mackeith observes that it is this series of great Italian arcades, each striving for monumentality on a Roman scale, which has become permanently connected in our minds with the concept of arcade. The major reason for the success of the Galleria Vittorio Emanuele II was its fulfillment of an important civic-design role: it created a covered passage connecting the two most important places in the city –the Piazza del Duomo and the Piazza della Scala, the locations of the cathedral and the opera house. This location assured constant flow of pedestrians who would utilize the restaurants and shops along the arcades length. The ambience and vitality of the Galleria has been celebrated by numerous distinguished visitors, and to this day it remains the public social of Milan (Bednar, 1989).

The Arcade in Providence, Rhode Island introduced the concept to the United States in 1828. Other large cities created arcades and shopping centers in the late 19th century and early 20th century, including the Cleveland Arcade and GUM in Moscow in 1890. Early shopping centers designed for the automobile include Market Square, Lake Forest, Illinois (1916) and Country Club Plaza, Kansas City, Missouri (1924).

- **Characteristics of an Arcade.**

Geist (1983) enumerated the arcades characteristics in his book 'Arcades' as summarized below:

- Access to the interior of a block. The arcade system allowed building speculators to build more densely by providing pedestrian access to commercial space behind street frontages.
- Public space on private property. This covered space provided public pedestrian access. It derived from earlier street-side pedestrian spaces such as loggias, porticoes, and colonnades.
- Symmetrical street space. Since both sides had the same facades, the space between was better defined. Arcade facades had the character of urban street facades, although the repetitive opposition made the arcade formally different from a typical commercial street.
- Sky lit space. A glass roof or clerestories simultaneously provided adequate natural lighting and weather protection. The transparent glass roof fostered the perceptual relationship with the exterior street.
- A system of access. The arcade resembled the street in that the space provided access to the building units that defined its sides. Each party wall unit had its own address and entry on this interior street, with internal stairs providing access to the upper floors. Later, arcades had public stair between units and street-level entrances to provide access to upper level galleries.

- A form of organizing retail trade. The arcade as an association of independent shops was the precursor for the department store and shopping center, subsequent forms of centralized commercial development.

The list of the characteristics of arcades is very important because it provides a basis for understanding the fundamentals of an arcade evolution (Bednar, 1989).

Shopping on the streets has been inhospitable over the years because traders and consumers alike are exposed to the adversaries of the weather and that is one of the reasons why the concept of arcade was introduced. The author believes that such a concept may be beneficial in the designing of a commercial complex in Ghana.

2.3.4 SHOPPING MALL

2.3.5 Introduction

A mall can refer to a shopping mall, which is a place where a collection of shops all adjoin a pedestrian area, or an exclusively pedestrian street, that allows shoppers to walk without interference from vehicle traffic. Mall is generally used to refer to a large shopping area usually composed of a single building which contains multiple shops, usually "anchored" by one or more department stores surrounded by a parking lot, while the term arcade is more often used, especially in Britain to refer to a narrow pedestrian-only street, often covered or between closely spaced buildings.

The majority of British shopping centers are in town centers, usually inserted into old shopping districts, and surrounding by subsidiary open air shopping streets. In most of the world the term 'shopping center' is used especially in Europe and Australasia; however 'shopping mall' is also used, predominantly in North America, but also to a

large extent in Asia. Shopping precinct and shopping arcade are also used. In, North America, the term shopping mall is usually applied to enclosed retail structures (and may be abbreviated to simply mall) while shopping centre usually refers to open-air retail complexes. Malls in Ireland, pronounced "maills", are typically very small shopping centers placed in the center of town. They average about twenty years in age, with a mix of local shops and chain stores. These malls do not have shops found in the high street or modern shopping centers.

2.3.6 History

The first indoor mall in the United States was the Lake View Store Morgan Park, Duluth, Minnesota, built in 1915, and held its grand opening on July 20, 1916. The architect was Dean & Dean from Chicago and the building contractor was George H. Lounsberry from Duluth. The building is two-stories with a full basement and shops were originally located on all three levels. All of the stores were located within the interior of the mall with some shops being accessible from both inside and out.

(Wikipedia, the free Encyclopedia).

Initially, malls were designed in straight –line fashion, allowing an almost uninterrupted view the length of the space. Now they follow design concepts gleaned from an earlier time, utilizing small pedestrian spaces (30 to 50) between the storefronts and using angles or turns to reduce the visual distance and focus attention and interest while traversing the space (Hall, 1992).

Before the late 1940's, following the order of the day, practically all commercial services were located in downtowns. Situated at the center of town, at a major crossroads, near a train station or a river fork, usually on the most level land available, one would find a relatively dense, compact cluster of buildings with shops on the first floor and apartments or offices on the upper floors. With the exception of the 5 and 10 cent store or the local departmental store, most goods and services were offered by individual merchants from their own storefront shops. In the mid-20th century however, after the economic boom period which followed World War II, people began to escape from their crowded apartments located between the downtowns and their associated industrial belts that surrounded them. Larger numbers than ever before escaped to the newly developed suburbs in newly acquired automobiles. This generated a trend of the suburb and automobile culture especially in the United States. That is to say, a new style of shopping was created away from downtown. The Second shopping center in the United States was Country Club Plaza, which opened in 1924 in Kansas City, Missouri. An Austrian-born architect and American immigrant Victor Gruen pioneered the concept of the fully enclosed mall. This type of malls that eventually came out included Northgate Mall, built in north Seattle, Washington U.S.A in 1950, Victor Gruen's Northland Shopping Center built near Detroit, Michigan, U.S.A in 1954, and the Southdale Center, which opened in the twin cities suburb of Edina, Minnesota, U.S.A in 1956 as the first fully enclosed shopping mall. In the U.K, Chrisp Street Market was the first pedestrian shopping area built with a road at the shop fronts. West Edmonton Mall in Edmonton, Alberta, Canada has the title of the largest enclosed shopping mall since 1986. West Edmonton Mall is listed in the Guinness Book of world Records for the "largest shopping centre in the world" and "world's largest parking lot". One of the

world's largest shopping complexes at one location is the two-mall agglomeration of the Plaza at King at King of Prussia and the Court at King of Prussia in the Philadelphia suburb of King of Prussia Pennsylvania, U.S.A. The King of Prussia mall has the most shopping per square foot in the US. The most visited shopping mall in the world and largest mall in the United States is the Mall of America, located near the Twin Cities in Bloomington, Minnesota, U.S.A. However, several Asian malls are advertised as having more visitors, including Taman Anggrek Mal, Kelapa Gading Mall and Megamal Pluit, all in Jakarta -Indonesia, Berjaya Times Square in Malaysia and SM Megamall in the Philippines. Beijing's (Peking) Golden Resources Mall, opened in October 2004, is the world's second largest mall, at 600,000 m² (approximately 6 million square ft). The Mall of Arabia inside Dubialand in Dubai, United Arab Emirates, which will open in 2008, will become the largest mall in the world, at 929,000 square meters (9,999,700 sq ft). Fig. 2 is Pitt Street Mall of Sydney, which is believed to be Australia's busiest shopping precinct. This mall has eight retail centers and more than 600 specialty stores, within two city blocks. (Wikipedia, the free Encyclopedia).



