

**NATIONAL FOOTBALL ACADEMY, ABUJA**

**B. TECH THESIS (ARCHITECTURE)**

**BY**

**NUBI OLUMIDE AINA TOBILOLA**

*(93/3829)*

Department of Architecture  
School of Environmental Technology  
Federal University of Technology, Minna.

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# CERTIFICATION

I hereby certify that this original work titled "National Football Academy, Abuja, is a project work carried out by, NUBI OLUMIDE AINA TOBILOLA (93/3829) of the department of Architecture, school of Environmental Technology, Federal University of Technology, Minna, in partial fulfilment of the requirement for the Award of Bachelor of Technology (B.Tech) Degree in Architecture.



Nubi Olumide A. (93/3829)

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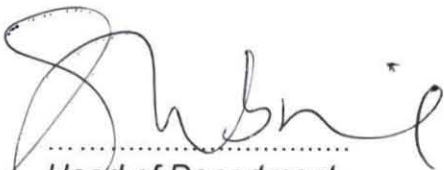
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Mentor

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Head of Department

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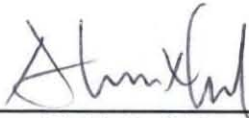
Dean, School of Environmental Technology

17/5/2000

Date

## DECLARATION

I, Nubi Olumide Aina Tobilola of Architecture department, School of Environmental Technology, Federal University of Technology, Minna, do hereby solemnly declare that the research and work presented for the Bachelor of Technology in Architecture has be carried solely by me under supervisor of my mentor, Architect (Mrs) Adesina of the Department of Architecture, Federal University of Technology, Minna.



Nubi O. A.T

11 - 05 - 2000

Date



Arc. (Mrs.) Adesina  
Mentor

11-5-2000

Date

## **DEDICATION**

This project is dedicated

- to the glory of God and of Jesus our Lord who according to his devine power has given unto us all things that pertain unto life and godliness, through the knowledge of him that has called us to glory and virtue.  
Jesus you are everything to me.

## **ACKNOWLEDGMENT**

I would acknowledge above all else the grace of God upon my life with whom all things has been possible. He (God) has been my dearest friend and provided all my needs.

My dad and mum have been wonderful to me; I extend my heartfelt, profound and undying gratitude to them. The journey has been very long, extensive and expensive indeed, but to God's grace, they refused to get tired, even when I thought they were. This same thank I most extend to my sisters and brothers - sister Oredola, Bummy, Yemisi, Dupe, Ben and Peter. Thank you for encouragement, support and in many ways.

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The Director and staffs of National Sport College, winneba Ghana especially Mr. Quansah, the accountants. Also thanks to Mr. Sam Ansah Okyere, the director and staffs of Goldfield Soccer Academy, Obuasi, Ghana. I appreciate you all for your warm reception and selfless services.

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Finally, I say thank you to many others which the inadequacy of these pages would not allow me to list their names. I pray that the Lord of peace will perfect all that concern them in Jesus name. Amen.

## ABSTRACT

Football is the most popular sport in the world. The essence of football is its simplicity and also known as soccer in some part of the world. It is a game for the masses speaking a language that knows no international barriers.

In Nigeria today, football has come to occupy a major national importance, enhancing individuals physical and mental health. It has promoted an unparalleled level of unity and goodwill amongst the citizens irrespective of ethnic tribe or religious affiliation.

However, of recent, the national teams and the various Football clubs have participated in competitions of various levels and have shown lack of appreciable performance which has given this country a set back in her effort to rule the world in terms of Football. The lack of performance are due to lack of good Football development programmes to catch the young players and secondly, the inadequate standard training facilities in the country.

In the design of National Football Academy, Abuja, the task is to create an ideal environment, psychological, aesthetical, and functional spaces for the development of youth Football programme and training of trainers. The Football academy provides the standard infrastructural facilities which are the requisite for effective training to meet the challenges of the modern and dynamic nature of Football. The academy is designed for the development of skills, poise, vision and creativity of young talented players, coaches, Football administrators, Football managers, Football journalists, referees and other participants who are all brought together for the development of the game both in full time and part-time sessions.

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# CHAPTER ONE

## 1.0 INTRODUCTION

Football is a field game between two teams played with an inflated oval-shaped ball that is advanced to a goal by running, passing, or kicking. It denotes the game of soccer and it is a world wide sport.

... Encyclopaedia Americana.

An Academy is an organized institute where special subjects are being taught

... Webster Dictionary.

The integration of the two words defined above could give a meaningful concept of a Football Academy. Thus a Football Academy is "an organised institute in which special subjects or skills like football administration, coaching, and football management are taught together with the training of young footballers for the development of football.

Football is the world's most popular team sport, whether measured by the number of spectators. Football is one of the few sports played by young people throughout the world. It is played by more than 1,000,000 people in over 150 countries and it is estimated that more than 1,000,000,000 (billion) people now follow world cup competitions.

However, apart from it's promotion of physical and mental health among the people, football also secure popularity and recognition to most countries whose government are really encouraging it's development. A good example of country that developed football and has gained world-wide recognition through football is Brazil. The growth, popularity and development of the country was marked by winning the world cup four times, under-21 world cup three times and under-17 world cup once in 1997.

Also, another prominent country with a strong tradition of Football development is the Netherlands. Her 75 years old Football development programme has produced great players like John Cryuff, Frank Rijkaad, and Dennis Bergkamp and also great coaches like Dick Advocate, Piet Keizer and Rinus Michels amongst others. The Netherlands Football Academy is one of the most famous in the world. Trainers come from as far as Japan, and South America to study in the academy.

Today, Nigeria as a nation has acquired some level of international prominence in Football activities. She is gradually becoming one of the emerging powers in both Africa and World Football. In 1989 world championship, her under-21 teams was runners up to Portugal, 1985 saw her under-17 cadet team winning the world championship; 1993 again saw her under-17 team winning the world youth tournament and only recently, her tagged "Dream Team" conquered the whole world to lift the gold medal of Football event of 1996 Atlanta Olympic games. These and others are the numerous achievement made by the Nigeria in the field of Football.

Attaining victory of course in a sibling of good preparation while the impetus to actualising the dreams comes from training, preparing the body and mind unto an excellent physiological balance, high spirit and with the sole aim of anticipated conquest. Training as an explicable task, require profound commitment and well articulated atmosphere for its manifestation on trainees. There must be however, in strong terms, adequate world class and up to date training facilities both in terms of infrastructure and equipment, to mould the individual to a more result oriented and purposeful, to meet the ever heightening challenges of the dynamic nature of Football programme, strategies and management.

Many countries, even in Africa appreciate this glowing necessity, thus making efforts at developing necessary facilities to help the young talents in the perfection of skills and stamina, and in prevailing doctrines. And Nigeria is not an exception to this discovery but the facilities on ground are grossly insufficient for the anticipated conquest.

This thesis however, looks at a proposal of a National Football Academy which will provide all the needed services obtainable in advanced countries into the Nigerian setting and forming a base for Football development in Nigeria. In term of training young players to attain to global status and provide an excellent platform to foster our dream of capturing the world in terms of Football. It also thrives at facilitating the much-needed avenue of generating coaches and coaching programmes in Football that would assist the development of Football in the country.

## **1.1 MOTIVATION**

The main motivating factor to this project design a hinged on the fact that, of recent, the national teams and various Football clubs have participated in international competitions of various levels and have shown lack of appreciable performance which as given the country a set back in her effort rule the world in terms of football. All these failures came due to lack of good preparation, inadequate training facilities and also to lack of workable Football development programmes to catch the players young. For example, Ghana has taken the mantle of youth leadership in African Football from Nigeria because of the gain of her football academy.

As a result of the pressing need for the promotion of football in Nigeria, which has been receiving some little attention now, it has become necessary to create an environment suitable for the teaching of the game. The only existing institute of sports in Lagos is not very adequate to cater for the need of football trainers and management which do not meet up to international standard.

A number of footballers are illiterates, due to difficult to combine their academic pursuit with for football young talents lying fallow and wasting away due to this reason. Therefore a Football academy beside helping in developing the country's football culture and training of trainers, also afford another career for most of the players who want to combine other educational pursuit, or trade with football.

Also, there is need to provide a football academy for the football minded just as educational institutions are built for the educational minded people, for this will encourage talents youths to embrace football as a profession and not just seen as last resort. The provision of this facility should be regarded as a sort of investment and not just a form of amenity to a nation, since the livelihood of many citizens may depend on one sporting activities or the other. This will invariably help to solve the ever increasing problem of unemployment in the country.

To identify the viability of the Football Academy, the need has to be ascertained. In this report, it is a no-contention issues that Nigerian require a Football academy which gives the reason for the design proposal. However, footballers, coaches, sport journalists and sport administration have been clamouring for such a facility in the country where talents are harnessed and trained for future competitions. The government at all levels has promised to support football development at levels, to the desired standard.

## 1.1 AIM AND OBJECTIVES

The aim of the project is to design an ideal Football Academy that will functionally provide the facilities needed for; the training of Nigerian footballers in to attaining higher level standard of performance favourable to the desire to bring glory to our fatherland in international, intercontinental and global football competitions, and as well teaching of other participants in the area of coaching, officiating, football administration, football management and football journalism amongst others.

### **Objectives**

The objectives of the design hinge on the following architectural approaches:

- (i) To provide standard infrastructural facilities to accommodate and prepare Nigeria Football teams physically and mentally fit competitions
- (ii) To provide functional and adequate classrooms spaces for the teaching of basic school education needed by the youths.
- (iii) To provide functional and adequate number of accommodation (hostels) for the students of the academy and footballers on holiday programme.
- (iv) To provide venue and facilities for youth football competition and hence encouraging professionalism amongst the young footballers.
- (v) To provide a unifying centre for young footballers from different parts of the country by providing functional and well laid out plan that will enhance friendship. This will be achieved through courtyards, open-air leisure and common rooms, dining areas and walkways.



- (vi) To ensure conducive atmosphere for training by ensuring that noise and other distraction factors are well taken care of by the choice of site and proper site planning.
- (vii) To provide a recreationally complete environment for the players to unwind after the training.

### **1.3 RESEARCH METHODOLOGY**

The methods employed in carrying out research for the successful outcome of this project is: case study method and participant method.

For the success of the research work, case studies of similar existing facilities (within and outside the country) were carried out to provide a guide and to see ways of improving areas that are found to be defective in the design proposal while the participant methods entails:

- i. Literature review and enquiries into books and journals.
- ii. Oral interviews with experts in related fields who in one way or the other offered useful suggestions regarding various aspects of the projects.
- iii. Oral interview with footballers who offered suggestion on some aspects of the project.

### **1.4 SCOPE AND LIMITATIONS**

The project is divided into parts to effectively deal with the demanding nature of the project requirement.

The first part consist of a written thesis which comprises studies and review of the site, case studies, services, construction techniques and materials as well as the design criteria being employed in the design of the academy. While the second part consists of physical planning of the project design which entails the full architectural presentation drawings, final relationship and analysis as well as perspective drawing of the academy. The facilities that will be provided are summarised into:

- i. Administrative building.
- ii. Classrooms and departments (training, education and research.)
- iii. Library facilities.
- iv. Student hostels for male and female.
- v. Staff accommodation
- vi. Indoors practising pitches/Gymnasium.
- vii. Training pitches
- viii. A mini football stadium for competitions.
- ix. Maintenance yard.
- x. Clinic
- xi. Chapel
- xii. Mosque
- xiii. Cafeteria/Shops/Multi-purpose hall

### **Limitations**

The main constraints towards getting information regarding the project came from the inability to get a case study of an ideal football academy in the country. Secondly, information about the precise data on the requirement of

the academy could not be obtained from the Ministry of Youths and Sports. Also, lack of willingness to give out information at the sources is another major difficulty. Other factors include lack of adequate mobility to tour all available sports grounds and camps in the country.

### **1.5 IMPORTANCE OF FOOTBALL AS A SPORT**

Football have come to dominate a major national importance in Nigeria. As a game for the masses, it promotes an unparalleled level of unity and goodwill amongst all Nigerians.

Global economic system now witness the impact of football in every aspect of human endeavour. The following aspects signify the all important attributes of football to the global socio-economic and political system.

#### **i. Health**

Sports have been found to enhance individual immunity to some form of diseases that comfronts man. Football which is tremendously popular throughout the world helps people to develop resistance to some sickness due to the mortal transformation he/she receives from the involvement in the game. It helps greatly in cardio-vascular and respiratory system, making the individual physically fit and better looking.

#### **ii. Mental fitness and psychology**

The use of the brain in football to facilitate ways of winning helps participants to tackle various social problems with high sense of tactical ability, making the challenges easy to overcome. Individual psychology is greatly balanced and help the individual in responding to his needs and the environment around him.

### **iii. Politics**

Globally, sports have now been seen as a way of fostering political interest. This is evident in the withdrawal of United States of America (USA) and Union of Soviet Socialist Republic (USSR) in two successive Olympic games due to political actions of their government. Nigeria boycotted the 1996 African Nations Cup and also resulted to her suspension from the 1998 edition.

### **iv. Economy**

The economic system of the world has witnessed the largest influx of money occurring from football. Such as footballers and coaches salaries, transfer fees, adverts fees, and the influx of products from companies that sell to enhance improved capital and project gain. Football also provides employment and income for many people through adverts, hosting, gambling, salaries for participants and endorsements of consumers products. The hosting of the World Youth Football Championship in 1999 tagged "Nigeria '99" has helped Nigeria to acquire so many investment in the area of sport facilities, and communications.

### **v. Religion**

Some regions of the world that were once hostile to sports have now opened up their doors to the game. Women that were prevented from participating in sports are now given the chance to participate and contribute their quota to the development of football in their locality and globally.

## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 HISTORICAL BACKGROUND OF FOOTBALL**

The earliest evidence of football dates from about 200 BC in China, where a form of the game was played that emphasised the ability of players to dribble a leather ball. The Greeks and the Romans also participated in a variation of soccer that permitted ball carrying.

The modern-day outgrowth of football is known to have started in England, and the first ball reportedly was the head of a dead Danish brigand. Although King Edward II prohibited Football in 1365 because of its excessive violence and for military reasons – playing took time away from archery practise – the game had become too popular to be curtailed. In the 1850's the number of players which used to be range from 15-20 players each side was reduced to 11 players each sides. Not until th1880's was the goalkeeper formally distinguished as the only player allowed to touch the ball with his hands.

#### **Modern soccer**

In 1857, the first soccer club was formed in Sheffield, England. This set the stage for one of the most significant dates in football history, October 26, 1963 on this date, 11 clubs met in London to form the Football Association (FA) which laid the foundation for the nearly 140 modern National Associations. With the advent of a national Association in England, any Football played under its jurisdiction was called a "Football Association".

In 1913, a world governing body, the Federation of International Football Association (FIFA) was created to co-ordinate all of the national associations in the World. The result has been the development of spectacular international competitions such as the World Cup, which have sparked football growth into the World's most popular sport.

The history of organised football in Nigeria dated back to the early 1930's, when football-loving people formed themselves into various club and organised friendly matches among themselves. The clubs included, the Chamber Club, Erelu Bombers, the Jollickers, Muslim Rovers, Campos XI, Oluwole Rovers amongst others. Before the Oko-Awo playing ground in Lagos Island, otherwise known as Bombata ground was fully developed, important matches were played at the nearby St. Patrick's Catholic School ground situated along Reclaimatuin road, now known as Iga-Idin Street, Isale-Eko.

