DADIN KOWA HOLIDAY CAMP GOMBE:
(Eco-Approach to the Design of a Holiday Camp)

BY

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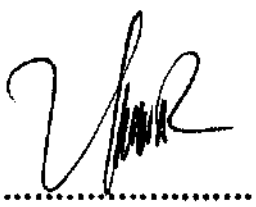
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DECLARATION

I, the undersigned, hereby declare that the work presented in this desertification for the award of the Degree of Master of Science in Architecture has not been wholly or partially presented for any other Degree nor is it concurrently being submitted for any other publication.

It is an authentic research work conducted by me in accordance with the regulations of the Post Graduate School, Ahmadu Bello University, Zaria.

This is to further declare that all directly quoted materials and secondary sources are duly acknowledged.



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CERTIFICATION

This dissertation titled Dadin Kowa Holiday Camp (Ecological Approach to the design of Holiday Camp) by Ahmed Umar, meets the regulations governing the Award of the Master of Science (M.Sc) in Architecture of Ahmadu Bello University, Zaria and is approved for its contributions to knowledge.

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DEDICATION

This thesis is dedicated most importantly to the Almighty Allah (SWT) who gave me the wisdom and strength to embark on such a challenging desertification.

To my wife, Aisha and daughter Zahra who actually were at the receiving end. I salute your patience, courage and understanding.

Finally, to my friend, brother and motivator all rolled into one who gave me back my smiles whenever I lost them, Alhaji Abubakar Musajo (BUBA).

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ABSTRACT

Human beings, unlike machines do not have replaceable spare parts as such, the need for rest becomes necessary after the hustle and bustle of modern day living. The resultant tourism, although a global economic phenomenon, is still at infancy on these shores, as the few destinations are seriously degraded through human activities.

This thesis seeks to develop a tourist's destination, (Holiday Camp) which will have harmonious array of physical and cultural facilities through Eco design approach. The emphasis here is to explore Ecological principles, which advocate for reduction in environment degradation from human activities. Conservation and preservation of physical landscape, as well as, the use of environmentally friendly materials, with less embodied energy for the cultural facilities will be employed.

Dadin Kowa dam site, a potential tourists destination but lacking in complimenting facilities is laying waste with few daily visitors as in picnics and sight seers, its accessibility and physical elements notwithstanding.

The thesis examines leisure and recreation as basis for tourism with Eco Design Approach, which aims at sustainability. Concepts, camps and principles of Ecological Design, which have the potential to increase the quality of the environment to sustainability, will promote tourism in the state and the country.

Case studies of similar destinations with Eco-sensitivity were examined and conclusions drawn, this influenced the proposal of facilities that will cater for various tourists needs. Finally, conclusions and recommendations are put forward towards achieving a conducive tourists destination with non-conflicting elements through preservation of existing physical elements while introducing Eco-friendly cultural elements.

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CHAPTER ONE

INTRODUCTION

1.0 PREAMBLE

Tourism a service industry, is fast assuming phenomenal proportions in the global and national economic growth; its contributions arguably closely follow manufacturing. Nations and individual investors therefore realizing the enormous benefits from such an industry are busy harnessing their resources in response to this ever-increasing socio-economic challenge.

However, tourism like any other economic venture is facing numerous challenges bordering on the divergent needs and insatiable tourists' demands. Tourism has gone beyond beaches and mountaineering; a new approach to sustainable tourism has therefore become necessary. Abdulkarim (2004) put it more succinctly in a paper presented at a seminar on Climate change, in Ahmadu Bello University Zaira (A.B.U.). He observed that, "since at least thirty years, tourism has become fashionable among middle and upper class with insatiable test for novelty. Eco tourists are venturing further a field no longer satisfied with lying on a beach for two weeks. They tread through the Andes, take a horseback safari through the Okavango Delta Kilomanjaro in Tanzania or live an head hunter in Borneo longhouse". He went further to say that, "the sheer number of people travelling around put huge strains on its environment resources. Tourism which takes into consideration the needs of the local community and that of the fragile ecosystem is called eco-tourism."

Nigeria, although blessed with varieties of natural, historical and cultural resources, nevertheless, has highly degraded environment with limited attractions to offer. The few that are available should therefore be preserved.

Dadin Kowa village is one of such few places in Nigeria blessed with good attractions which include, a large body of water (29,000 hectares), a dam with 50 million litres of water per day, range of mountains and mountain outcrops, woodland, grassland, variety of wild life and conducive micro climate.

It is the intention of this research to formulate a detailed design proposal of a HOLIDAY CAMP to be located at Dadin Kowa dam site in Gombe state. The camp is expected to cater for the various needs of tourists using ecological design approach with a view to preserving the physical and cultural elements. This is also meant to create a conducive environment that is targeted at achieving "Tourism with a difference" which will contribute to the diversification of the Nigerian Economy (Abdulkarim, 2004)

PROBLEMS STATEMENT

The belief that "rest" is divine is also true with humans as the tendency to relax is inherent with every living soul. These normal breaks at regular cycles after monotonous daily activities are essential for the purpose of regeneration to enable man face further challenges. Technological advancements of this contemporary world with their attendant hazards resulting in environment degradation necessitate the need for escape to a serene

environment. The escape comes in a form of travels to various destinations with recreational facilities and this is what tourism is all about.