Fig. 6. Pitt Street Mall of Sydney
(Photograph from Wikipedia, the free Encyclopedia)

2.4 CLASSES OF MALLS

Malls are the predominant form of regional and superregional commercial centers today.

They have become the suburban downtowns, their huge parking lots completely isolating and separating them from the neighborhoods and communities that support them. The classification of malls are usually based on their area of coverage in terms of gross leasable space and their catchment trade areas, the typology of merchandise, and the one performing the task of selling (Hall, 1992).

The classes of malls or shopping centers generated out of these include:

- Neighborhood Malls / Centers
- Community Malls / Centers
- Regional Malls / Centers
- Outlet Malls / Centers
- Super- Regional Malls / Centers
- Off Price / Centers

2.4.1 Neighborhood Malls / Centers

Neighborhood centers are usually smaller centers designed to meet the day to day or immediate needs of a limited residential trade area. It is ideally located at the intercession of a collector street and the entrance to a predominantly residential area. Normally it contains a grocery store anchor, and sometimes accompanied by a drug store and several smaller retail stores and restaurants. The average coverage area is around 50,000 square feet. However it can range in size from 30,000 to 100,000 square feet of gross leasable space, usually depending on the size of the total population of the locality it serves (Hall, 1992).

2.4.2 Community Malls / Centers

Community centers contain all the services offered by the neighborhood center, plus a junior department store, discount store and usually several out parcels than the smaller neighborhood centers. They serve a trade area of 40,000 to 150,000 people and are located at the signalized intercession of two collector streets normally four lanes each. The range of site they usually occupy is from 10 to 30 acres of land, and provide from 100,000 to 300,000 square feet of gross leasable area. Majority however provide at least 150,000 square feet. Apart from the grocery stores or the junior department stores the normal building depths used to be in the 80 to 120 foot range. With today's merchandising philosophy of less storage space and more display space, lease space is generally in the 40 to 80 foot depth range with a typical 20 to 30 foot store front (Hall, 1992).

2.4.3 Regional Malls / Centers

In many cases, regional and super-regional malls exist as parts of large superstructures which often also include office space, residential space, amusement parks and so forth. This trend can be seen in the construction and design of many modern supermalls such as Cevahir Mall in Turkey. The 'International Council of Shopping Centers' 1999 definitions were not restricted to shopping centers in any particular country, but later editions were made specific to the U.S. with a separate set for Europe. A regional mall is, per 'the International Council of Shopping Centers', in the United States, a shopping mall which is designed to service a larger area than a conventional shopping mall. As such, it is typically larger with 400,000

square feet (37,000 m²) to 800,000 square feet (74,000 m²) gross leasable area with at least 2 anchors, and offers a wider selection of stores. Given their wider service area, these malls tend to have higher-end stores that need a larger area in order for their services to be profitable. Regional malls are also found as tourist attractions in vacation areas. They have a trade area of over 150,000 people within a range of 10 to 15 miles, these site have become the new downtowns of suburbia. Majority of these malls have enclosed properties, and are located at the intercession of a regional expressway system and a community arterial collector street (Hall, 1992).

2.4.4 Super – Regional Malls / Centers

A super-regional mall is, per ‘the International Council of Shopping Centers’, in the U.S. a shopping mall with over 800,000 square feet (74,000 m²) of gross leasable area, and which serves as the dominant shopping venue for the region in which it located (Hall, 1992).

2.4.5 Outlet Malls / Centers

An outlet mall (or outlet centre) is a type of shopping mall in which manufacturers sell their products directly to the public through their own stores. Other stores in outlet malls are operated by retailers selling returned goods and discontinued products, often at heavily reduced prices. Outlet stores were found as early as 1936, but the first multi-outlet mall, Vanity Fair, located in Reading, PA didn't open until

1974. Belz Enterprises opened the first enclosed factory outlet mall in 1979, in Lakeland, TN, near Memphis (Hall, 1992).

2.4.6 Off- Price Centers

Not to be confused with outlet centers, off price centers sell branded merchandise that can be found in conventional specialty and department stores at higher prices.

Usually, the merchandise is first quality –some manufacturers require that their merchandise be sold without labels in off price centers. The early off price centers usually had no frill stores with minimal or no displays, basic lighting, and open dressing rooms. However, as such centers became more popular; the developers tended toward an upgraded design and offered more amenities (Bednar, 1989).

2.5.0 DEPARTMENT STORE CONCEPT

In the first half of the nineteenth century, in both Europe and America, there appeared a new form of merchandising known as the department store. It evolved as a concomitant of the profound change in the system of the industrial production, whereby factories could produce large quantities of low-cost goods. This change meant separation of the place of production from the place of sale and new merchandising means to sell these wares (Bednar, 1989).

This is where the concept of departmental store was discovered. The department store was an organization of semi-independent units serving a category of goods, such as clothing, toys, house wares, shoes etc. (Neufert,2000). The store provided for its

own centralized services of administration, publicity, delivery and accounting. The greatest advantage of the departmental store was its ability to offer customer satisfaction through free and easy access to a wide range of goods, with relatively fixed prices which gave the customers an added advantage of price comparison among other stores. The department stores satisfied the shopping needs of the burgeoning population of the nineteenth century in countries like Paris, London, New York and Chicago. The stores were located predominantly on large sites near newly developed public- transport stations in the central business districts (Hall, 1992).

The Bon Marche in Paris is one of the greatest examples of the department building type. Architect Jean -Alexander Laplanche, aided by Louis Aguste Boileau, his son Louis Charles Boileau and Gustave Eiffel, administrated the store's construction from 1869 to 1887. Occupying most of a block on the rue de Sevres, this vast fivestorey structure was a great architectural and technological achievement. To satisfy the essential need of lighting the merchandise within the store, the facades were composed of large regularly spaced windows, and the plan contained numerous light wells. At the corners were large domed bays that granted prominence to the building and provided entrances and display units. The structure was composed entirely of iron in order to be strong enough to support the crowds and the merchandise. The widely spaced iron columns provided a free floor plan for display and circulation.

Ducts run throughout the structure to provide heat and ventilation. The interior of the Bon Marche department store was a magnificent spectacle, as described by architectural historian Meredith Clausen (Beddington, 1985).

2.5.1 ANCHOR SHOPPING CENTERS

The most readily available location of an urban shopping center with the least margin of risk is to site it close to an existing shop or shops with a high degree of prominence eg. Departmental store. This strategy fits the suburban model of the anchor center – whereby the size, scope and reputation of the department store attracts the customers who then are induced to patronize the adjacent specialty shops. The Gallery at Market Street East in Philadelphia is an example. The new center was built between the existing Strawbridge & Clothier store and a new Stern's store. Here the concept of 'to be known through the already known' is evident (Beddington, 1985)

Usually with shopping centers, the first floor level is devoted to services and impulse goods; the second level to ready to wear clothing activities and accessories; the third level to better apparel, shoes, gifts and the fourth level to leisure- time merchandise and specialty foods grouped around a seat food court (Bednar, 1989). This system of arrangement within a shopping mall has been very effective and functional over the years. The author has observed, so would be utilized in the design.