### **League**

League matches were organised by government, departments and most of the players that used St. Patricks ground (Bombata playing ground) also played for various government offices. However, organised football competition started in Nigeria in 1936 when a space was earlier in that year carved out of Race-course (now Tafawa Balewa) later in the year, the venue was moved to Onikan, near Marina. The arena was initially surrounded with mats to give the arena a better look.

Towards the end of 1937, the arena known as Association ground was given a face-lift; and the Lagos town council fully conscious of the role of sports in the healthy development of the body and mind. With an area secured for the game, football enthusiasts started organising themselves into clubs more actively to vie for football honours. Private companies and government departments appreciate of the role of football also organised clubs within their various establishments thus ushering in the emergence of clubs like L.T.C., Carter Corinthians, Railways, Police, Marina, P and T, Calabar XI, P.W.D. and U.A.C. clubs.

Lagos the cradle of football in the country, attracted football minded people like Messrs Jack Farnsworth, Peter Cook; R.B. Allens, the government printer who later became the secretary/treasurer of the Nigeria Football Association, Hallan, and B. Stallard. Nigerians who also contributed there bit include Messrs Alex Oni, Pius Quist, (later Pius Anthony) and E. Okonto.

### **Expedition**

In the 1930's, when Nigeria first participated in inter-colonial matches, players were drawn from Lagos through the game of football had also attracted some fellowship in provinces like Calabar and Port-Harcourt. In 1940, the Calabar XI came to Lagos on a Football expedition and played against Lagos XI. The team however lost by one goal to five.

The advent of the Federation of Boy's and Girls' Club in the late 1940's, through the concerted efforts of dedicated youth organisers like Jack Farnsworth, Peter Cook, Alex Oni and J.P. Wiktshire, contributed in on small measure to the enhanced of football as a game in Nigeria. Since then the

banks of natural or man-made depressions, with the playing field below normal ground level. Stadiums generally accommodate several sports, although they may be originally designed for only one; the primary sport for which a stadium is designed governed its shape. Football stadiums are commonly single tiered and have the greatest number of seats along the sidelines. Baseball, on the other hand, concentrates the seats around the infield, where the principal action occurs. This leads to two and even three tier structures in which the rows of seats are curved so that the playing arena is easily seen from all points.

Generally stadiums are unroofed, except for special sectors called grandstands. However, modern technological advances such as steel construction and reinforced and precast concrete, have made it possible to cover large areas, which can then be heated, lighted and even air-conditioned.



## **CHAPTER THREE**

### **3.0 THE EFFECTS OF CLIMATE ON PLANNING AND BUILDING MATERIALS**

#### **3.1 INTRODUCTION**

Climate, a basic environmental factor, is perhaps the keystone in planning of an environment. In the broadest sense, climate is the characteristic condition of the atmosphere near the earth's surface at a given place or over a given region. Components that enter into the description of classification of climate are mostly the same as weather components used to describe the state of the atmosphere at a given instance. If a weather information deals with the specific event, then climate represents a generalisation of weather. A statement of the climate of a given observing station, or of a designated region is described through the medium of weather observation accumulation over many years time. Not only are mean or average values taken into account, but also the departure from those means and probabilities that such departures will come.

The physical components of climate are many, they include such measurable quantities as net radiation, sensible heat, barometric pressure, wind, relative and specific humidity, dew point, cloud cover and type, fog, precipitation type and intensity, evaporation and transpiration, incidence of cyclones and anticyclones and frequency of frontal passages.

### **3.2 HOT DRY CLIMATE.**

This is characterised by a high temperature range and low humidity with discomfort caused by either by low or high temperatures. The design of walls and roofs should therefore moderate temperature fluctuations. This is achieved by a long time lag of 8 to 14 hrs for both internal and external walls.

There is need for cross ventilation for three to nine months of the year due to hot day discomfort. There is need to protect building against rain as a result of the intensity of downpours when finally arrive. Cold night and hot days alternate for six to ten months of the year. This is accentuated during the harmattan and thermal storage is needed for cooling interiors in the day and for proving warmth at night. Outdoor sleeping space should be provided since it is impossible to achieve night comfort during the very hot period.

### **3.3 DESIGNING AND PLANNING IN HOT DRY CLIMATE**

Since the central purpose of planning is to create for person or group of person an environment suited to their need, then climate must be a fundamental consideration, it is fundamental first, in the selection of an appropriate region for the proposed activities and than, within that region, in the selection of the most appropriate location for the individual activities or facilities.

The large dimension of world climate are determined and continually influenced by a number of Imponderable factors, chief among which is the amount of solar radiation that the earth receives from the sun. There is little to be done about the climate except to adjust to it and this form adjustment is to make the best of existing condition of the site wherever it may be. Sometime the most important consideration in site planning is a realisation of the need and benefit of protecting the natural environment. Also by Finding ways in which individual and small groups may retain sense of identity in large environment.

### 3.3.1 **SITE PLANNING**

1. Amelioration of heat and glare by orientation of building long axis from East-west, by shading, by screening and by the cast-shadow patterns of well placed building components.
2. Adoption of the coral-compound cherdar arrangement of homesteads and neighbourhood cluster.
3. Screening of use areas and paths of movement from the direct blast of the sun.
4. Protection of outdoor activity spaces from exposure.
5. Preservation of native plant materials as self sustaining and handsome component of the desert landscape.
6. Limitation in size of parks, gardens, and seeded areas.
7. Use of tubbed and container - grown plants, drip irrigation and hydroponics gardening.
8. Incorporation of irrigation of canals, pounds, and structures as attractive site features,

### 3.3.2 **BUILDING DESIGN**

1. Architectural use of heavy walls floors and roofs with light thermal capacity and a time lag of eight hours. Wide roof overhangs, limited fenestration, and light reflective colours, shading devices.
2. Provision of cool, compact courtyard planning, and dim interior space in contrast to the stifling heat and brilliance of the great outdoors.

3. Sealing of all building against dust, rain, sun, and wind. Airtight opening and skilful architectural detailing are required. Opening should be composite and occupy 20-35% of the wall area. These opening should be able to catch the breeze and improve body cooling, with permanently open ventilation vents.
4. Grouping of rooms or structures around planted and irrigated courts and patios.
5. Provision of strong rainfall catchment and storage. Water from roofs, courts and paved areas can be directed to cisterns.
7. The choice of finishes should depend on the climate. In hot climate like this, PVC tiles or terrazzo etc. may be adequate.

#### 3.4 **BUILDING MATERIALS**

In hot - arid areas, the durability of building materials and structures is affected by there fouling with dust and sand particles. As it accumulates on roofs and external walls, dust spoil their insulating properties and bring down the reflectance of the surfaces. Dust and sand also foul equipment mechanisms, window hinges, door locks. Their effect is most destructive where they gain access to moving parts and lubricated surfaces resulting in the premature wear of the equipment. Dust and sand particles give rise to erosion when they come into contact with unpainted metal surfaces. Accumulation of sands and dust on roofs may cause the collapse of the bearing members, which is why periodical inspection and clearing of roof structures is a must in such region.

Concrete and stone find the most extensive application in hot regions. Their population can be attributed not only to the abundance of the raw stuff, equally important are their good behaviour and low cost.

Metals have proved their worth in hot regions as bearing and filter elements for industrial buildings and structures, sun screens, decorative elements and substitutes for wood in window frames, casements and sash (wooden elements appreciably deform under solar radiation and are likely to be attacked by termites. Aluminium and copper alloys offer good resistance to climatic factors. The pictures not as soothing with iron alloys, which extensively corrode, even in the galvanised form, when exposed to elevated humidity in the atmosphere contaminated with salt particles, dust, and industrial influents.

As for glass, the usual form of wear is the abrasion (including severe scratching by sand and dust. Equally important is the distribution of rigidly fixed glass panels due to the thermal expansion. The marginal portions of a glass pane are shaded by the casement, so the temperature difference within the same pane may run into 20°C, sometimes causing breakage. At an elevated humidity, the dirty glazing of industrial buildings may house fungal colonies whose secretions may itch the glass.

Experience shows that asbestos cement is a poor choice for exposed structures in hot climatic regions. It frequently cracks in cyclic heating and cooling; the continuing hydration of the cement promotes cracking; mildly growing on dirty surfaces softens the materials, structural elements are highly sensitive to sudden impact stress (say to hail) still owing to a substantial cost reduction by increased local production, it is widely used in tropical countries for roofing, wall boards, insulating boards, sun screen. Components and non-pressure sanitary and the pipes.

Paint and plastics are subject to rapid destruction by increased solar radiation, which intensifies physical, chemical and photochemical processes. Their resistance can be improved by adding extenders (for example asbestos) to paints, plasticisers to plastics. Recent evidence has shown that the service life of paints based on alkyd resins and aluminium pigments is approximately three times as long as that of ordinary oil-base paints. Solar radiation and some other by - effects (such as thermal deformation) cause the embrittlement, scouring and discolouration of a coat of paint. Elevated humidity brings a burnt smelling and pointed corrosion and may spur the development of mould algae.

Rugged and reliable as they are in temperate climatic regions, bituminous materials and sealant lose much of their durability in hot areas. When exposed to high temperatures and long-time solar radiation, bituminous materials become soft and then brittle. The vaporisation of the moisture entrapped under the roofing may cause the separation and bubbling of the roofing. Repeated moisturing and drying cut down the elasticity of the material. Normal roof mastics may not be used, because they harden, crumble and crack very soon. Sealing compounds based on polysulphides and silicones must be used in packing joints

# CHAPTER FOUR

## 4.0 CASE STUDIES

### 4.1 CRITERIA FOR CASE STUDY

A football academy of this calibre willing to serve people in the field of training and coaching from all over the country would not limit itself to the needs and desire of just one geographical area rather it will work at unifying the lifestyle, cultures, traditions, needs and desire of the people all over and exhibit a good number of common, modern and acceptable ground to meet these needs.

In order to achieve all these, centres or institute used as case studies were selected from Nigeria and different parts of the world where such as academy or centre exists.

#### **Objectives of case study**

The objectives of carrying out case studies include the following:-

1. To evaluate the users requirements of facilities provided, the existing spaces and their interrelationship, as well as in relation to required space standards.
2. To evaluate the structural and functional performance of facilities provided.
3. To evaluate the degree of response of adults and youth to existing facilities available.

## 4.2 OUTLINE OF CASE STUDIES

The following case studies were carried out to obtain information on similar project which will serve as a guideline to the designed proposal for the football academy. Designs vary with location, purpose and availability of materials and consequently the design features, which are common to all the case studies, whether functional or aesthetic, will be combined to form proposal. Similar existing projects that were studied during the course of research are:

1. National Institute of sports, Surulere, Lagos.
2. Pepsi Football Academy, Agege, Lagos.
3. Goldfield Soccer Academy, Otuasi, Ghana.
4. National Sport college, Winneba, Ghana.
5. The Netherland Football Academy, Amsterdam

### 4.2.1 NATIONAL INSTITUTE OF SPORTS, LAGOS

This institute was founded in January 1970 and completed in 1972, it was located inside the glamorous Nation stadium, Surulere, logos. The primary aim of finding the institution to train Nigerian trainer of other sport like Boxing, Badminton, Judo, Table- tennis just to mention a few for the 2nd All African Gams held in 1973 at Lagos. This institute claims to be the first institute of such in West Africa. The management of the institute is in hands of National sports commission.

The units comprising the building are all compacted in a single unit. Facilities here are meant to cater for 1000 student but at peak period, the number could rise to 1,400 students.



The existing facilities include two large conference rooms, Cafeteria, three classrooms, offices accommodation for both male and female, outdoor games like badminton and swimming, Gym, Library, security/enquiry hall, kitchen, phone and postal services shed.

### **Demerits**

- ◆ Facilities are compacted in one unit.
- ◆ There is no buffer zone in case of any emergency like fire.
- ◆ There is no landscaping and defined walkways.
- ◆ Most of the rooms are not ventilated.
- ◆ The existing lift is out of service
- ◆ No enough classroom
- ◆ No descent accommodation for the instructors
- ◆ No adequate water supply
- ◆ Reception/Enquiries not properly defined
- ◆ No space for future expansion.

### **Merits**

- ◆ The layout s functional
- ◆ Environment s quite well kept.
- ◆ Security is efficient because of the compact design.
- ◆ Site location is accessible.

#### 4.2.2 PEPSI FOOTBALL ACADEMY, LAGOS

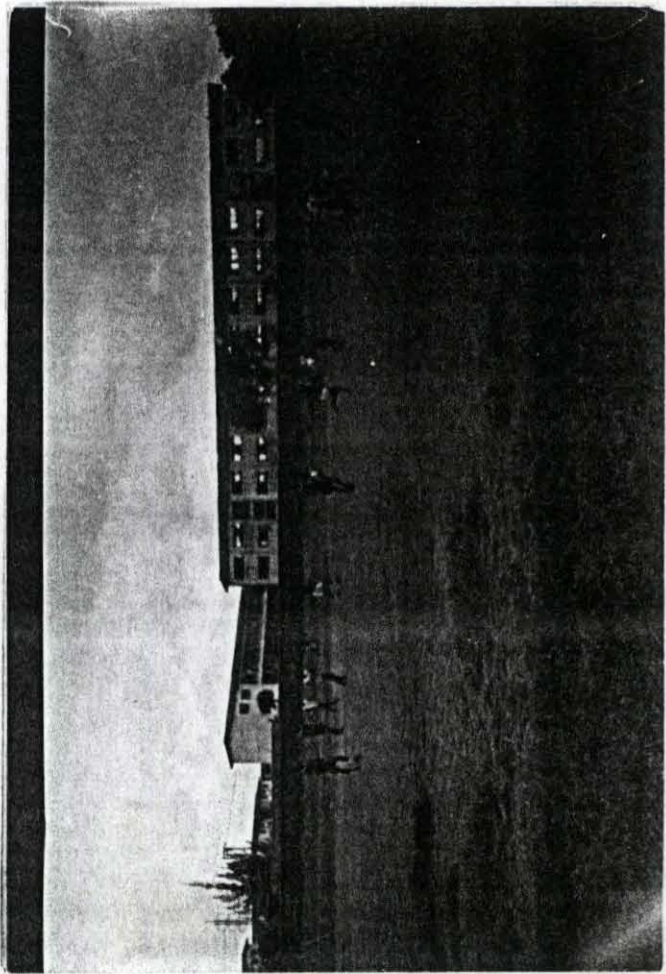
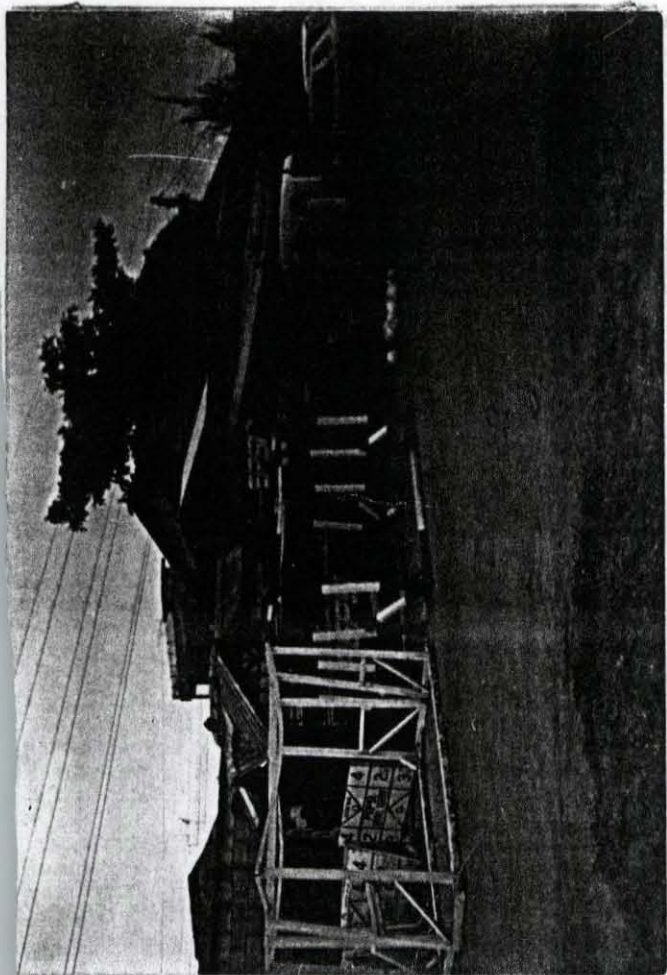
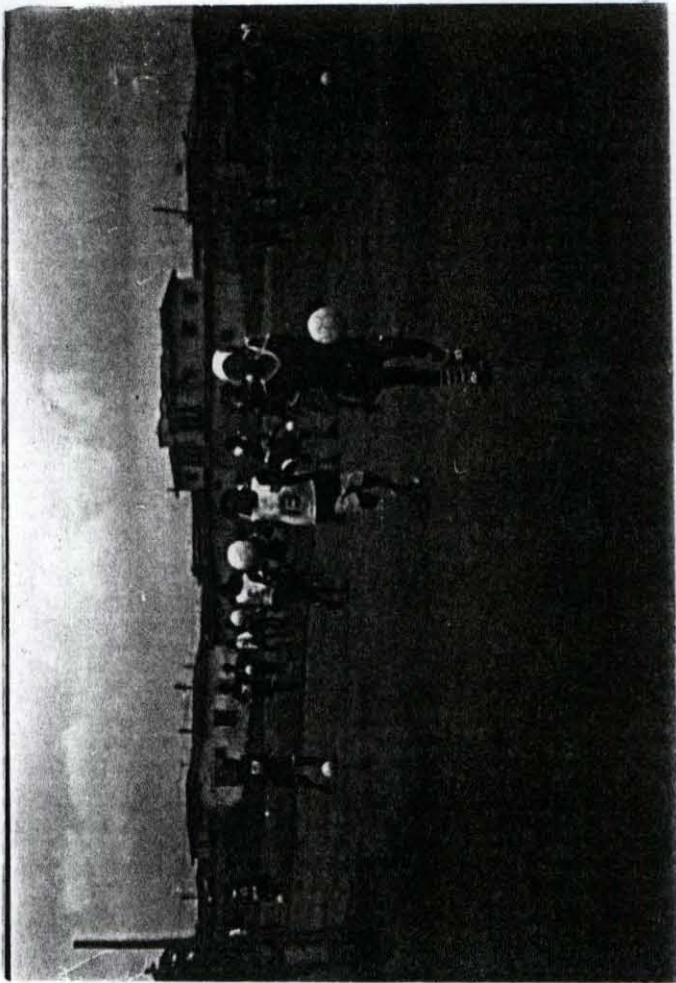
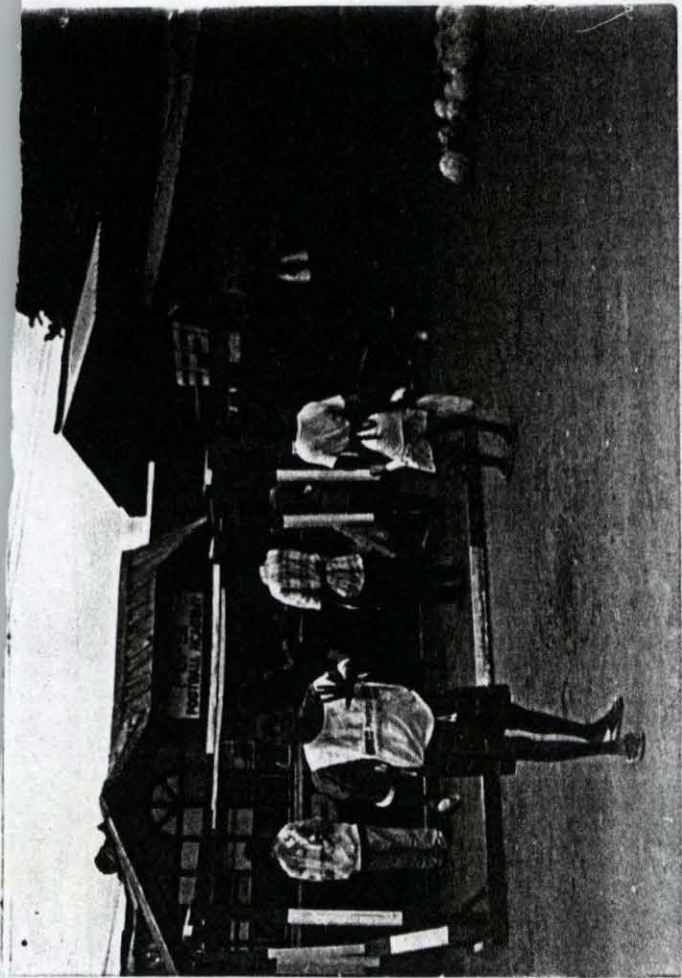
Established November, 1992 with its temporary base at Agege stadium courtesy of Lagos state council, the football Academy metamorphosed in to the Pepsi Football Academy in November, 1994. The national launch was held in Lagos on the 26th march, 1996 in a grand style.

The objectives of the Academy are to train youths aged 8-16years on the basics of football through introductory weekend and holiday programmes, train organise competition to facilitate the tactical and technical development of the game from youth level. The Academy's training techniques, combined with the cover's method and Bobby Charlton's Football School Coaching programmes are designed to develop the individual skills needed by the football player of tomorrow. The programme of the Academy provide introductory football programmes in 31 training centres all over the country. There are over 3000 student (both boys girls)in the Academy all over the federation.

##### **Demerits**

- ◆ No permanent infrastructural facilities such as administrative building, class rooms, canteen, accommodation, changing rooms, gymnasium, etc.
- ◆ There is no accommodation facilities for students and instructions.
- ◆ There is no privacy for the academy.
- ◆ Inadequate training pitches and equipment.
- ◆ There is no room for expansion.





### **Merits**

- ◆ The site is accessible.
- ◆ Environment is well kept.
- ◆ Availability of toilet nearby.

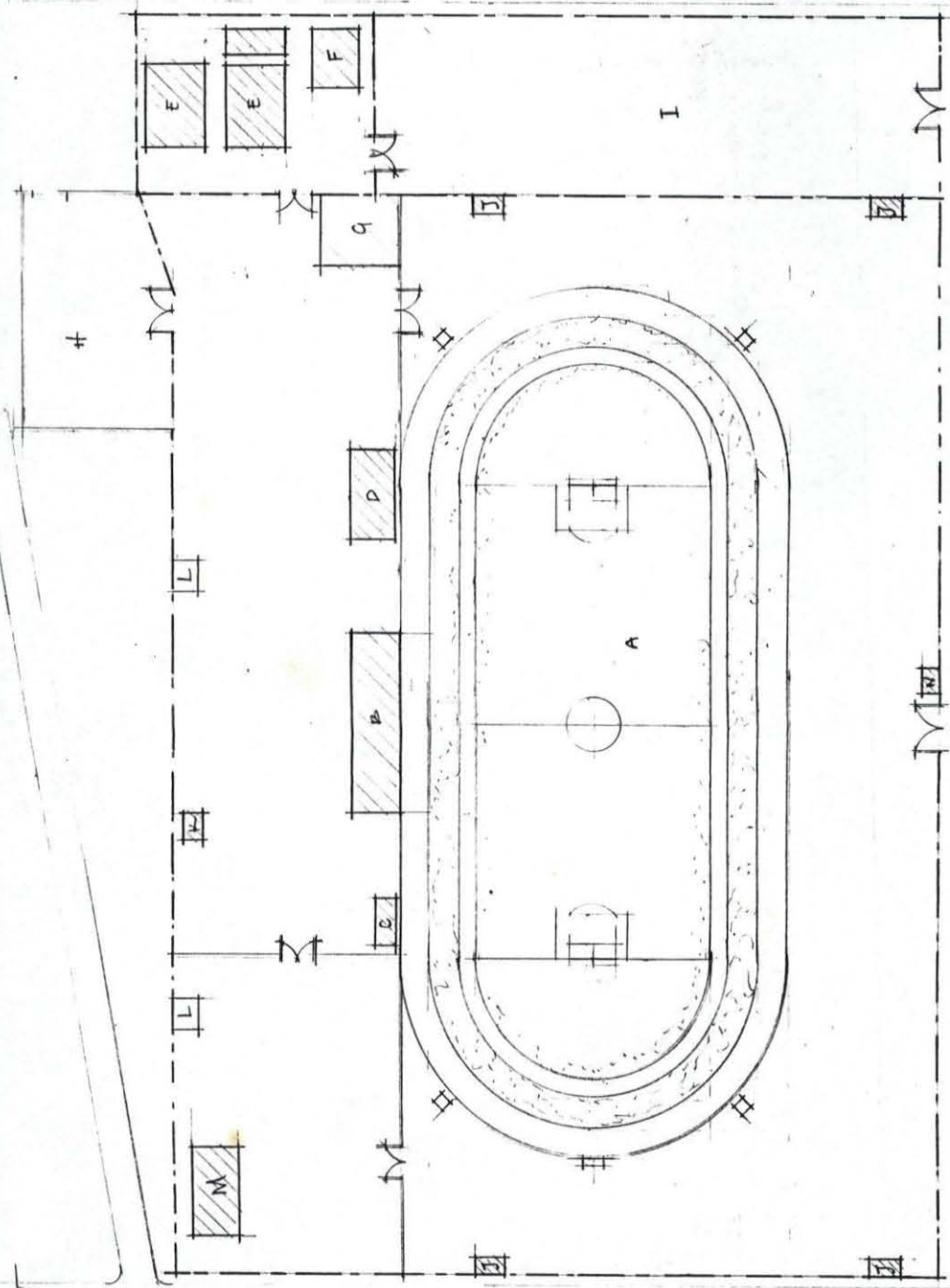
#### **4.2.3 GOLDFIELD SOCCER ACADEMY, GHANA**

The idea of a soccer Academy where modern soccer will be taught has long been seen as the panacea to Ghana's problem because the lack of adequate funds, the state has not been able to translate its wishes into horses. The Obuasi Soccer Academy, admission to which has begun, has been described by football aficionados as an answer to a national dream.

And national it is intended to be. Though leased at Obuasi, home of Ghana's leading gold producer and operated by Goldfield sporting club, the Academy is by no means the exclusive preserve of Goldfields.

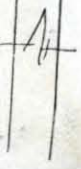
The main aim of the Academy is to develop the skills, poise, vision and creativity of the individual young player who wants to be a professional player. The Academy also offers courses in other aspects of the game in its bid to lay a solid foundation for the development of soccer. Consequently, courses are run for prospective Referees, Team managers, coaches as well as courses in facility maintenance and management.

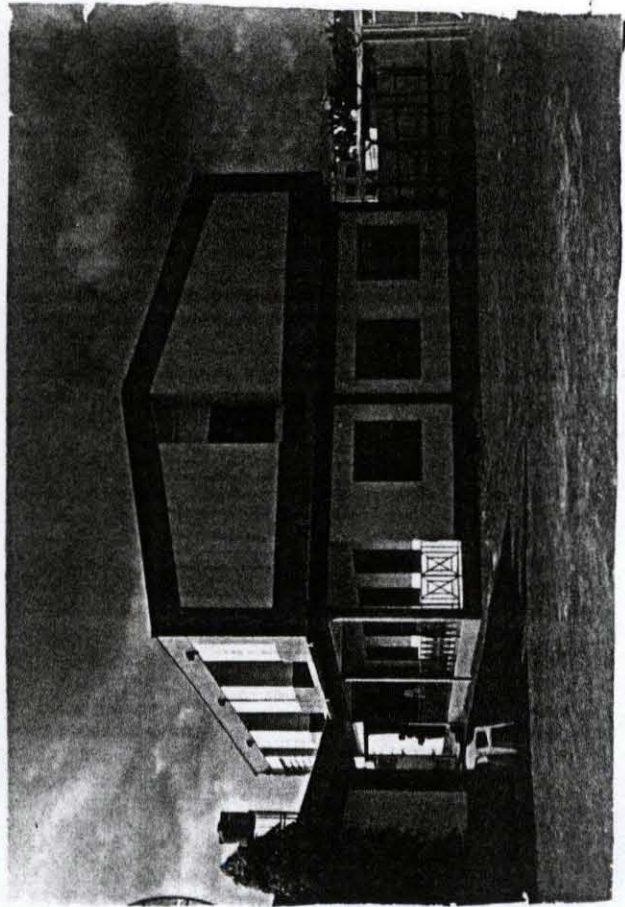
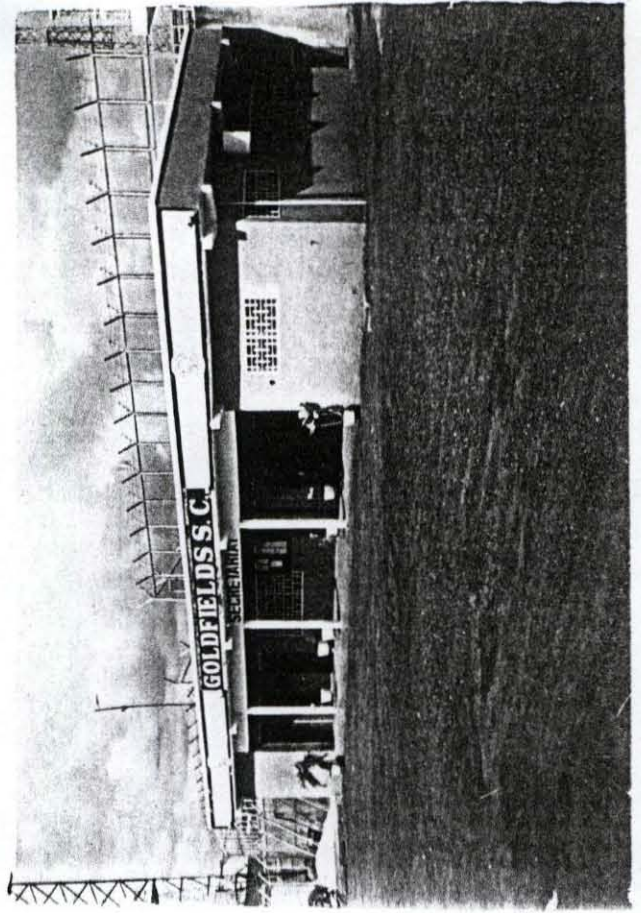
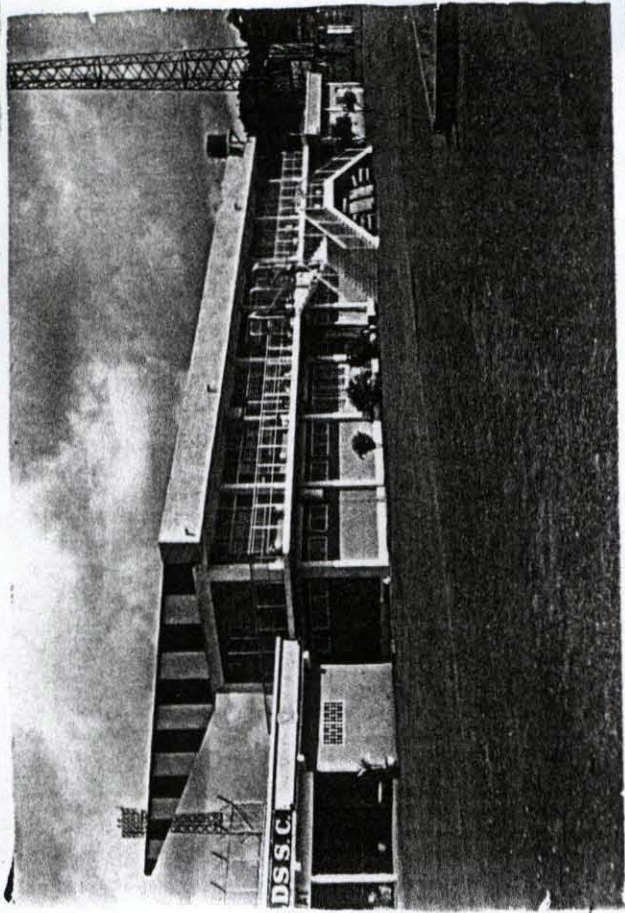
Due to accommodation and logistic problems, the Academy has decided to limit the initial intake to 25 Footballers and the course is for a period of three years. The facilities available include a standard stadium (Len Clay Stadium with a Gym, accommodation for students common room, dining room, Administrative building, vehicle parking spaces, generators house, etc.