2.5.2 SPECIALTY SHOPPING CENTERS

Shopping concept gradually became one of America's favorite pastimes as the act of shopping became more of a leisure experience. To others it became a form of

theatrical entertainment. It is a form of urban retailing which specializes in certain aspects of merchandise. It is a collection of small shops, each store devoted to the sale of a particular kind of luxury good. There are usually no large stores in a specialty shopping center; the environmental character of the public space is the primary attraction. Here the price of the goods or even their utility is not as important as their attractiveness for purchase. Visual merchandising – that is the displaying in an appealing setting is the predominant marketing strategy (Beddington, 1985). Over time, specialty stores adapted other concepts which combine offices apartments, hotels, and parking, all in one apartment or separated ones.

The design strategy for creating a specialty shopping center is to utilize a grand existing architectural structure which has the capability of attracting the needed customers. The conversion of the old post office built in 1899 in Washington D.C., is search a project. The building's public presence on Pennsylvania Avenue allows for instant recognition; former mailroom at the buildings center afforded the opportunity to create a grand atrium space surrounded by three levels of shops and restaurants, with eight floors of government offices above. Another effective design strategy for creating a specialty shopping center is to utilize an ordinary existing building which is built within a typical commercial area, and as such has the kind of needed public exposure.

2.5.3 FESTIVAL MARKET PLACES

Among the most popular and significant public places of any historic city is the market place. They were almost always open air and are usually located in squares and plazas. The market were usually transient in nature- consisting of booths and stalls that sometimes were covered or uncovered and brought in by independent merchants daily or seasonally.

Some of the reasons which lead to the creation of the shopping arcade also led to the creation of the indoor market. To the customers or buyers it became more comfortable as they were protected from the weather. The seller too also got a dependable setting in which to display his or her merchandise collectively and competitively. The festival marketplace combines entertainment, socialization, specialty shopping and recreational eating – usually in a historic setting. Ghirardelli Square in San Francisco, designed by Wurster, Bernardi and Emmons in 1964, is generally regarded as the first example of this market type. The markets unique tenant mix features restaurants and stores selling men’s and women’s fashions, import goods and luxury items housed in a rehabilitated nineteenth century chocolate factory near the bay. The social aspects of the indoor market were not as important as those of the arcade (Bednar, 1989).

The best known and most extensive covered market of the nineteenth century was Les Halles Centrales in Paris, designed by Victor Baltard in 1853. This market had fourteen market halls and a central rotunda utilized for the sale of meats, vegetables and fruits (Beddington, 1985).

Jar Thompson wrote an article citing six major inherent qualities that generate the attraction of the festival marketplace. This is summarized below.

- Goods and services which are used on daily basics are the type usually offered
- Genuine use of old buildings avoids pretense and gives a sense of a true environment

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Movement of people evolves with day, night and seasonal changes.

- People and their numerous activities, further attract other people into the space
- Elemental Aesthetics Pleasure and a sense of Quality: Sensual pleasure from building elements, lights, plants and trees.
- Place has a public purpose in revitalizing downtown and serving human needs (Beddington, 1985).

2.5.4 MULTIUSE CENTERS

Multiuse centers as the name implies, accommodate more than one of the three main functions of human life; work recreation and inhabitation. Recreation here has been expounded to include shopping theater education culture health and entertainment.

The internal integration of the spaces must balance with and relate to the external urban context (Hall, 1992).

2.6. CASE STUDIES

2.6.1 (LOCAL) ACCRA SHOPPING MALL Location

Accra shopping mall is boarded by three roads namely; the Spintex road, Accra Tema motorway.



Fig. 7: Layout plan Accra mall (photograph by author)

2.6.2 Reasons for Study

- Accra Mall is one of the few purpose built shopping malls within the country.
- Its appearance in the commercial arena is quiet recent so its performance –impact is worthy of study
- Location within strategic catchment area.
- Mall has modern facilities and equipment which is worth studying.

2.6.3 Main Spatial Features

- Car Parking lot
- Administration/ Banking Facilities
- Two Anchor Shops
- Cinema
- Ancillary Shops

- Service yard
- Warehouse

2.6.4 Facilitation of Activities

- Restaurant / Food Court

Strengths

- Customer and staff parking have been effectively segregated.
- Adequate car parking has been provided in relation to the available retail space (Ref. Fig. 9).
- The two main entrances cannot be missed, and the use of the wind lobby ensures that conditioned air is contained within the facility.
- Clear cut area has been demarcated close to the car parking area for trolleys (Ref. Fig 8).
- Service yard has also been segregated from the main access (Ref. Fig. 10).
- Lifts and staircases allow for vertical circulation.
- Anchor shops – Shoprite and the Game, have been strategically positioned to promote impulse buying by exposing customers to surrounding ancillary shops (Ref. Fig. 12).
- Litter bins and seating have been provided within the mall to prevent littering as well as provide a good congenial environment for customers (Ref. Fig 13).
- Car parking area is drained through covered drains with steel mesh inlet which connects to a water recycling plant.
- Back up Plant / generator has been provided to cater for the power needs of the facility on the occasion of power failure.

Weaknesses

- Customer car parking lots are hardly shaded (Ref. Fig. 9).

-
- Car flow within the customer car parking area conflicts with pedestrian flow
(Ref. Fig. 9).

KNUST



•
Passage to customer ablution area is not easily identifiable – it's more or less hidden.

• The administration and reception is sited at the basement, which not easily accessible to customers and prospective visitors, who may need help.

2.6.5 Modification of climate • Strengths

- Wind lobby at both entrances and exits ensures that the required room temperature is maintained (Ref. Fig. 8).
- Horizontal extension along the inner peripheries of the food court provides adequate shade which makes the space very habitable and enjoyable (Ref. Fig. 11).

• Weaknesses

- The facility depends heavily on artificial lighting and is ventilated mechanically through the use of air conditioners, and extractor fans especially at the basement level.
- The use of greeneries to aid in the modification of climate in and around the facility is on the lower side.

2.6.6 Meaning and delight • Strengths

- Color schemes employed at the interior and exterior surfaces blends harmoniously well to give a relaxing environment (Ref. Fig. 11).

Advertising signage's stands about 14m high from the ground level- can be seen at appreciable distances.

-
- Stone facing artistically used at certain aspects of the facility like the base of columns, aspects of walls, entire column, etc. gives a pleasant aesthetic effect.

• **Weaknesses**

- The basic elevations of the facility are uninteresting.
- Uncovered service lines and ducts are also uninteresting.
- The little or virtual absence of greenery gives a feeling of isolation, desolation and emptiness.

2.6.7 Utilization of resources • Strengths

- Concrete pavement blocks used at the customer car parking area is resilient and durable (Ref. Fig. 9).
- Cement sand screed used for the service floor areas can withstand the kind of vigorous activities related to such spaces (Ref. Fig. 10).
- Coated steel gates at the service yards can be easily wheeled on its rails to allow for vehicular access.
- Variety of paints of various shades and colors, in combination with the stone facing used on aspects of the building works well and is easily maintained.
- E – Flooring treatment given to the roof slab makes it water resistant.
- The zinalume – roofing sheets used fairs well in the tropics.
- The maintenance and cleaning of the porcelain tiles used extensively is easy.

Weaknesses

- The leaned – to roofing system used for the same aspects of the roof may eventually cause leaking problems.

- Coated strips of steel used as overhang cannot adequately shade its assigned space.
- Porcelain floor tiles becomes slippery and dangerous especially when wet.
- It may be easily scratched – reducing its attractiveness.



Fig. 8: The entrance/ exit



Fig. 9: The trolley keeping area



Fig. 10: Service yard



Fig. 11: The food court



shop Fig. 13:
with seats 2.7



2: Anchor
The mall
PRECE

Figs. 8-13 (Photographs by author)

DENCE
STUDY -
(FOREIGN)

BULLRING SHOPPING CENTRE
BIRMINGHAM, UK

2.7.1 Location

The shopping centre is sited within a historic market centre in the heart of Birmingham city. It is virtually surrounded by a composition of squares and open spaces which links the open markets, and beyond provides a gateway to the east side of the city - St. Martin's Church.

2.7.2 Reason for study

Birmingham's boldly designed Bullring replaces an enclosed mall built during a disastrous, pedestrian-unfriendly reconstruction of the city's center during the 1960s and its design solutions within the foreign temperate climatic context is worth studying.

2.7.3 Main features

- Bullring provides over 110,000 sq. m (1.2m sq. ft.) of retail space
- Provides about 3100 car parking spaces.
- Over 140 shops and kiosks including anchor shops and restaurants.

2.7.4 Architecture

The scheme is composed on three axes, two of which form a natural extension to the city's principal shopping streets of New Street and High Street. Between the two, St Martin's Walk, a new pedestrian boulevard, restores historic linkages to the city's traditional markets beyond St Martin's Church. Designed by architects Benoy, Bullring has been conceived as a series of malls, open spaces, covered 'streets' and public piazzas, with the two department stores, Dagenham's and Selfridges, providing an anchor on each side of the scheme. The design of Bullring's mall pattern has created a unique opportunity to cluster brands in a series of prime locations across three trading

levels. The mall is defined by different design treatments; each trading level has its own distinct personality in terms of retail mix: high street fashion and al fresco dining at Lower Level; younger fashion and lifestyle retailing at Middle Level; and inspirational fashion on the Upper Level, East Mall. An outstanding feature peculiar to Bullring's design is its spectacular 7,000m² sky plane roof. This virtually invisible expanse of glass forms a 'floating' covering over Bullring's seemingly 'open' malls, to give the impression of a natural extension of the city's key shopping streets linking them to Dagenham's and Selfridges respectively. These elements, like all such roofs offer opportunities such as provision of natural lighting with all its desirable qualities.

2.7.5 Services

Vertical conveyors employed in the centre include Lifts and escalators. Goods and equipment also make use of goods lifts and hoist systems located at service areas. The extensive atrium at the core of the facility admits enormous daylight during the day. Artificial lights of various types and kinds have also been utilized to give a good visual impression.

• Merits

Ancillary facilities have been provided other than shopping, to attract prospective customers into the facility. Comfortability of the users of the space is paramount and has been realized – making the space more enjoyable and pleasurable. Bullring provides an excellent platform to gain exposure for any Marketing campaign.



• Demerits
 Glazed skylighting poses problems



such as control of glare, solar heat

gain, resulting in heavy dependence on artificial air conditioning systems.

2.7.6 Conclusion

Tropical design of a commercial facility may require a system of design which integrates the admission of natural daylighting but gets rid of the heat or solar ingress associated with it. Circulation, storage, security and parking lots, should also be handled effectively.

Fig. 14: Aerial view – Bullring

Fig. 15: Lower level 1



Encyclopaedia)

Figs. 13-16
 (Photographs from Wikipedia, the free



Fig. 16: Middle level 2

2.8 TECHNICAL AND SPECIAL STUDIES

2.8.1 Air conditioning

Air conditioning is the process of treating air in an internal environment to establish and maintain required standards of temperature, humidity, cleanliness and motion. It may be applied in the following situations or conditions of the design.

- Stores where large crowds of people congregate at a time
- Stores where natural ventilation is inadequate to the depth of the core behind window areas.
- Exclusive stores where the comfort of the customer is a major priority.

2.8.2 Types of systems

Central Plants: this is suitable for supermarkets and hypermarkets where there is one large space to be air conditioned (i.e. only one set of conditions has to be provided for). The elements in the system such as filters, refrigeration plant, heating coils, humidification parts and control system) are all housed in the central plants

- **Zonal System:** in this method, the building is divided into units with as similar conditions as possible. These units receive air to an average temperature and humidity from a central plant.
- **Self-contained units:** they are designed either solely for the purpose of recirculating internal air or for drawing in fresh air through an intake. There is window small units as well as split system. The split system has a relatively small distribution and the central unit housed separately from the bulkier compressor unit.

2.8.3 Fire Fighting

Normally large shops require extensive use of fire alarms and fighting appliances but for most shops ordinary hand held extinguishers are enough. In a shopping mall, a

combination of various equipments will be required. These include fire extinguishers, fire hose, sprinklers, and automatic fire alarm systems which go off when it senses an occasion for fire outbreak. Studies on themes like transportation where issues like lay by, turning radii, service bay, parking, etc were considered.

The various concepts of shopping mall and its related activities discussed and elaborated under different headings and sub-headings above, throws more light unto how exciting and different shopping spaces or complexes could be. In the designing a commercial complex, the strip kind of shopping arrangement is commendable since it optimizes the use of space and maximizes leasable space. However, extremely long walks of over 400ft distance should be avoided as much as possible. Customer parking should be segregated from service yard, and shop front exposure is of optimum relevance. Lighting, ventilation and fluid circulation is also vital and as much as practicable facility should be designed to achieve such functionalities. Mechanical systems of ventilation like the use of fans and or air conditioners may be adapted where necessary to enhance comfort level. Specialized type of lighting may also be used decoratively to enhance displayed merchandise and as such promote sales. Concepts like sky lit space or transparent glass roof etc. could be used where applicable to assist the mechanical lighting systems – reducing running cost of electricity in no small way. Exclusive pedestrian walkway devoid of any vehicular interference is delightful. Where the designer chooses to integrate forms as in the ‘cluster’ shopping center concept, care should be taken not to present a recipe for human traffic and congestion.

various procedures to collect data. These procedures could be classified into primary and secondary sources. The primary sources include: interviews, personal observation and visual surveys, and photographic recordings, while the secondary sources was from the internet, library (books, articles, and journals), archives and case studies. This is elaborated below.

3.2 DATA COLLECTION

3.2.1 Primary Sources – Interviews

The researcher employed convenience sampling, sometimes referred to as accidental or availability sampling under non-probability sampling strategy to collect data, since this technique relies on available subjects – those who are close at hand or easily accessible.