**LEGEND**

- PLAYING FOOTBALL FIELD
- CHANGING ROOMS/VIP LOUNGE
- GYMNASIUM
- SECRETARIAT
- HOSTELS
- DOMITORIES/DINING AREA
- VEHICLE GARAGE
- V.I.P. CAR PARK
- GENERAL CAR PARK
- TOILET FACILITIES
- GENERATOR'S HOUSE
- URINALS
- SQUASH COURT/BAR.
- GATE





### **Demerits**

- ◆ No Classrooms for the students.
- ◆ The common room and canteen have no clear demarcation.
- ◆ Some training pitches are not within the Academy.
- ◆ Lack of recreational facilities such as swimming pools and Gardens
- ◆ There is no maintenance yard within the Academy.
- ◆ There is no clinic within the Academy
- ◆ No space for future expansion.

### **Merits**

- ◆ Adequate and functional accommodation facilities for the students.
- ◆ The layout is functional and well landscaped.
- ◆ The Academy is located in the outskirts of the main city to screen out distraction.
- ◆ There is a well equipped Gymnasium for training.
- ◆ The generator's house is well built and well located.
- ◆ There are good and enough training pitches.
- ◆ There are toilet facilities situated all over the Academy.
- ◆ Adequate water and power supply.

#### **4.2.4 NATIONAL SPORT COLLEGE, WINNEBA, GHANA**

The National Sports College was established in 1984 in the days of the downward trend in the Nation's Sports performance. The national Sports College exists to train and retrain sports administrators, Coaches, Sports Physiotherapists, conduct research into sports related issues, organise seminars and workshops, and to provide camping facilities for teams preparing for National and International assignments.



The College is sited at the grounds adjacent to the North Campus of the University College of Education of Winneba, Ghana. It has high-quality fully equipped training facilities for tennis, basketball, football and runs courses in Sports management and administration.

The Sports College have a 3-storey 60 roomed block with adjoining bathrooms and toilets on each of the floors for large group camping. There is also an executive block containing twenty-three rooms, self contained and well furnished with T.V, Refrigerators and air-conditioned. There are accommodation for the staff within the campus.

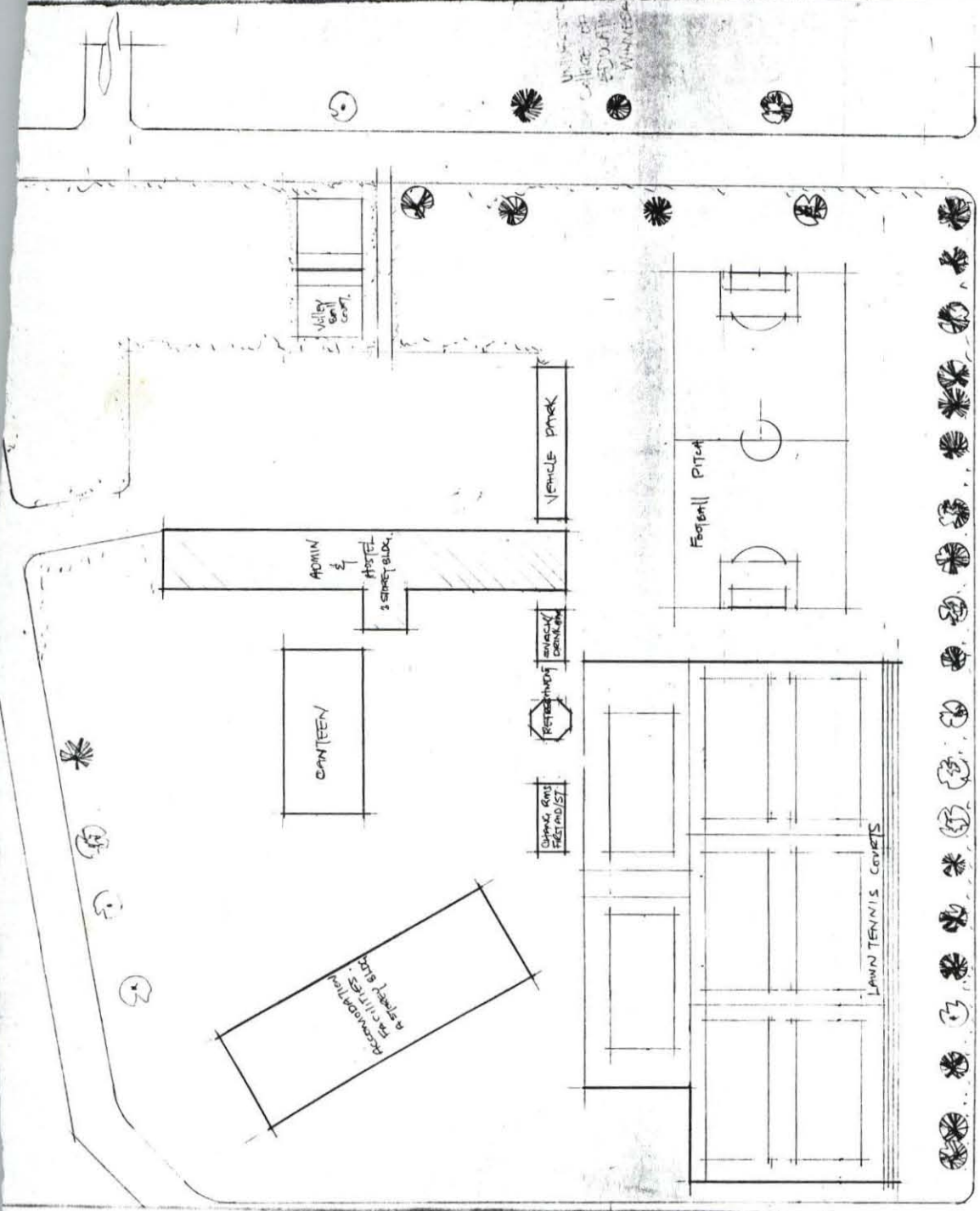
### **Demerits**

- ◆ There is no classroom for students.
- ◆ No privacy for the students for the administrative section and the student - accommodation are in a single building.
- ◆ The generator house is not well located, that is too close to the administrative section.
- ◆ The training facilities are not adequate.

### **Merits**

- ◆ The environment is quiet and quiet well kept with good landscape.
- ◆ Site is very accessible
- ◆ There are provision for recreational facilities such as snacks bar, drinks bar, etc.
- ◆ There are staff accommodation are well positioned in the campus.
- ◆ There are enough accommodation facilities for students.
- ◆ There are provision for well equipped changing rooms and first aid treatment room.

UNIVERSITY  
COLLEGE OF  
EDUCATION  
WINNEPEG



WINNEPEG TOWN

RECREATION CENTER  
DORMS AND RESTAURANT

CANTEEN

ADMIN & POSTAL SERVICE BLDG.

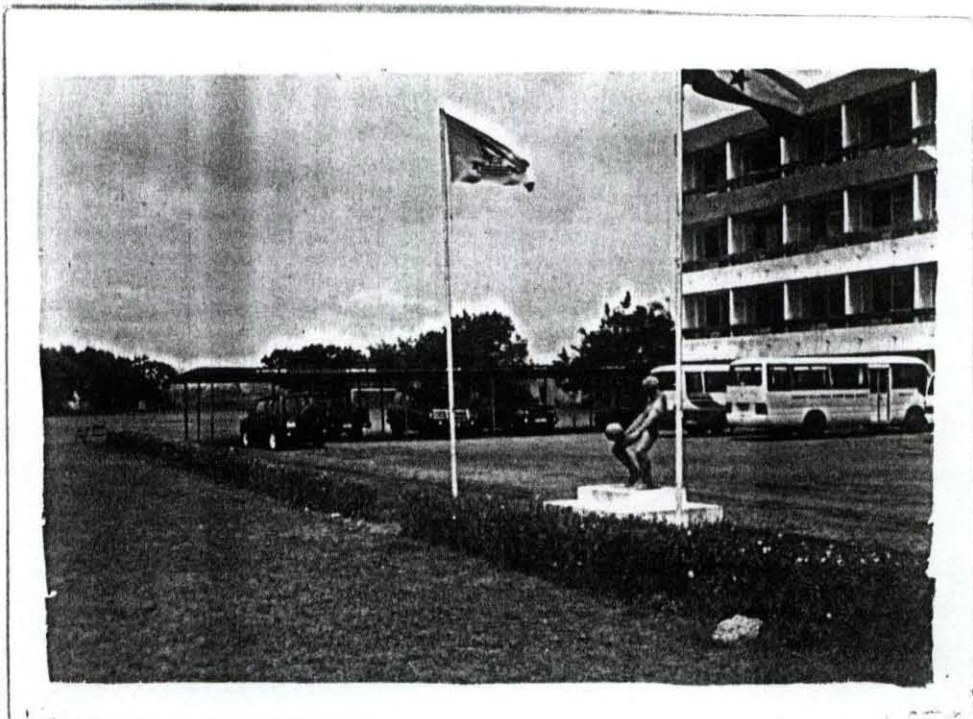
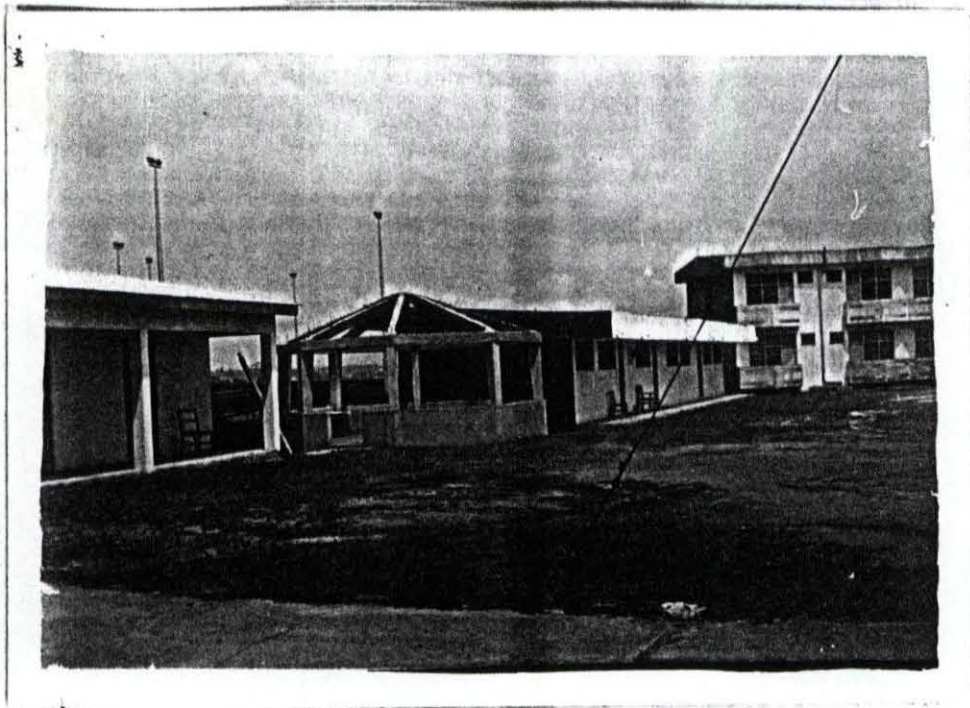
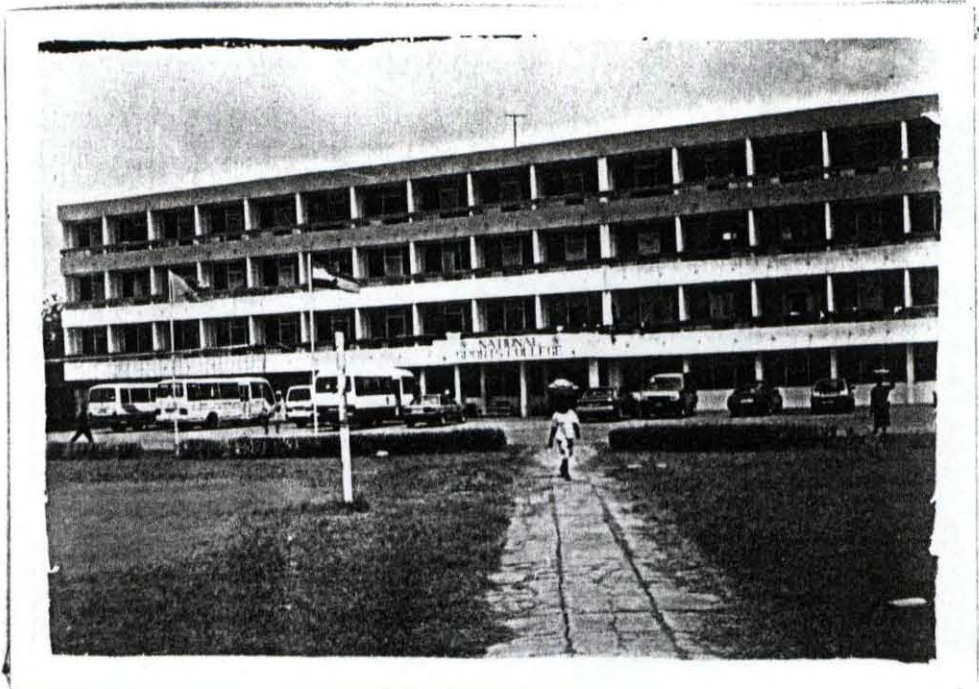
RECREATION CENTER  
DORMS AND RESTAURANT

VEHICLE PARK

Football PITCH

LAWN TENNIS COURTS

VALLEY COURT



#### 4.2.5. THE NETHERLAND FOOTBALL ACADEMY AMSTERDAM.

The academy was built by the Netherland football federation for the development of youth football and trainers centre for football development in 1972, it is one of the best football academy in Europe with total area of 18 hectares and have produced talented footballers like Ruud Gullit, Marco Van Basten, Jordi, Cryuff, son of the legendary Johan Cryuff and Edwin Vander san, the current Dutch national team goalkeeper.