Completely unstructured or unstandardized interviews were used to gather data from the available subjects at the C.B.D of Adum, who were basically traders and prospective consumers. The author realized that due to the nature of the research and the information required, structured kind of interview will probably be ineffective, as it lacks the kind of flexibility required under these circumstances. The unstructured approach of interviewing helped the researcher gain a more reflexive and intimate understanding of the emotional attachments and experiences of those interviewed.

The interviews were done within a stretch of three consecutive months. The author went to the field twice every week to interact with the subjects at four different places within the C.B.D so that the general overview of the public would be captured. The areas accessed were people from Prempeh II Street around the Electricity Company of Ghana, people at frontage of the central market, people at the

frontage of Melcom, and finally people from the Paul Sagoe lane). However questions were centered on the following parameters:

- Their main reasons for engaging in business transaction by the roadside or unapproved locations.
- Their convenience level?
- What led to their decision to settle there?
- Whether they knew the legal implications.
- Whether they realize the socio cultural implications of their actions.
- How beneficial and profitable their business transactions were.
- Whether or not they will agree to relocation and under what circumstances and conditions.
- How long they have been there, and how long they intend to continue with business transactions along the street?

These interactions were tape recorded and later textualised for analysis.

In summary these were the data that was captured and recorded:

The traders interviewed found the C.B.D as a good and reliable location for them to transact business because of the ready market potential it possess. About 30 percent of them had started their trading activities elsewhere but due to the relatively limited exposure of their merchandise to prospective buyers, were compelled to relocate at the C.B.D, to capture a wider market potential – bringing their goods as close to prospective buyers as much as possible, whether at a shop fronts, by the roadside or even along pedestrian walkways.

Most of the traders who operated at unapproved locations were inconvenienced by the occasional decongestion exercises which at times led to the seizure or loss of their properties. But they kept returning to those places because that is where they are assured of a ready market – survival of the fitters.

Asked whether they knew of the socio – economic, cultural and legal implications of their actions, majority of them were only concerned about making a decent living through trading, and confessed that business is generally good even though there are days that business is not so good. The traders who relocated into Adum also confirmed that business had been relatively better. Though most of the traders agreed to their contribution in congesting the C.B.D, they seem to be more concerned about earning a living for themselves. A higher percentage of them were prepared to be relocated to a more convenient and approved site or place, on condition that they get a similar ready market potential environment, otherwise they have no intentions of moving , especially not in the short run.

The potential consumers interviewed confirmed the stress they go through to transact business. However they also admitted the fact that because of the variety of merchandise and services like banks etc. available at the C.B.D, they able to compare prices and settle for the best deal which meets their satisfaction.

Additionally, the likelihood of getting whatever good or service they are searching for, within Adum in the quantities they desire is one of the main factors that drives them there irrespective of the stress they have to go through. Asked whether they are prepared transact business elsewhere away from the C.B.D, they also responded in the positively on condition that they enjoy the variety of merchandise in order to

have the privilege of price comparison. A stress free shopping experience will be gladly welcomed they said.

- **Personal Observations and Visual Surveys**

General visual survey and personal observations led to the realization of how bad vehicular and pedestrian traffic has worsened over the years. This becomes enormously unbearable on festive occasions like Easter and especially during Christmas, where the pedestrians virtually take over the main streets alongside shops. Vehicles are more or less stack for long periods on the streets in the midst of all these chaos.

- **Photographic Recordings**

During the project, photographs were taken where necessary, to help explain and facilitate easy understanding of certain vital information gathered. This method was especially useful in the case study undertaken at Accra shopping mall.

3.2.2 Secondary Sources • Internet

The internet was also beneficial as it provided the author with vital information concerning the project. Some of the data retrieved from the internet included background information and history of the subject matter.

- **Library**

Articles, books and journals from the library were also used especially during the reviewed literature stage of the project.

- **Case Study**

A case study was done on one of the most recently out-doored commercial complexes within the country – Accra mall. This exposition undoubtedly showcases the real issues on the ground and possible options adaptable to help salvage the situation.

- **Precedent Study**

A precedent study was also done on bullring shopping center in Birmingham and some aspects of the facility were adapted in the final design, to enhance its functionality or performance.

3.3 DATA ANALYSIS

Basically, the data analysis method used is the qualitative method of analysis, which hangs on beliefs, opinions, attitudes and feelings. The nature of the research influenced the researcher to adapt this method. Tables were used where necessary to enhance and simplify the data represented.

The interview and observational data was transcribed into a written text for analysis. Socio anthropological approach of qualitative data analyses was employed since the author wanted to capture essence of the behavioral regularities of the subject.

Through coding, it was realized that out of the fifty-three people interviewed, thirty six were traders, while the remaining seventeen were prospective consumers.

Analyzing the textualised data, the author captured a trend which probably gave reasons why the C.B.D has been and continues to be under intense pressure as far as

commercial activities are concerned, with all its associated problems of conflict both vehicular and pedestrian as well as congestion.

As the only commercial core which attracts a wide percentage of the city's populace and even surrounding cities, traders who seek to expose their merchandise to a wide spectrum of potential buyers, are attracted into the C.B.D to display them, since they are assured of a potential market, all things being equal. Traders therefore locate themselves strategically within the C.B.D where they are most likely to meet a higher percentage of prospective buyers. This is the major cause of indiscriminate siting of stores, kiosks at unapproved areas and excessive hawking and squatting all over Adum. Pedestrian walkways and alleys are taken over by sellers, pushing them unto the street to compete with vehicles for space – hence vehicular pedestrian conflict.

On the other hand, majority of prospective consumers will still patronize the C.B.D, inspite of the stress they go through, because they are assured of a wider variety of merchandise at various prices, which affords them the advantage of price comparison leading to the maximization of their hard earned income, through the probable increase of their purchasing power - all things being equal.

Inadequate car parking spaces within the C.B.D to accommodate the number of cars that patronize the space has resulted in on street parking, which further puts the already narrow streets under severe pressure, compounding to the congestion problem.

Additionally, city growth over the years, which reflects invariably in the growth of potential consumers and traders, further put pressure on Adum whose core, the central point of attraction, appears to have exceeded its possible growth potential. Any additions in terms of traders or consumers chokes the C.B.D even further, all things being equal. These were the conclusions the author deduced from the data collected.

3.4 LIMITATIONS AND CONSTRAINTS

Data on related literature of the research subject is scanty and difficult to find. Additionally during the interview sessions, some of the people especially traders (squatters) picked at random refused to give out any information for fear of being implicated and probably charged. The researcher therefore was constrained to the use of a tape recording device to store data and contextualizing later.

CHAPTER 4

4.0 FINDINGS AND RESULTS

From the data collected and analyzed, it is obvious that for the Central Business District of Kumasi to be decongested effectively, an alternative one-stop commercial

complex sited within a satellite town within reach of the populace of surrounding towns would be beneficial. However, this facility should possess certain vital functional requirements and qualities for it to be viable. These findings influenced the design of the facility.

4.1 REQUIREMENTS OF A ONE-STOP SHOPPING CENTER

For a commercial complex to be a one-stopping shopping center, it should possess certain functional requirements listed and discussed below.

- Anchor shop, retail units and ancillary facilities.
- Adequate lighting and ventilation.
- Adequate car parking.

4.1.1 Anchor shops, Retail Units and Ancillary Facilities

The commercial complex should include an anchor shop or shops which could be a department store, a multistore or supermarket. The anchor shop has enormous merchandise which attracts prospective buyers to patronize the space. These anchor shops should be positioned strategically so that other retail units within the complex would benefit from concepts like impulse buying and etc. For this reason and others, shop front exposure becomes necessary. A typical shop front component may include a fascia for shop identification and identity, aesthetic lighting effects, good levels of visibility into goods display area through the use of a transparent material.

Ancillary facilities like health facility, pharmacy shop, lettable offices, post office. Educational units, financial institutions, recreational facilities, restaurants,

gymnasium and cinema should be considered. The provision of these ancillary facilities ensures that the complex is vibrant and active both at night and day.

4.1.2 Lighting and Ventilation.

The price of the goods or even their utility is not as important as their attractiveness for purchase. Visual merchandising – displaying goods in an appealing setting – is the predominant marketing strategy (Bednar, 1989).

Lighting and ventilation play important role in the patronage of commercial complexes. Adequate lighting levels within shops are critical since it adds up to the beauty of displayed merchandise and encourages buying. Where necessary, coloured bulbs could be employed for similar effect but as much as practicable natural daylight usage should be optimized and artificial light used supplementarily.

Natural ventilation should be encouraged to a large extent to enhance comfort levels. Fans and air conditioners may be used where necessary to maintain required standards of temperature, humidity and cleanliness. Also in situations where large crowds of people congregate at a time or where natural ventilation is inadequate to the depth of the core behind window areas, air conditioning may be used.

4.1.3 Car Parking

To address the car parking challenges relating to commercial complexes, there should be clear cut segregation between customer parking, staff parking and service yard parking (where loading and off-loading takes place). Vehicular accesses – entrances into and exits from the facility should be designed to avoid conflict between incoming and outgoing vehicles. Turning radial and angles of vehicles with various sizes and lengths should be designed to conform to the existing acceptable standards. Adequate car parking space is a function of available retail space, and the

precedent study on Bullring shopping center gives an idea as to how this could be calculated effectively for efficiency. With a retail space of about 110,000sq.m, a 3100 car parking capacity space was required. This gives a ratio of one car parking space, to 35.5sq.m retail space. Customer car parking may be sited primarily at the shop fronts so that displayed merchandise showing through transparent materials could be easily seen and attract prospective buyers. Staff car parking lots as well as service yards could be hidden or sited where there would be no interference or conflict with consumers. Additionally, to prevent the challenge of vehicular pedestrian conflicts, concepts like exclusive Pedestrian Street, which allows shoppers to walk without interference from vehicular traffic, should be considered.

4.1.4 Waste Management and Disposal

There are three types of refuse namely; wet and semi-wet, dry crushable, and dry non-crushable. To be able to handle waste effectively and efficiently, these facts are necessary. For a gross floor area of 1000sq.m, expected refuse generation is about 2 cubic meters – all things being equal. The popular forms of refuse containers with their various capacities are mentioned and discussed below: paladins, dustbins and disposable sacks.

Paladins are cylindrical containers on wheels. An average paladin measures 1220 mm diameter x 1830 high and their approximate weight when full is 70 to 90 kg. Dustbins are usually plastic and come in various forms and shapes. The average dustbin measures 460mm in diameter x 610mm high. When it is full their weight is between 15 to 20 kg.

Disposable sacks are usually in the form of strength paper or plastic bags, fixed to a metal ring with a hinged cover. They may be free standing or bolted to the wall. They

measure about 400mm in diameter x 750mm high; their approximate capacity is 0.10cubic meters.

The most appropriate refuse containers and their capacities will be considered and placed at vantage points in the commercial complex design so as to ensure adequate collection of refuse. Effective waste disposal mechanisms will also be employed within the facility.

4.1.5 Fire Fighting

Large shops require extensive use of fire alarms and fighting appliances but for most shops ordinary hand held extinguishers are enough. In a shopping mall, a combination of various equipments may be required. Fire extinguishers provide adequate fire protection and are cheap. Some of the most common types are the water based; dry powder or foam type and the ones that use carbon dioxide.

Fire hose is directional and controllable, may be connected to the mains as long as the mains pressure is adequate, otherwise, tanks (usually, 1150litre capacity) could be used to feed the hoses by gravity or pumps. The hydraulic requirements are that, the hoses should be able to deliver 22 liters of water per minute at a distance of 6metres from its nozzle and those three nozzles should be in operation at a time.

Sprinklers are indiscriminate and extinguish fire by soaking the burning material by charging the atmosphere with excessive water so that it will not support combustion. Sprinkler heads are supplied by water mains or by pressurized storage cylinders of 22.5 to 50cu.m capacity usually housed in the basement.

Fire alarms are also necessary in commercial complexes. It may be automatic or manually operated. For the purpose of this discussion, the automatic type will be considered.

4.1.6 Security systems

– Security camera system

This system involves the fixing of video cameras at vantage points to capture and record almost all events within the retail floor space. These records are usually revisited on the occurrence of reported theft case/cases within the facility.

Wired panels may also be used for security purposes. These are suitable for doors, windows and even ceiling. Magnetic protective switches are fixed to the door and window and the plunger magnet in the jamb. An unlawful removal of the plunger activates an alarm.

The employment of security personnel on the premises of the facility will also help in maintaining a sound and safe environment for commercial activities to go on.

4.2 MARKET RESEARCH FINDINGS

To establish the economic viability of the project, certain studies were undertaken to establish the population within reach and the market potential of the catchment area.

4.2.1 Trade Area

The trade area is the catchment area of the project. It is made up of three levels; primary, secondary and tertiary. For the purpose of this work, economic and market analysis will be concentrated within the primary trade area.

• Primary Trade Area

This area encompasses Abuakwa, Tanoso, Denkyemboso, Asouyeboah, Kwadaso, Sofo line, etc. Travel time to the site from this trade area is within 5 to 10 minutes'

drive. As the area largely responsible for the survival of the project most of the study will be based on the primary trade area.

- **Secondary Trade Area**

This area encompasses South suntreso, Abrepo, Bantama, Alignment etc. Travel time to the site from this trade area is within 15 to 25 minutes' drive.

- **Tertiary trade Area**

This zone, which is usually not considered critical for a mall's survival, can be considered to include; areas beyond Bantama,

4.2.2 Demography as a Market Force (primary trade area)

The trade area need to be sufficiently populated to ensure the success of the facility. The total population of Kumasi, as of 2004, was approximately 1,017,246 with growth rate of 36% per annum. Currently, residential development (new site) is mostly towards Kumasi east.