The foundation of the buildings are of reinforced concrete and the floors are concrete slabs on compacted sand-clay fill. The floor finish is ceramic tile in the toilets and others are exposed concrete-travel finishes on the porches. Some of the upper floors deck and lofts are wooden. The exterior of the walls is of 8" structural clay tiles and others of painted and treated single boards. The roofs are of asphalt shingles. Windows are of aluminium, single lining and glazed with clear glass as well. The lake is an attraction which is also used for swimming and close by is a camp fire site.

##### **Facilities available include:**

- i. 63 rooms (17 single, 16 doubles, 10 dormitories of 4 beds double bunks) and 20 other rooms
- ii. 1 Gymnasium Hall with shower and steam bath.
- iii. 4 rooms for special meetings
- iv. A large conference Hall
- v. 1 synthetic Football field (105m x 65m)
- vi. 1 synthetic Football field (75m x 45m)
- vii. 2 Lawn Tennis Court
- viii. Lake and Camp fire site.

### **Demerits**

- ◆ Distance to lake and camp fire site from activity centre is quite extensive
- ◆ Dormitories and Hostel accommodation are too close to the classrooms

### **Merits**

- ◆ Recreation facilities are extensive, interesting and accessible.
- ◆ Both buildings and natural features create a beautiful and serene environment.
- ◆ The planning of the site is quite interesting creating an awakening sense of adventure.
- ◆ Well laid out walkways, routes and easy circulation and functional linkage of activities encourages the desire to explore.
- ◆ Plenty of space exists for future expansion.
- ◆ Route to lake and camp fire site creates an interesting natural experience.
- ◆ Adequate parking spaces.

## **CHAPTER FIVE**

### **5.0 DATA COLLECTION**

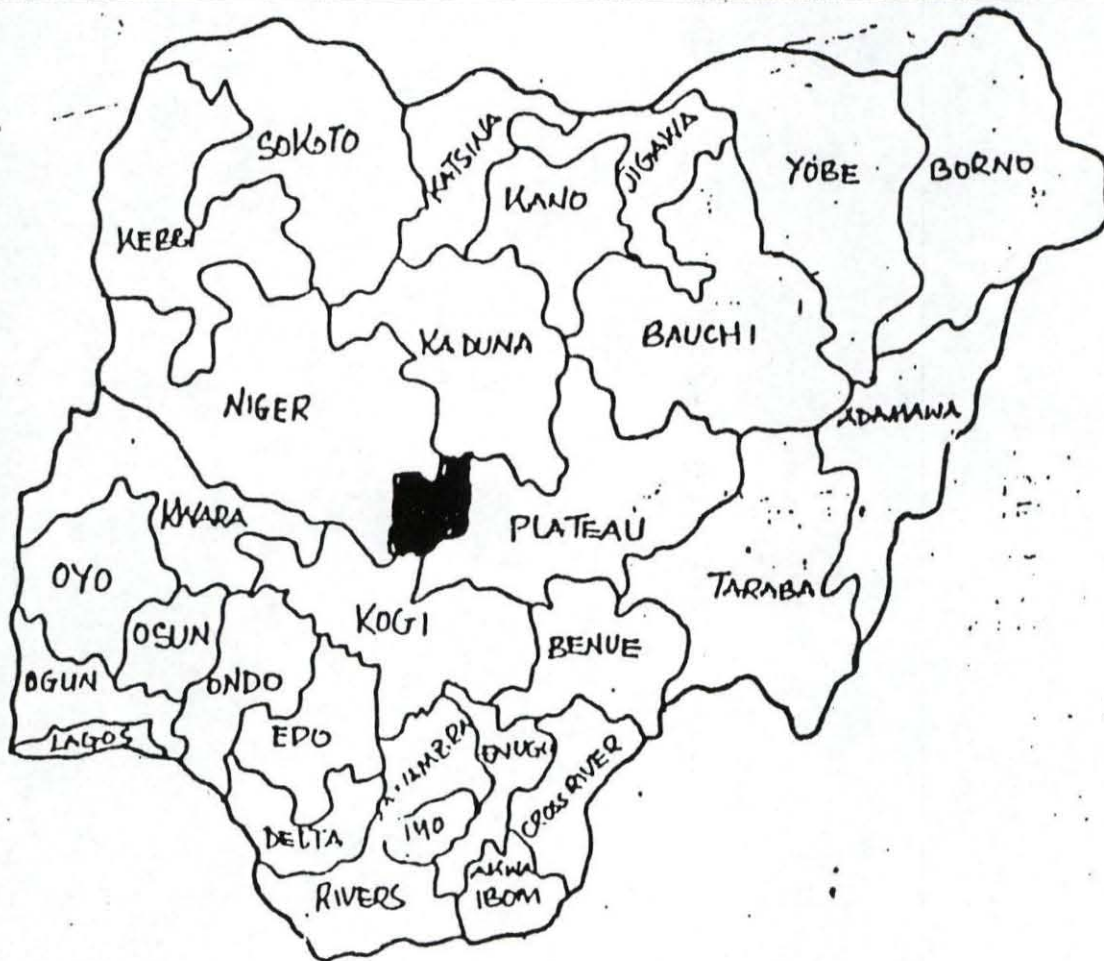
#### **5.1 GEOGRAPHICAL LOCATION**

One of the most significant developments is being undertaken by the Federal Government of Nigeria. The thought of a new Federal capital became inevitable and was conceived when the continued retention of Lagos as the Federal Capital is impracticable with the intractable traffic, housing and sanitary problem and it's multiple role as a state and a Federal Capital.

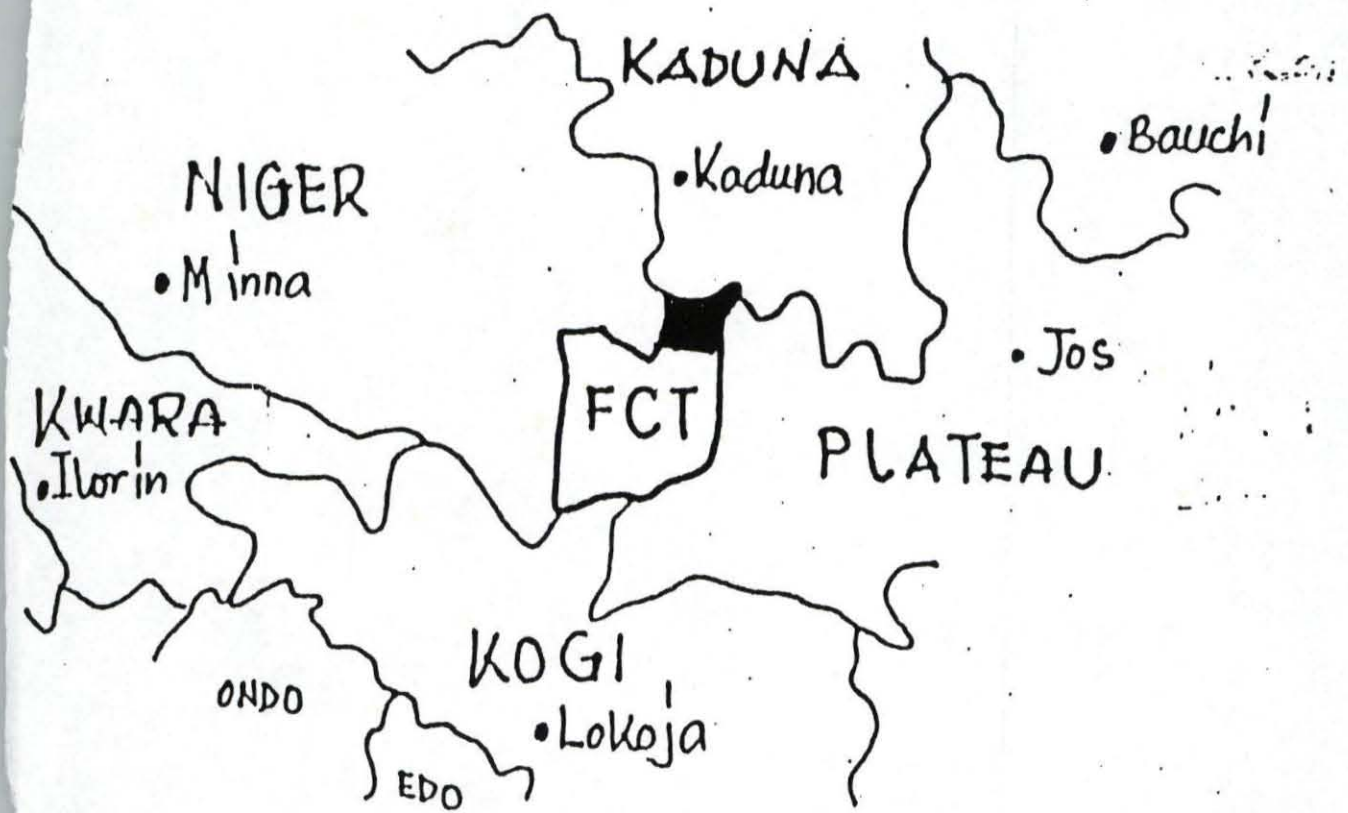
Abuja, a symbol of Nigeria's aspiration as a city of national unity lies between latitude 8 25'N and 9°20'N, and longitude 6°39'E, and 5°4'E. It occupies an area of 8000sqKm. Bounded to the north by Kaduna State, to east and Southeast by Plateau State, to the Northwest by Kwara State and to the west by Niger State. As it is centrally located, the Federal Capital Territory Abuja, is accessible from all parts of the country. Design and planned with a target population of 1.6million people by the year 2000 and an ultimate population of 3.2 million people when fully developed. (see Fig 5.1)

#### **5.2 CLIMATIC CONDITIONS**

A comfortable living environment will depend in maximising the aspects of environment which reduce heat and the effect of humidity, and protect from rain and dust. The factors discussed below are very vital for a comfortable environment:



SOURCE: ABWA. 1985 to 1992



Source: ABUJA 1985 TO 1992



### 5.2.1 TEMPERATURE – HUMIDITY

In human terms, net radiation is felt as air temperature, the response to which is greatly influenced by the humidity condition in the air. The capital city records its highest temperature when there are few if any clouds. Changes in temperature of as much as 17°C. Abuja has recorded between the highest and the lowest temperature in a single day. During the rainy season, the maximum temperature is lower due to dense cloud cover.

Human sensibility to temperature is greatly affected by relative humidity. During the dry season, relative humidity falls to as low as 20%. This low relative humidity coupled with high afternoon temperature account for the descerating effect of the dry season. In the rainy season, the relative humidity is much higher, especially in the morning hours when it can reach as high as 95%. Even though the temperature is slightly lower, the effect is to create a heat trap. These fluctuation in temperature and humidity will be resolved architecturally to suite human comfort during the design stage by means of cross ventilation as the case may be. Landscape element will be used not only to achieve aesthetic function but also to help in achieving a suitable temperature balance as shading devices. The effect of solar radiation will be controlled by appropriate selection of wall and floor finishing, roofing materials, glazing materials and paints among others.

Fig shows the monthly variation in temperature and humidity for Abuja city taken at 0700 hrs and 1600 hrs.

### Relative Humidity ; monthly means %

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
1995	40	38	55	183	80	81	86	87	85	83	65	54
1996	50	51	56	64	79	83	86	87	87	81	57	53
1997	48	27	49	71	80	83	86	86	84	85	76	53
1998	44	40	37	61	77	81	86	88	85	84	67	52

### Air temperature; monthly means %

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
1995	26.5	28.5	30.2	30.1	27.3	26.4	25.2	25.2	25.1	25.5	25.7	26.3
1996	26.8	29.5	30.5	29.6	33.1	25.7	25.0	24.4	24.6	25.6	25.7	25.7
1997	27.2	28.0	29.9	28.3	26.7	25.9	25.2	25.1	25.5	25.5	26.2	26.1
1998	26.1	29.6	30.9	30.9	28.2	26.3	25.1	24.4	24.9	25.5	26.5	26.0

#### 5.2.2 RAINFALL

The start of the rainy season Abuja around the middle of April. The rain tapers off rapidly after the middle of October. Thus, the duration of the rainy season is between 180 days to 190 days. In Abuja area, 60% of the annual rainfall is in the month of July, August and September. These concentrations of rainfall shows the need for drainage systems that can handle large volumes of water very quickly.

The capital city has frequent occurrence of squall, which begins with dense, dark cumulo-nimbus clouds with thunder and lightening, followed by strong winds and intense rainfall which may last for up to ninety minutes and is then followed by drizzles of several hours duration. This condition is then replaced by few days of bright, clear skies, this is most common in the afternoon at the beginning and end of the rainy season and often causes serious property damage.

The cultural implication of this rainfall characteristic is that it necessitated the need for the safe and durable structure or building that can overcome the rainfall effect. The use of parapet walls windscreen and brazing will be also necessary to protect building on site from storms, other landscape plants will be planted to serve as wind breakers.

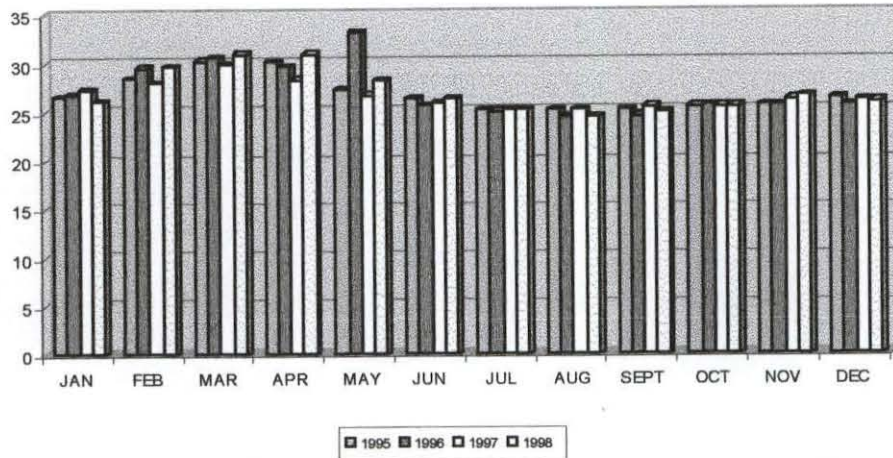
**Rainfall: Number of rain/day i.e  $R_R \geq 0.3\text{mm}$**

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
1995	0	0	2	4	13	9	19	22	18	15	1	0
1996	0	0	1	8	13	18	17	21	17	11	0	0
1997	0	0	2	5	13	14	18	20	18	17	2	0
1998	0	2	2	6	12	15	18	20	21	20	0	0

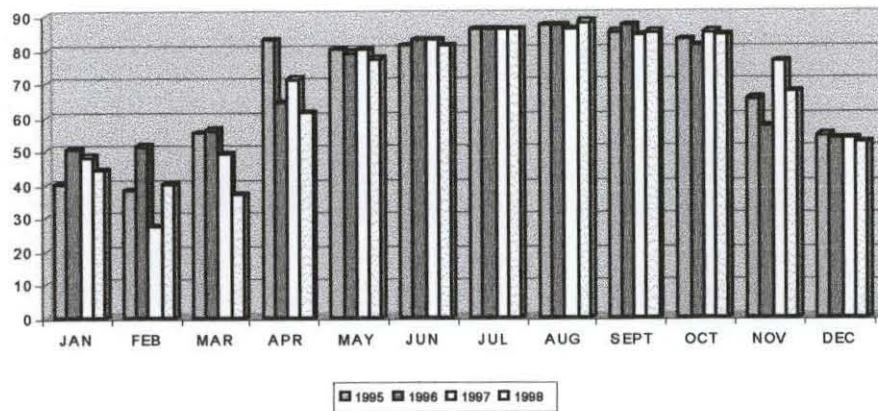
**5.2.3 WIND-DUST**

Two major air masses dominate the climate of Abuja City. These are the Tropical Maritime air mass, and the Tropical Continental air mass. The Tropical Maritime air mass comes over Atlantic Ocean to the south of the country and it is therefore warm and moist. It moves inland generally in the South-west to Northeast direction. The Tropical Continental air mass is developed over the Sahara dessert therefore; it is warm and dry and blows in the opposite direction, Northeast to Southwest. The oscillation between these two air masses produces the highest seasonal characteristics of weather conditions in the country. The Tropical Continental air mass is associated with the dry season, and the Tropical Maritime air mass creates the wet season. The former is associated with the Northeast trade winds while the latter gives the Southwest monsoon winds.