4.2.3 Traffic as a Market Force

It was also observed that there was a high traffic level along the Kumasi-Sunyani which is soon to become a dual carriage (which forms the site's northern boundary) with an average of about 24000 cars passing within a day. Such traffic intensity represents a natural source of patronage for the facility, giving prospective buyers a reason to stop over and not proceed to Adum.

4.2.4 Prospective Users

This can be categorized into prospective consumers and prospective tenants.

• **Prospective Consumers**

Prospective consumers of the facility include: Civil servants, workers of various professions, businessmen, and any other persons with purchasing power. These people may come in their own cars, public transports, or even walk. Provisions would be made to facilitate all these.

• **Prospective Tenants**

With the prospective tenants, a survey was conducted within the city as well as Accra to make certain the willingness of shop owners and other potential tenants to rent spaces in the proposed shopping mall. The results of the survey have been summarized in the table that follows.

SHOPS	NUMBER VISITED	NUMBER INTERESTED
Supermarkets	4	2
Leading Shops	20	15
Financial Institutions	2	1
Other Shops (store owners)	20	15
Restaurant Operators	10	8
Entertainment Operators	5	2

Tab. 1: Visited and interested tenants

• **Commercial Tenants**

Potential commercial tenants include two Anchor shops which consist of department store, multiple store and a supermarket. Other ancillary shops will also include; drug and chemical shops, specialty shops, household and furniture shop, book and stationary, fashion accessories shop, standard lettable shops, and convenient shop.

- **Service and Entertainment**

The possible service and entertainment providers proposed for the shopping mall will include; restaurants, post office, insurance companies, cinema, child care unit, telephone outlets, drinking / snack bar, and games room.

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- **Business and Finance**

The following entities are proposed financial institutions for the shopping centre design. Some will occupy purposed design spaces while others will occupy standardized lettable office spaces. These will include; banks, travel agencies, estate agents and professional service offices.



CHAPTER 5

5.0 SUMMARY, RECOMMENDATIONS AND CONCLUSION

5.1 SUMMARY

In summary, the Central Business District of Kumasi and other city capitals of Ghana are characterized by enormous traffic congestion both human and vehicular making shopping activities of prospective users strenuous. Various decongestion exercises employed over the years has proved futile as the problem resurfaces within a short while afterwards.

An alternative solution to this problem is believed to be the strategic location of wellresourced and facilitated commercial complexes around satellite towns of the congested core, to absorb the spillovers, which would eventually decongest the CBD – bringing everything to normalcy, all things being equal. This in brief is what the entire project is all about.

5.2 RECOMMENDATIONS

To solve the problem of inadequate land and its acquisition, it is recommended that the government of Ghana go through the due process of land acquisition of the various spaces within the cities and its surrounding towns, demarcated by city planners in their planning of cities, and further develop those areas into well facilitated commercial complexes. Other stake holders like foreign and local investors could also be encouraged to invest into such projects, so that central core of the C.B.D of cities within the country would be relieved of the stress – all things being equal.

Additionally, government should task the law enforcement agencies to be on the alert, so that after thorough decongestion exercises within the congested core of the C.B.D, surveillance will be kept at all these places to ensure that discipline, law and order are observed and sustained. The spillover of the traders especially, should be relocated at a well facilitated and easily accessible one-stop commercial complex like the one designed by the author, so that they are not encouraged to return to the streets Trespassers however should be brought to book.

Finally, the idea of providing a one – stop shopping center or complex should be sustained. The design of the facility should be such that it draws prospective users to itself and that the space is really enjoyable. This could be achieved

through the use of concepts like regularly spaced windows, numerous light wells (atria), provided entrances and display units, widely spaced steel columns to provide the much needed free floor plan for display and circulation. A typical example of such a facility is what has been designed by the author, shown at the appendix.

5.3 CONCLUSION

In conclusion, since the prospective customers and shop owners are invariably the consistent users of the facility and all the appropriate measures necessary to ensure a serene, comfortable, secured and stress free congenial environment has been provided, it is believed that the client and prospective stakeholders will, recoup the benefits of their investments within the shortest possible time. Also as the recommendations discussed are enforced, the chronic congestion experience at the CBD of Adum would be sustainably decongested all things being equal.

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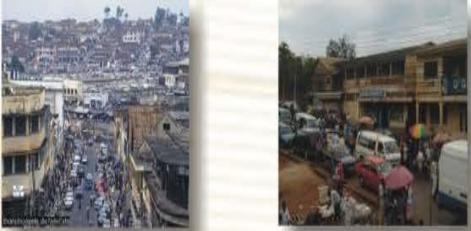
APPENDIX A

6.1 Design Philosophy and Concept

DESIGN PHILOSOPHY AND CONCEPTS

BACKGROUND INFORMATION

- ✦ C.B.D OF ADUM IS CONGESTED WITH HEAVY PEDESTRIAN AND VEHICULAR TRAFFIC AND CONFLICT : STRESS HAS BECOME ALMOST UNAVOIDABLE AND THIS HAS NEGATIVE HEALTH IMPLICATIONS
- ✦ SHOPPING WITH PLEASURE HAS NOW BECOME SHOPPING WITH PRESSURE



C.B.D OF ADUM DEPICTING A STRESSFUL SHOPPING ENVIRONMENT

ANOTHER AREA OF THE SAME C.B.D DEPICTING A STRESSFUL SHOPPING ENVIRONMENT

DESIGN PHILOSOPHY

- ✦ THE DESIGN PHILOSOPHY IS TO PROVIDE A ' STRESS-FREE SHOPPING EXPERIENCE'
- ✦ THIS MEANS PROVIDING A SHOPPING FACILITY / CENTER WHICH CONSIDERS THE FUNDAMENTAL NEEDS OF BOTH THE BUYER AND THE SELLER



GOOD CIRCULATION SPACES MINIMISES STRESS

PEDESTRIANISATION OF SPACES INCREASE COMFORT LEVELS

CONCEPTS

- ✦ THE PHILOSOPHY WOULD BE ACHIEVED THROUGH THESE CONCEPTS:
- ✦ PEDESTRIAN VEHICULAR SEGREGATION CONCEPT - TO MINIMISE PEDESTRIAN VEHICULAR CONFLICT
- ✦ EASY ACCESSIBILITY INTO FACILITY THROUGH WIDE AND CLEARLY VISIBLE ENTRANCES AND THE USE OF AUTOMATIC SENSORY SLIDING DOORS
- ✦ GOOD CIRCULATION SYSTEMS WITHIN AND AROUND THE FACILITY BY PROVIDING WIDER MALLS AND THROUGH THE USE OF RAMPS, LIFTS, ESCALATORS ETC.