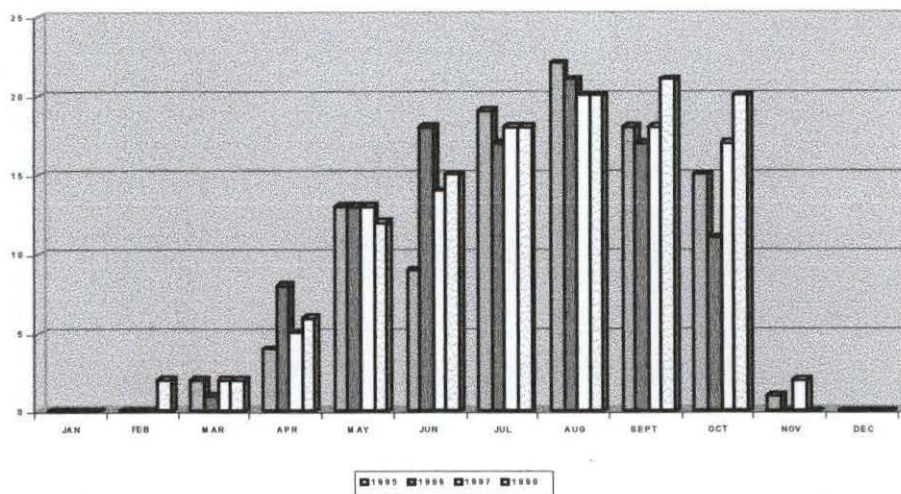
Air temperature: Monthly means °C

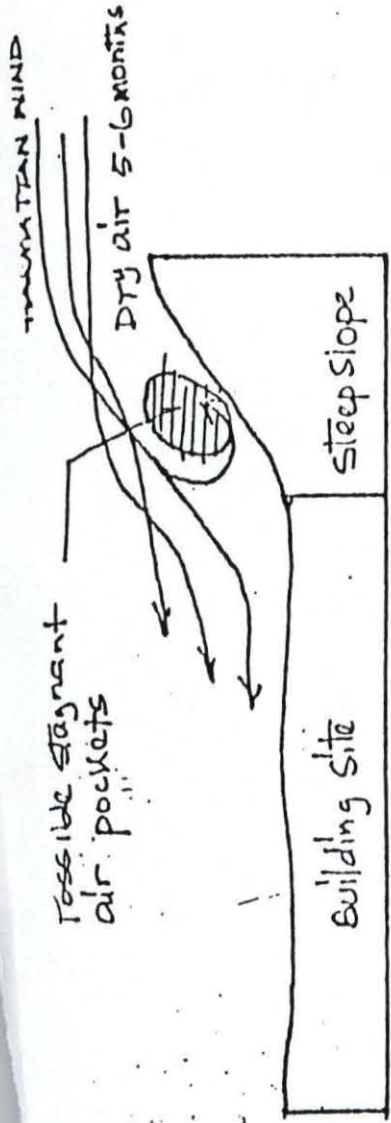


Relative Humidity: Monthly means %

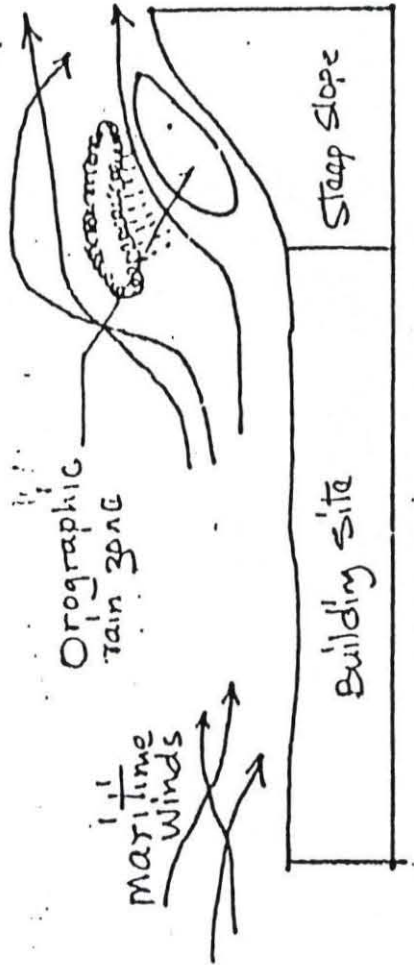


Rainfall: Number of rain day i.e.  $R_p > 0.3$  mm





Dry season 5-6 months



Wet season 6-7 months

ABUJA SEASONAL WIND PATTERN

SOURCE :- The Master Plan for Abuja  
The New Federal Capital  
of Nigeria.

The wind characteristics will guide in the design per orientation of buildings and as ventilation is concerned and also in the selection of roof types.

Fig shows the Abuja seasonal prevailing wind patterns.

#### **5.2.4 SUN AND CLOUD COVER**

According to Mabounje, 1977, Abuja city is exposed to 2500 sunshine hours annually. During the dry months, November to April, the monthly variation in the amount of sunshine follows the general trend of an increase from over 275 hours on a city site. As the rainy season approaches, the trend is to increase cloudiness (i.e. decrease in sunshine hours). The amount of isolation gives room for the use of materials which will reflect or absorb solar radiation in or from building.

Fig illustrate the mean monthly sunshine duration.

#### **5.3 GEOLOGY AND TOPOGRAPHY**

Abuja is located within the Northern central plateau with major physiographical constraints of mainly planes that include the older pre-Cambrian units of metamorphosis sedimentary rocks and an intrusion of younger pre-Cambrian igneous rocks. The rock unit consists of metamorphic rocks which comprise of Biotite-Muscoite Schist, unite to form narrow outcrops bands along ridge top at the eastern edge of the city, Migmatite, underlying majority of the city and the granitic gneiss. Igneous rocks is biotite granite (course porphite) cliptite, forming small and remind intrusive surrounds by porphyrites gneiss.

While the sedimentary rock include Achurim located in stream bed throughout the territory consists of large sand with gravel beds.

The nature of the scene is generally gently undulating terrain interlinked by riverine depressures. Architectural use of split level is considered to be the main focus here as it shall reduce the excesses of cut and fill. The rocks are expected to provide minimal engineering problems, as the foundation would be effectively carried out due to the hardness of the soil, landscaping would be most beautiful if properly handled to bring out the severity and scenery of the site.

**Special consideration to be noted include:**

- a. The type of foundation
- b. The drainage system
- c. The nature of the building
- d. Method of construction

#### **5.4 SOCIO-CULTURAL LIFE**

The city developed into a modern city when the decision was made by the Late Head of State, General Murtala Ramat Muhammed's Administration which saw the need for the nation to have a befitting capital city seeing that Lagos was becoming too compacted at the expense of expansion programmes and policies. Eventually, Abuja was selected hence the developmental programmes were put into action which earnestly led to the city being what it is today.

At present, most of the inhabitants living in Abuja are civil servants and corporate citizens who moved into harp on its luxurious potentials. Satellite towns adorn the peripheral area of the town, which made it even more accommodative to less privileged home owner to settle. Such satellite towns include: Gwagwalada, Bwari, Kwali, Nyanya and Suleja. Generally, the people are very accommodating and pleasant. Most of the inhabitants are literate and from different parts of the country.

## **5.5 ECONOMY AND COMMERCE**

Being the new Federal Capital City of Nigeria, it is exposed that economic activities will continue to sprout in a wider dimension, the existence of highly drive in commenting the perhaps rather robust economic climate in the capital city. Industrial outputs that were though not existing have now began to fervently manifest their anticipated impact in the economic environment of the city. More and more are expected to help solidify this gorgeous environment giving rooms for more economic activities which in turn creates jobs and make life in the city a little better than it used to be.

The existence of economic outfits in Abuja especially corporate organisation, Government parastatals and multi-lateral organisations that have responsible impact on the economy of the nation makes it even more reassuring to any prospective economic investor.



Commercial activities within the city have never been so dynamic since the capital moved from Lagos. These at present exist a number of good commercial ventures e.g. the Leventis and other popular outfits. Markets abound the corner of the city which cater for different demands in terms of food, clothing, building materials, and a host of other essential requirements; to buttress the already existing economic and commercial activities, and annual trade fair is held to showcase the city to the world in terms of its potentiality in being a prosperous national endowment for interested investors (both home based and foreign) to come and put in their services in making the city greater.

## **5.6 DEMOGRAPHIC DATA**

Considering its expected role as an arid capital, population expectancy is rather in the high side despite a militating factor in accommodation. However, the 1997 Census figures indicated that Abuja has a population of 378,671 (Three Hundred and Seventy-eight thousand, six hundred and seventy-one) comprising of 206,535 (Two hundred and six thousand, five hundred and thirty-five) males and a female figure of 172,136 (One hundred and seventy-two thousand, one hundred and thirty-five). These figures are expected to rise towards the turn of the century i.e. the year 2000 with an expected population growth of the city hitting the 1,000,000 mark. This is calculated based on the growth rate of 5%per annum on the population index chart and the transfer of civil servants enmass to the city.

## **5.7 TRANSPORTATION AND TRAFFIC FLOW**

A series of inter-regional and country high ways interconnect each other with good quality surface within the city and its environs. These roads connect every part of the city making it easier to make your way without and hitch. Complimentary to this developmental need, a city service bus system is highly effective in transporting people to all corners of the town with relative ease and cheap rate. Taxi services and Okada (popular motorcycle transport) are highly lucrative investments for interested owners. Inter-city transport is also buoyant and effective.

Air service is given a boost by the recently built Nnamdi Azikiwe International Airport which is used to receive visitors to the city from within and outside the country.

At present, plans are underway to have a metro-line system transportation which used the subsurface for effective operation. Though there is not any railway line system. It is believed that within a certain period of time, a modern railway line will be effective in the city transport system linking it to adjoining states like Kaduna, Plateau, Kogi and Niger State.

## **5.8 EXISTING LAND USE AND FUTURE TRENDS**

The land use system in Abuja is planned to cater for development programmes, the existing land use is to cater for

1. Commercial
2. Recreational
3. Industrial
4. Residential
5. Institutional

# CHAPTER SIX

## 6.0 SITE ANALYSIS

### 6.1 CRITERIA FOR SITE SELECTION

The criteria for the selection of a particular site depends mainly on the following:

- i. Design consideration.
- ii. Functions to be performed within the designed space.
- iii. Cost factors.
- iv. Aesthetic Appreciation.

These factors were adequately considered in choosing the site for the proposed academy.

#### **Micro selection factors.**

The factors considered for adopting the site are :

- i. Relative accessibility from all parts of the town.
- ii. Security of the site.
- iv. Marked out on the city master plan for the development of sports activities.
- iv. Land size.
- v. Availability of services e.g. telephone, electricity and water services.
- vi. Good scenic view.

### **Macro selection factors.**

The macro selection factors include the following;

- i. An open land area with busy corridors to provide high accessibility to the city periphery and for inter and intra sector travels.
- ii. A centrally located site with respect to the heart of the federal capital city.
- iii. a centrally located site with almost equal distance from other parts of the city and states.
- vi. Though easily accessible, it is yet some distance away from town centre, thus enhancing privacy needed.

### **6.2 LOCATION OF SITE**

The site for the football academy is located in Abuja, the federal capital city of Nigeria. Its choice to be located in Abuja stems from that Abuja is centrally located in the heart of the country.

Within the capital city, the site is mapped to be in the phase II development plan area, precisely, within the Kukwaba recreational development area which encompasses the city gate.

The site is strategically chosen just after the city gate on the left hand side of the airport expressway. Its length is about two kilometres and has a width of about a kilometre.

There is also the siting of a monument and pavilion located at the head of the road that links the airport to the town.

### 6.3 **SITE INVENTORY**

In order to achieve a functional environment, there is need to carefully take cognisance of the implications of its proposed physical context, the building site, it's geographical location, topography, climate, orientation and peripheral conditions. All these will affect or influence the overall building form, it's orientation and relationship to the frond plane and its interior space design and lagant. These factors also affects the choice of building structural system, and its materials and construction method. The appropriate siting of a building can help in the control of natural light, heat, view, wind and other environmental elements.

These influencing factors shall be fully analysed so as to enhance functional and structurally sound facilities for the football academy.

#### 6.3.1 **TOPOGRAPHY**

The site is highly undulating to the Southwest with the Northwest being relatively flat up to the northern part of the site. This allows for siting of training/competition facilities to the Northwest and north taking advantage of the relatively flat land for pitches. Where necessary, cutting and filling of land surfaces will be employed and in some other instances levels will be introduced as the case may be.

The topography of the site generally allows for easy drain of the site. There is a seasonal river that flows through the site from Northeast to south, this may be dredged for recreational purposes.

### 6.3.2 GEOLOGY

The site contains very few rocks and soil predominantly contains laterite soil types with good water percolation and of adequate soil bearing capacity.

#### **Accessibility and surrounding features**

The site is defined to the Northwest by a major trunk road that links the international airport and the eastern part of the country to the city, the city gate is located right at the head of this road. The Northeast and southern part of the site are defined by inner ring roads which are feeder roads that fined the major road from airport. The site is accessible through the major trunk road from the airport and the inner ring roads from town centre. The site is ten minutes drive away from the city centre. The site can easily be located by all and sundry.

Presently there are no immediate facilities but to the opposite side (North) there is a series of mountains from afar could be lee appreciated better when one stands at the centre of the site.

### 6.3.4 VEGETATION

Vegetation affects primarily the microclimate, views and travels on the site. The vegetation cover consists of mostly shrubs, carpet grass and trees of different species. Some of these trees will be cut, while some will be preserved and some planted where necessary to provide shades, buffer zones against noise, as screens and sun breakers.

### 6.3.5 NOISE

Noise is a major pollution and limits human working efficiency. It causes damage to human hearing due to human sensitivity to vibration.

The possible noise source is from the two highways. This can be taken care of in the site planning and layout: Fence and trees can also be used to screen noise or the use of special materials on the building to shield noise.

### 6.3.6 SUN

The sun rises from the eastern part with mild heat and glare but intensifies in the afternoon. Later in the evening, it sets to the west with milder heat giving way to the cool evening wind to take effect.

### 6.3.7 WIND

The major wind systems are the Northern eastern tropical trade wind which comes with dust and old and the South-western tropical monsoon trade wind which comes with cooler wind and little humid feeling.

### 6.3.8 DRAINAGE

The undulating nature of the site to the Northwest provide a good ground to plan artificial drainage system and this will also check likely erosion and runoff problems. The present natural drainage system will be graded to adequately serve the facilities that will be provided in the football academy.

### **6.3.9 SERVICES**

Facilities that will aid easy access to telecommunication, electricity and water services are available on the site in the form of telephone lines, electricity supply with major power at the boundary of the site, and pipelines for water distribution.

### **DEDUCTION**

The overall analysis of the site selected shows that it possesses characteristics that are suitable for the location of the football academy. The nature of the site, wind, sun path will be fully taken into consideration in the distribution and orientation of the building, besides the site possess natural elements that could be used as additional incentives to the overall planning process and development.

In addition to all the factors analysed, the site will permit future expansion and easily accessibility by students and other users.



# **CHAPTER SEVEN**

## **7.0 DESIGN CONCEPT AND CONSTRUCTION**

### **7.1 CONCEPT AND DESIGN**

#### **7.1.1 THE DESIGN**

The design of the football academy is geared towards the provision of a modern facilities for the development and growth our football culture from the grassroots. An academy of this calibre is meant to provide individual and communal relationship as well give young people some excitement to look forward to during holidays. The majority of programmes provided by the academy train the youth footballers and as well provided them with all necessary basic education.

The academy also provide counselling and guidance services on football management and research on a more and mental needs of people. All these various services are intended provide constructive outlets for the basic rudiments of coaching and football techniques. Design consideration particular reference to the comfort level and the general standards requirement are of significant reference point in ensuring the provision, with most acceptable world standard, relevant infrastructural facilities with magnificent quality to meet the country's need.

#### **7.1.2 DEFINITION OF FUNCTIONS AND SPACES**

The facilities to be provided is to be made up of these functional spaces and areas to efficiently meet up today's teaching technologies.

These are categorise into:

- i. Administrative building
- ii. Academic building
- iii. Gymnasium/indoor demonstrative pitch.
- iv. Students hostel accommodation
- v. Clinic.
- vi. Cafeteria/Multi-purpose hall
- vii. Mini stadium
- viii. Library
- ix. Maintenance yard
- x. Training pitches.
- xi. Mosque
- xii. Chapel

### **Operations**

The programmes provided by the football academy could be categorised into:

- a. Youth football development training programme.
- b. Coaching/Training of football coaches and others
- c. Research and development of football.

### **Functional spaces**

#### **Administrative Building**

This is the decision making unit of the academy and it covers a wide range of services ranging from reception on arrival, booking an checking in etc. it also includes the administration and provision for staff facilities.

Spaces includes: Reception and waiting, offices for the director and deputy directors, office for the secretary of the academy, Registrar's office, Student Affair, Academic Secretary, Bursar, Account offices/Computer/Achieves office, conference room, other offices, stores, and toilets.

### **Academic building**

This is where knowledge is disseminated to the students. These are three departments, football management and Administration programme department and Research in the academy.

There are provisions for the heads of departments each with supporting staff, and offices for the instructors. The departments are:

- i. Youth coaching and training department
- ii. Football management and administration department.
- iii. Research development

### **Gymnasium/indoor demonstrative pitches**

This consists of large rooms which equipment for various indoor sports and exercises, along with showers lockers, offices and classrooms and atimes accommodations for spectators. In addition to the where the equipment are place, there is also provision for indoor demonstrative young football. The indoor space will be used by young footballer in adverse weather condition to learn skills and fundamentals of football such as blocking, tackling, kicking, passing, pass receiving, and other football control skills.

### **Students Hostel Accommodation**

Accommodation are provided for permanent students of the academy temporary coaches, football managers, football administrators, etc. from other parts of the country. The facilities to be provided includes: porters room, common room, bedrooms, utility room, toilets and bathrooms.

### **Staff Accommodations.**

The staffs are the people that provide the technical knowledge to the academy. There is need to provide accommodation facilities for the directors, and some instructors to create a conducive environment of service for them. Chalets will be provided for director, deputy directors and the coaches as well.

### **Training/Practices pitches**

There are for practical training session. The pitches has to be well grassed and irrigated regularly in the dry season.

### **Mini football Stadium**

This is provided for Youth football competitions and as well for the training of the national teams when preparing for a competition. This facility can help the academy to generate fund for the development of youth football. The facilities provided by the stadium includes: standard playing pitch, spectators seats, teams' dressing rooms, VIP lounge, Radio/T.V stands, Snacks bars, toilets, First aid treatment room, offices, etc.

The stadium will be of 10,000 seating capacity.

### **7.1.3 DESIGN PHILOSOPHY**

To design an ideal football academy that actively and attractively suits the functions of the education it serves and which not only accommodates but also contributes a very special environment for learning.

To design the facilities if only to be a practical, efficient response to the needs of today's teaching techniques, but also to anticipate the inevitable changes by which learning will become an entirely different experience.

## **7.2 MATERIALS AND CONSTRUCTION**

### **7.2.1 MATERIALS**

To enhance good construction, the choice of materials should be vital decision of a designer. The chosen materials must be sound in quality, aesthetically pleasing and affordable.

The choice of materials for football academy has been given proper consideration, particularly to the type of climate dominant in the site, the condition of the site and the availability of the materials are also prevalent in the decision to use the materials.

Building materials are characterised by distinct properties of strength, stiffness, and elasticity, density, hardness and resistance to wear caused by physical or chemical action, fire materials are those which combine elasticity with stiffness. Also economic consideration has to be made for maintenance cost durability. Amongst other consideration to be considered is the standard sizes to which building materials are manufactured so as to avoid wastage during construction. Also the method of fastening and finishing materials will be given careful consideration keeping in mind the various functions the building shall be put into.

Some of the basic materials employed in the design and construction of this project are briefly discussed below:

a. **Masonry**

These are man made units, formed and hardened into modular building units (e.g. tiles, block and brick). They are laid up in such a way as to enable the entire masonry mass to act as an entity, because of the relatively weak nature and of the mortar that bonds them together.

Masonry is structurally effective in compression. This is graded according to the compressive strength. The mortars which bond the units together is also graded according to compressive strength and use.

The appearance desired is one of the factors to be considered in the choice of the type of masonry unit. The climate dominant in the site is also a major consideration in the choice of type and size of the masonry units for the design and construction. In the design of this football academy, all external walls are designed to be structural and able to withstand the environmental element.

b. **Concrete**

Concrete is infinitely strong in compression, to handle tensile focus. It can encase and bond with steel enforcement. It can be formed into any shape with a variety of surface finishes, texture, and patterns.

Concrete is a mixture of sand, gravel, or other aggregates held together by hardened part of cement and water. The mixture when properly proportioned, is at first a plastic mass that can be cast or moulded into a predetermined size and shape. Concrete becomes stone like in strength, hardness and durability upon hydration of the cement by the water. It provides fireproof construction.

Cement may be finished in a number of ways. Trowelling produces a smooth surface. Surface texture by brooming, raking and sand blasting to expose the aggregate, concrete may also be painted or have a finish applied to it such as stucco.

c. **Stone**

Stone is an aggregate or combination of minerals, each of which is composed of inorganic chemical substances. Stone is adversely affected by sudden changes in temperature and should therefore, not be used where fire resistance is required or reflective surfaces are needed. Stone is not necessarily uniform in size, but as a load bearing materials, it is similar to unit masonry.

d. **Steel**

Used for heavy and light structural framing as well as a wide range of building products such as windows, doors, hardware, and fastenings. As a structural material, steel combines high strength with stiffness and elasticity.

Steel may be heat treated or altered with adhesives on its manufacture to develop special properties of strength, hardness or ductility, expansion, consile resistance or workability. These include stainless steel, nickel steel, chromium steel and copper bearing steel.

Normally, ordinary steel is subject to corrosion and should be painted, galvanised or chemically treated for protection against corrosion.

e. **Non-ferrous metals**

**Aluminium:** Naturally light in colour, may be dyed a number of warm and bright colours during anodising process. It is often used as secondary building material such as windows, doors, roofing, flashing, reflective insulation, trim and hardware. Care is usually taken to insulate aluminium from contact with other metals to prevent galvanic action. It is also protected from alkaline materials such as net concrete, mortar or plaster.

**Copper:** It is used in construction where corrosion resistance, ductility, or high electrical and thermal conductivity is required often in sheet form for roofing and flashing.

**Lead:** It is a soft, malleable, plastic, corrosion resistance used for fastenings and piping.

f. **Glass**

Glass is chemically inert, transparent, hard, brittle material. It is used in building construction in various terms. Glass is used commonly to glaze building windows and slight openings. There are three basic types of glass: sheet, float and plate glass. The variation of these three types are many and include: heat absorbing glass, tempered glass, safety/laminated glass, wired glass, insulating glass. As glass wool for acoustical control and thermal control, through the use of glass block to control light transmission.



g. **Wood**

Wood in addition to its strength offers durability, lightweight, and easy workability, natural beauty, and warmth to sight and touch. There are two major classes of wood: Softwood, Hardwood. Softwood are the evergreens and are used for general construction. Hardwood comes from deciduous or broad-leafed trees and are used for flooring, stairs, panelling, furniture and interior form.

Plywood is laminated panel of wood venires, laid with their grain direction at right angle to one another, bonded together at high pressure, either with water resistant or water proof adhesive. It is manufactured with finished appearance, weather resistance, controlled moisture content and size availability.

h. **Paint finishes**

The purpose of a finish is to protect, preserve or visually enhance the surface to which it is applied. Paints generally refer to an opaque or clear film forming materials that act as a shield or barrier between the building materials and those elements or conditions that may adversely affect or deteriorate it.

Colour is a psychological aid to learning. Tastefully used, it can enhance environment engendering a cheerful, receptive mood. Bright, warm colours stimulate excitement and action in the gymnasium; soft cool colours create a quiet atmosphere in places of study.

Selection and use of paint are influenced by surface preparation, type of paint, film thickness, coverage, method of application and drying.

i. **Roofing sheet**

Corrugated sheet materials may be used as structural, self supporting roofing, spacing between linear support members long span aluminium corrugated sheets will be used for the purpose of the design and the manufacturer will be consulted for material specification, sizes, finishes, colour, spacing capacity and application details. The support system will consist of steel sections and expansion joint requirement, appearance and colour all depends on materials used.

7.2.2 **CONSTRUCTION**

The topography of the site indicates that it is gently undulating with certain areas having depressives more than other parts. Construction on the site will entail no considerable amount of cuts and fills as the contour is fully utilised to enhance creation of levels, hence no special construction technique is required. The vegetation in site consists of mostly shrubs and grass with very few clusters of trees. Some of the trees would be retained as landscape elements and also for shading screening.

a. **FOUNDATION**

The foundation system of a building, the substructure is the roof of the building and regarded as the most essential Part of the building. it serves as an element which transport the land from column and walls to the grand. Bearing directly on the soil, the foundation system must both distribute vertical load so that settlement of the building, is either negligible or uniform under all part of the building, and the super structure of the building against uplift and racking forces. The most critical factor is determine the foundation system of the building is the type and bearing capacity of the soil on the site. Other consideration that has to before in mind are:

- ◆ The load to be carried
- ◆ Lateral load from both ground pressure and wind.
- ◆ Uplift forces and other forces.
- ◆ Settlement etc.

In this project, strip foundation is mostly used due to the firm nature of the soil.

### **Structural system**

The use of columns, beams and slab system was made due to certain areas that would necessitate the construction of additional upper floors using the frame structure system of construction. It also requires to be employed in areas of rather unusual roofing system. This structural system is also required in the design and construction of structures such as the mini stadium for the football academy.

Allowance is made for the expansion and contraction of building materials which occurs in response to normal temperature changes in the form of expansion joints to prevent distortion, cracks, and breaks in the building materials. These expansion joints will provide a separation of materials and allow free movement while maintaining at the same time the weather and water tightness of the structure.

c. **Walls**

Walls are the primary vertical planar elements of structural system. They are composed of linear elements (columns and beams) with both structural panels distributed to fill in between them. Not only do they serve as shielding devices against external environmental factors, they serve as support for the roof and floors alone and also provide openings for ventilation flow through doors and windows or screens. One of the most effective use is to demarcate a large unit into smaller functional cells. How these walls and columns supports either floor(s) or roof systems above and how they are supported in turn by wall, floor or foundation systems below is determined in the structural compatibility of these systems and the types of connections and materials used. Rigidity is a critical factor in the design and construction of these joints.

External walls should shield the interior against the exterior conditions. Thus it has to be durable, resistant to wear and the elements (sun, wind, rain). Depending on its orientation on the site, a wall's heat transmission properties, its reflectivity and absorptivity, should be important factors in the choice of a wall system.

Internal walls and partition however, may be either load-bearing or non-load-bearing and serve as dividers and defining elements of space, visually and acoustically. As such, their surfaces will be designed to be durable and wear resistant and the desired finish, colour, and texture will be compatible with the wall system used. Walls elements also serve a useful purpose in accommodating the vertical and horizontal travel of mechanical and electrical lines as well as their outlets.

The choice of the wall types in this design and considering the function or purpose of the wall, durability, cost, strength, maintenance, aesthetic, etc. are all worthy of consideration.

d. **Doors and windows**

Doors and windows provide for physical, visual and light penetration into and through a building interior while enclosing interior space and maintaining continuity of the building skin. Doors and windows provide means of access into a building's interior from the exterior and inter-space passage between interior spaces. Exterior doors and windows must provide weather-tight seals when closed, have insulative value and be free from condensation. The doors must be large enough to move through easily and accommodate the moving of interior furnishings and equipment. Ease of operation, privacy, security and possible need for light, ventilation and view must also be considered in the performance of doors and windows.

Interior doors provide for passage, visual privacy and sound control between interior spaces. Doors into closets, storage spaces are primarily for visual screening although ventilation may also be a requirement.

Doors and windows are of various types and sizes, and their choice affect not only the physical appearance of a building but as well, the natural lighting, ventilation, view potential and spatial quality of the building's interior. External doors and windows are vital compositional and scale-giving elements in a building's façade. The manner in which they break up buildings surfaces affects the massing, visual weight, scale and articulation of the building's major planes. The sizes, proportion and location of doors and windows have been carefully planned for keeping in mind the obtainable standard sizes from the manufacturer. The choice of materials are carefully made as well considering factors such as durability, security, maintenance cost, etc.

e. **Roof and ceiling**

An efficient roof should, as well as keeping out rain, snow and wind, be designed to prevent an excessive loss of heat through it. It should also be structured carry its own weight as well as wind loads. The roof system should also be fire-resistant. The roof system is a primary generator of building loads. Therefore, it must be compatible with the wall and/or column system through which its loads are transferred down to the foundation.

The roof system is potentially the most expensive system of a building because of its varied functional tasks spread over a large area. Economy of erection and maintenance, durability, and potential heat loss or gain should all be considered in the choice of a roof system and its materials.

The form of the roof system is a critical element in the visual image of a building. The roof form, and the spacing, span and slope of do structural members also affect the choice of the finish roofing material, the interior ceiling systems, and the layout and form of the building's interior spaces.

In this design proposal, all the functions of roof system are taken care of; care in the chance of bricks and mortar, and clamp proof courses intelligently built-in will limit the possibility of damage to parapet walls by rain and frost. Roofs are made water light by the use of asphalt, seal the edge of all flat roofs, concrete roofs and all necessary joints, and it should be renewed about every 20 years for the safety of the occupants.

f. **Finishes and fittings**

External wall due to the conditions they are exposed to must have their surfaces whether resistant, durable, and relatively maintenance-free. Interior walls and partition should also be water-resistant and easy to clean. All floors should be safe, warm, non-slip and durable against traffic wear, ceiling should depend on its strength, size, acoustical properties, thermal conductivity and fire resistance, etc.