ESCALATOR USED TO AID VERTICAL CIRCULATION

SCULPTURE PIECE GIVES A LEISURELY AND RELAXING ENVIRONMENT WITHIN MALL

- ✦ PROVIDE EFFECTIVE SECURITY SYSTEMS THROUGH THE USE OF SECURITY CAMERAS AND SECURITY GUARDS
- ✦ PROSPECTIVE SELLERS WOULD BE PROVIDED WITH THE MUCH NEEDED GROSS LEASABLE FLOOR AREA AND ADEQUATE WAREHOUSE FOR STORAGE
- ✦ FORM COLOR SCHEMES, LIGHTING, MASSING AND LANDSCAPING ELEMENTS WOULD USED TO CREATE A HARMONIOUS & STRESS-FREE ENVIRONMENT

Fig. 18 Philosophy and concepts in pictures

APPENDIX B 6.2.1 Schedule of Accommodation

FACILITY	SIZE	NO	AREA(M²)
ENTRANCE LOBBY	45 X 3	1	135
ADMINISTRATION	8 X 10	1	80
SANITARY	2 X 3.5	1	7
RETAIL SHOPS			
SHOP TYPOLOGY			
1 SHOP OFFICE STORE	6 X 10 3 X 2 7 X 2	2	160
2 SHOP OFFICE STORE	16 X 10 3.4 X 2 2 X 8	3	546.6
3 SHOP OFFICE STORE	8 X 10 2.5 X 2 5 X 2	7	665
4 SHOP OFFICE STORE	12.5 X 10 2 X 3 7 X 3.5	3	466.5
5 SHOP STORE	24 X 10 3 X 10	1	270
6 SHOP	15 X 10	2	300
DEPARTMENT/MULTI SHOP			
SALES AREA STORE STAFF SANITARY CHANGING ROOM KITCHEN	30.5 X 20 5.3 X 7.5 2 X 1.8 3.85 X 2.3 3 X 6	2	1360.4
TELECOMMUNICATION NETWORK AREA	16 X 19	1	304
1 PHONE BOOTH AREA	12 X 6	1	72
2 PHONE BOOTH AREA	7 X 7	1	49
STOCK ROOM	5 X 10	8	400

APPENDIX C

6.2.2 Schedule of Accommodation

FACILITY	SIZE	NO	AREA(M)
MUSIC SHOP	20 X 10	1	200
OFFICE	3 X 4		12
STORE	3 X 7	1	21
VIDEO RENTAL UNIT	15.8 X 7		
STORE	8 X 3	1	148.6
OFFICE	2 X 3.5		
SANITARY	2 X 3.5		
BANK			
BANKING HALL	9 X 12	1	108
OFFICE	3 X 2.925	2	17.55
SANITARY	2.2 X 4	2	17.6
MEETING ROOM	4 X 3	1	12
STRONG ROOM	3 X 5	1	15
TREASURY	3.2 X 3	1	9.6
KITCHENETTE	3 X 5.4	1	16.2
BOOK KEEPING AREA	3 X 7	1	21
TELLERS	1.8 X 2	4	14.4
CHILD PLAY AREA			
OFFICE	3 X 6.85	1	20.55
CHILDREN'S ROOM	7 X 6.72	2	94.15
WASHING ROOM	2 X 3	1	6
INDOOR GAMES	13 X 7	1	91
EATING AREA	14 X 7	1	98
RELAXATION COURT	17.8 X 10	1	178
RECEPTION/WAITING AREA	4 X 6.850	1	27.4
EXTERNAL PLAY AREA	225M ²	1	225M ²
SANITARY (STAFF)			
FEMALE	2 X 2	1	4
MALE	2 X 2	1	4
SANITARY(CHILDREN)			
FEMALE	2 X 2	1	4
MALE	2 X 2	1	4
CINEMA	30 X 10	2	600
SALOON AND BARBERING SHOP	7 X 7	1	49
ADVERTISING COURT	35 X 9 + 33 X 9	2	612

APPENDIX D 6.2.3 Schedule of Accommodation

FACILITY	SIZE	NO	AREA(M²)
FIRST AID FACILITY			
RECEPTION	3.7 X 7	1	25.9
NURSES WORKSTATION	3 X 4	1	12
OFFICE	3.5 X 5	2	35
PHARMACY SHOP	7 X 6.5	1	45.5
REST ROOM	3.5 X 7	2	49
WASH ROOM	2 X 3	2	12
STAFF SANITARY	2 X 2	2	8
PATIENTS SANITARY	2 X 2	2	8
STAFF LOUNGE	3.7 X 7	1	25.9
KITCHENETTE	3.7 X 7	1	25.9
INDOOR GAMES ROOM	8 X 7	1	56
OFFICES			
1	45 X 13	4	2340
2	45 X 9	4	1620
KITCHENETTE	3.5 X 5	4	70
SANITARY(CUSTOMER)			
MALE	8.3 X 8	4	265.6
FEMALE	8.3 X 8	4	265.6
SERVICES			
SERVICE/PLANT ROOM	10 X 11	1	110
GENERATOR ROOM	6.2 X 12	1	74.4
PALLET/FORK LIFT	12 X 10	1	120
GARAGE			
WATER STORAGE AREA	13 X 10	1	130
STAFF PARKING	48 X 50	1	2400
BULK BREAKING AREA	12 X 25	1	300
WARE HOUSE		18	35100
CUSTOMER PARKING			14761
CIRCULATION			17361
TOTAL AREA			62205 M²

6.3
CONCEPTUAL DEVELOPMENTS AND PLANNING

- **Conceptual Site Planning**

ed in three stages, gravitating from a macro zoning level to the micro planning of the facility itself. In response to the client's intentions, a macro site zoning was carved out

Stage

1

(opti

on 1)

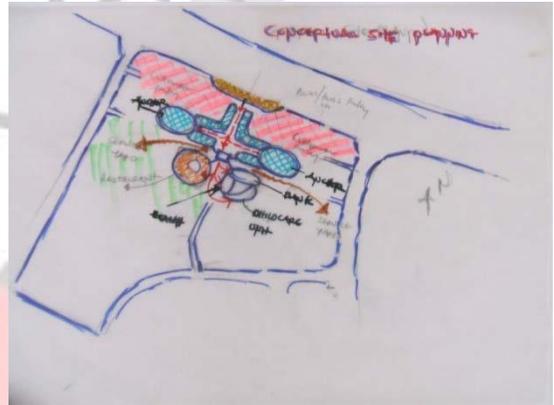


Fig 20: Conceptual site planning (detail zoning) option 1

Stage 1 Option 2 (chosen option)

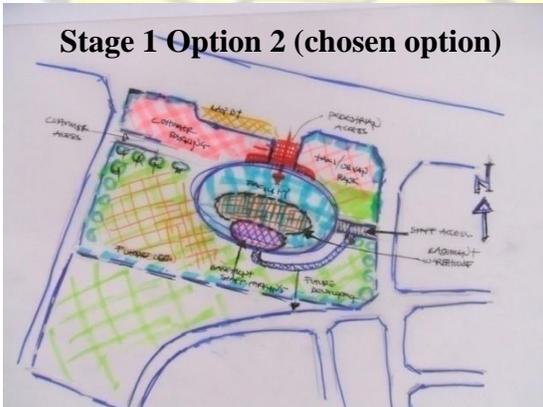


Fig 21: Conceptual site planning

Appendices A-D (by author) (macro), stage 1 option 2

Figs. 19-22 (Photographs from author)

Fig. 22

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