From the purpose of this project, finish materials are considered primarily based on durability, maintenance and cost, considering the users and nature of the facility. Other factors considered for vital appearance are colour, texture, pattern scale, modular characteristics and their jointing and edge conditions .

# CHAPTER EIGHT

## 8.0 SERVICES

### 8.1 ELECTRICAL

The power supply company should be notified of the estimated total electrical load requirements to confirm service availability and co-ordinate the location of the service connection, service the switch and switchboard. A transformer may be necessary to switch from the supply voltage to the service voltage. An overhead service connection will help to save cost, be accessible for maintenance, and carry high voltages over long runs.

The water, services switch, main switchboard, panel boards and branch circuits will be properly installed and separate wiring circuits will be used for sound and signal equipment, alarm systems, telephone, television, cable systems etc.

Electrical conduits will be run within concrete floor systems and walls for convenient access to of floor and ceiling outlets. Light fixtures and wall switches are usually the most visible parts of an electrical system and they will be located for convenience, easy access and in co-ordination with visible surface patterns. Wall plates for these devices will be provided in a good location on the site for the installation of a stand-by generating plant to serve as alternative power supply.

### 8.2 MECHANICAL

The environment comfort factors that can be controlled by mechanical means include: the temperature of surrounding air, the mean radiant temperature of surrounding surfaces, the relative humidity, air motion, dust, odour, etc.



The total heat gained by a building must be lost in order to maintain a thermal balance. An excess heat gain will result in a constant rise in temperature of the building while an excess heat loss cause a fall in temperature. In achieving thermal comfort and reduced cost and sometimes heating in the facilities, these factors will be taken care of at design stage, proper planning of the building location and orientation; spacing between buildings, choice of building materials and construction assembly which can control heat, air and water vapour flow, screening the building from solar radiation, application if landscape features, regulation and treatment of openings on buildings and application of the stack effect in ventilation.

This functional of this design will depend on good ventilation in the various buildings.

There will be need for the installation of air-conditioned unit in the administrative offices, demonstrative, audio- visual classrooms and ceiling fans in the bedrooms and classrooms.

There will be a well equipped mechanical workshop, bore-hole water supply and provision for all mechanical services.

### **8.3 ACOUSTICS**

Acoustics can be defined as the science of sound, including its production, transmission and control of its effects. The acoustic design of spaces involves the reinforcement of desired sounds and the control of undesirable noise. The acoustics of a space depends on shape form, volume and the nature of its surfaces.

The control of external noise begins by good site planning, zoning, by screening out all access roads. The sources of sound / noise within the site will basically be from human activities as well as from engineering and mechanical services, water supply and drainage.

Good sound control will be taken care of by planting of trees, placing recreational areas array from quiet area, selection and use of construction and finish materials. Internal noise are taken care of by the use of acoustical ceilings, sound absorbent tiles and surfaces.

#### **8.4 FIRE SECURITY AND MAINTENANCE**

Fires in buildings are nearly always man-made due to errors or negligence. The principal aims of fire precaution are is simply to safeguard lives and properties.

This is achieved by:

- i. Reducing fire incidences
- ii. Controlling fire propagation and spread
- iii. Providing adequate means of escape to occupants of buildings

The architectural role in the prevention, detection and combat of fire is through appropriate designs, specifications and choice of materials amongst others and these has been greatly underestimated in Nigeria.

This resistance construction is one of the methods of controlling the speed of life. Materials used should provide fire protection for a building and must be inflammable, able to withstand high temperature without disintegrating and should be of low heat conductivity.

These are some checklists for design of a functional fire safe and secured environment.

- a. Sufficient number of exits of adequate capacity properly located within convenient access.
- b. Protection of exits against fire
- c. Provision of alternative exits in case one is blocked by fire.
- d. Careful selection of interior finish and content of escape routes to prevent fast fire spread.
- e. Well ventilated and properly lit escape routes
- f. Escape route will be easily identifiable, accessible, not obstructed and distinct marking of escape routes.
- g. Dead ends along escape routes should be avoided.
- h. Good choice of floor finish material to avoid slipping.
- i. The balconies will be properly treated with balustrade
- j. All drainage channels are covered to avoid accidents.

In spite of all precautionary measures taken in the design and construction stages, the risk of fire is not totally eliminated. There is the need therefore to have in-built fire equipment like fire alarms, detectors, and fire fighting equipment which become handy in the event of fire.

## **8.5 PLUMBING AND SANITARY SYSTEM**

In a building, plumbing work has to do with circulation, consumption and storage of water. For minimum comfort, water supply has to be in the right quality and at the proper flow rate, pressure and temperature. The water pipe should be of adequate sizes and should be rust and corrosion resistant. To allow for economy in plumbing fixtures, toilets layout will be placed closed and will be verified so that the pipes would be correctly laid during the proper phase of the construction.

The sanitary drainage system depends on gravity of flow and will require large pipes and adequate installation space. All these will be properly put into consideration and the layout of the sanitary drainage system will be straight forward and direct with properly slopes runs and angular connections. Maximum standards and requirement are followed in other to ensure adequacy in use.

# CHAPTER NINE

## 9.0 AESTHETIC AND GENERAL APPRAISAL

### 9.1 AESTHETICS APPRAISAL OF THE DESIGN

Architectural styles communicate the outlook of cultural and the concept of it. Architect utilises styles and forms a lot to achieve their proposal for any design. The physical shapes of our surroundings also have psychological effects which can favourably influence learning. To create a sense of airy freedom, the ceiling levels are made high especially in spaces used by many people.

The elevations are very expressive of functions, purpose, and activities that they are being used for. These elevations and plans are functionally balanced and maintain a very simple rhythm throughout. The mini stadium for competitions was placed at a distance to the core area of the academic activities.

The combination of hard and soft landscape in forms of roads, walkways as well as the rolling green grass on the lawns, trees, shrubs and the flowers of just suggest a well designed and laid out area but adequate for passive recreational activities, and relaxation generally and give rooms for sit-outs. This also helps in the noise control alongside with zoning. The walkways are well laid out, creating and linking every pedestrian route both around the hostel area and the training pitches.

In the choice of the materials for the construction of the facilities, careful consideration of the strength, durability, cost and maintenance are taken very seriously.

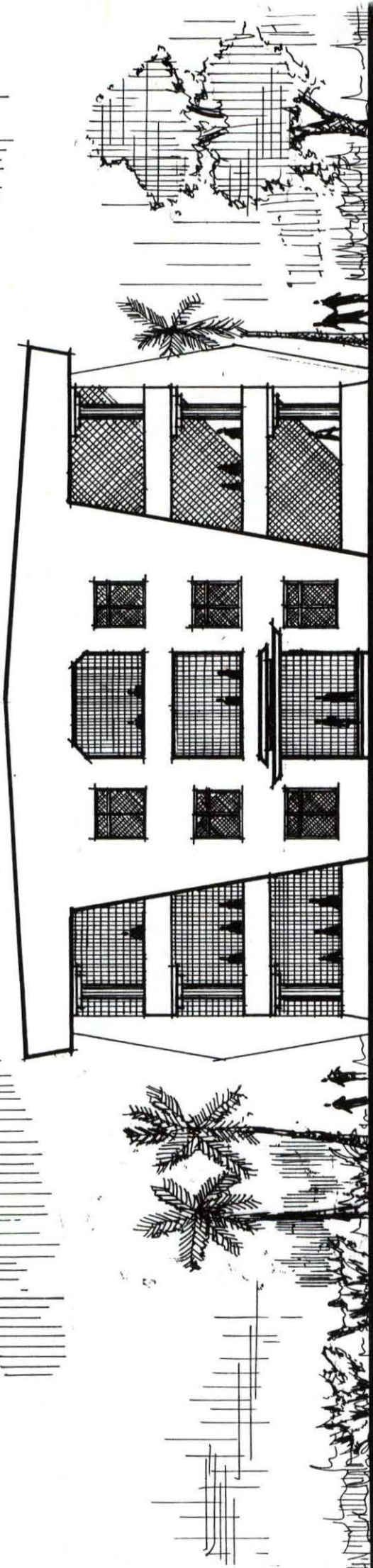
## 9.2 GENERAL APPRAISAL AND CONCLUSION

From the conception of the idea of a national football academy to the proposed design and in an attempt to fulfil its aim and objectives and also form its concept and philosophy has worked at providing football training facilities of international standards for the Nigeria footballers. The acquisition of an academy of this nature will solve the core problem being faced by football development in this country, for I believe that no football programme can be effectively without going to grassroots training and availability of standard training facilities.

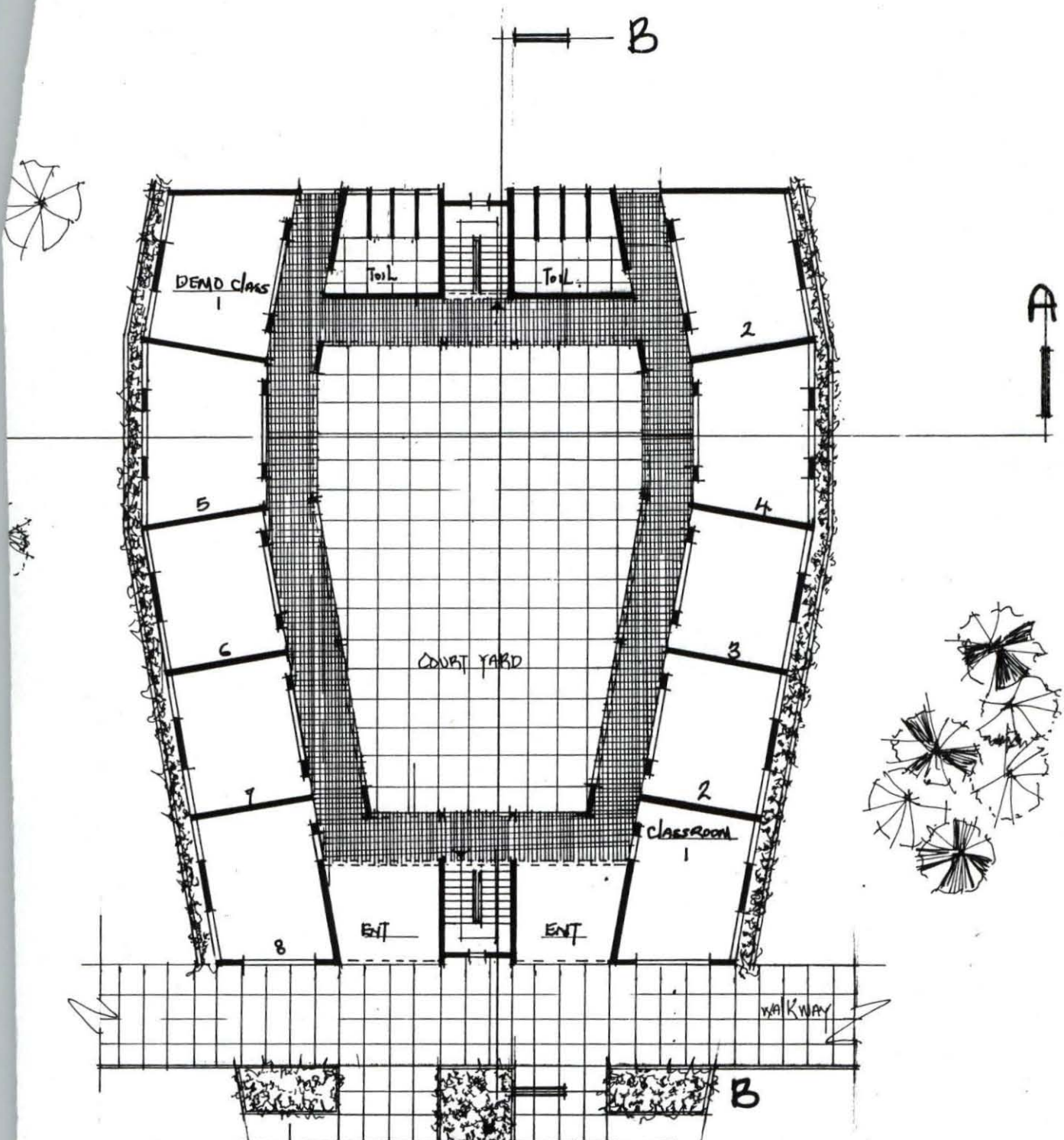
Implementation of this project will encourage every region and even each state to come up with similar ideas and the fostering youth footballing in the country.

The little success this country has made in Football world wide will improve if this proposal is given attention and indirectly our economy will be revived, hence making our country more popular all over the world.

This academy will enhance unity and provide job opportunities for people from various professions and as well give a sense of belonging to young footballers nation-wide.

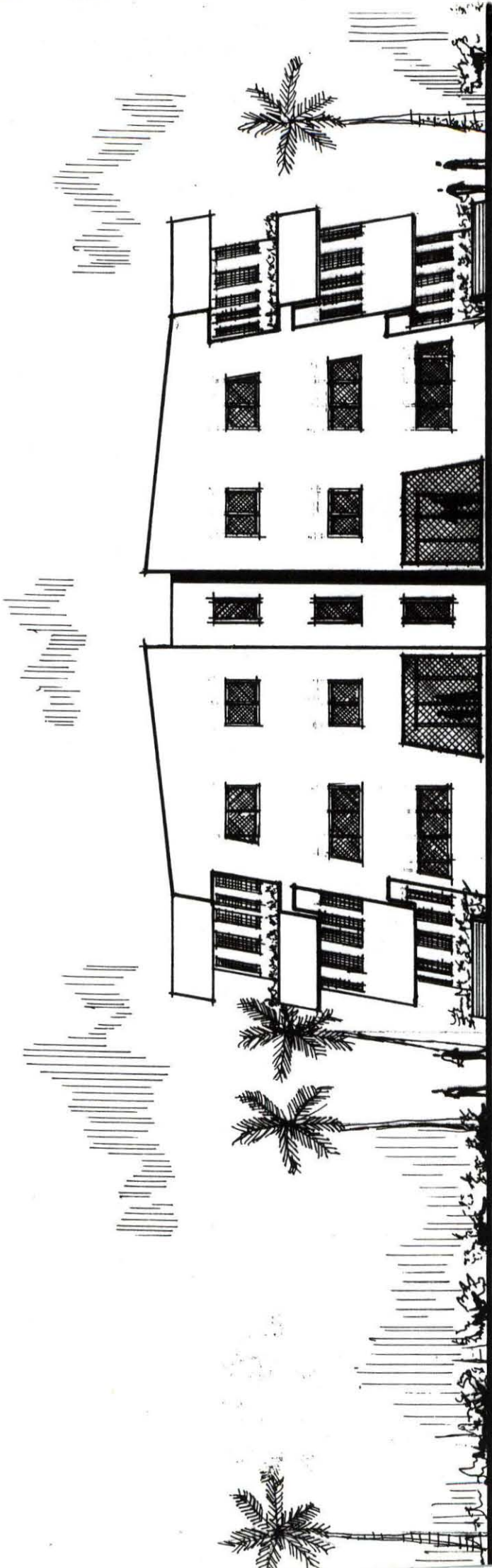


○ FRONT VIEW



○ GROUND FLOOR PLAN.





FRONT VIEW.

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