Tourism industry the world over is expanding rapidly as its demands increase. International tourism is the largest item of foreign trade with an open market, experts believe that it has annual growth of eleven percent with domestic growth of about five percent (Fagbemi, 2005).Nigeria's tourism industry is still at infancy despite the potential tourism destinations. The country will reap a lot from tourism if such attractions are developed to provide the conducive environment for physical relaxation. However, the competition is very fierce as a result of complex and ever increasing needs from tourists.

Therefore, this requires a new approach to development of tourists' attractions tailored towards satisfying their needs. One such approach is the maximization of the potentials of these attractions through skilful maintenance of their natural character and positive nature by careful integration of elements into the natural environment. The natural environment or ecological disposition is as much as possible preserved and at all costs.

Dadin Kowa dam site has been a site for tourist attractions since the construction of the dam in 1982. The site is blessed with natural features which incluse, mountains and mountain outcrops, fourth largest river in the country, Gongola River, wildlife, woodland and various species of flora and fauna laying fallow without complementing facilities. Usually visitors come for picnics and sightseeing on day-to-day basis. This is because the site lacks enabling facilities that will turn it into a befitting tourists centre.

This research is intended to address these problems by proposing a HOLIDAY CAMP where ecological approach will be used to design the desired environment that will cater for the various needs of potential tourists. If implemented, non-conflicting facilities that will stimulate and sustain recreational, social, cultural and economic growth, while maintaining the character of the site are expected to be achieved.

1.2 AIM OF THE STUDY

The aim of this study is geared towards achieving a conducive environment to satisfy the ever-increasing needs of potential tourists through an ecological design approach. This will be based on ecological principles of preservation of potential elements inherent on the site.

The resulting environment; natural and conducive, will have the desired patronage for leisure, recreation and entertainment thus boosting tourist potentialities of Dadin Kowa Holiday Camp. The major focus is protection and preserving the natural environment with emphasis on Camp development through Eco design minimum impact of Architectural processes and decisions.

1.3 OBJECTIVES OF THE STUDY

To achieve this aim, strategies will be employed through well-articulated objectives, which include;

1. Providing an organic design meant to create an environment that will cater for recreational needs of people irrespective of age, sex, culture, social, religious and economic backgrounds.
2. Minimize environmental degradation through the exploration of the tenets of eco-design, which encourage minimum human impacts and architectural activities thus creating an eco friendly environment.
3. To create a comfortable but simple camp through careful and conscious selection of materials that will be in harmony with the natural elements.
4. Enhance the uniqueness and natural character of the proposed site through conserving the natural features inherent there.
5. To return man to his natural habitat that will be beneficial for him spiritually, emotionally, and therapeutically, as man is an animal at his lowest level.
6. To enhance the functionality, aesthetics, safety and thrill as a holiday camp and recreational centre through the improvement and preservation of the natural environment.
7. To provide a conducive environment where users can live, work and relax
8. To contribute to the knowledge of tourism architecture in terms of functions, planning and design development.

1.4 JUSTIFICATION OF THE RESEARCH

Availability of both physical (Natural) and cultural (Human) facilities at any given tourism destination is the major ingredient necessary for tourism industry to flourish successfully. However, these scenic and historical features are depleted overtime because of man's activities through tear and wear. The quality of physical features unlike the

cultural ones cannot be reproduced. It is therefore pertinent to preserve these features at all cost to maintain their quality and hence the environment. However, this preservation should not be at the expense of the environment or experiences of the users to the site.

It is believed that ecological design, which focuses on the maintenance of the natural landscape, will address this harmonious co-existence through preservation and conservation of the environment with both natural and supportive elements blending as a unique entity. Architectural solutions in terms of eco design will provide this needed arrangement.

1.5 MOTIVATIONS

Tourism is about appreciation and enjoying natural landscape, participating in recreational activities and subsequent nostalgic experiences. The uniqueness of this environment as a potential recreational centre inspired this research. This site with its natural features when harnessed through preservation of the ecological elements will be generally an adaptable recreational centre. The Architectural role shall therefore be shaping of the landscape through introduction of complementary facilities that will ensure eco-preservation for visual relief and mental relaxation of the users.

1.6 ARCHITECTURAL SIGNIFICANCE

Eco-Design is fast manifesting itself as a new approach towards achieving "Tourism with a Difference" as the competition in the industry is heated up due to increased insatiable needs of tourists. This multi disciplinary industry, which covers Forestry, Ecology,

Conservation, Physical and Health Education, Engineering and Architecture, needs to combine all these to provide for active, passive and communal participation while ensuring comfort. This is to be achieved through combing form and space thus defining essence and facilitating purpose.

The principles of Eco-Design that will serve as an experimental model in the evolution of concepts for contemporary architecture that is eco-sensitive will be employed in this regard.

1.7 SCOPE

This research work is concerned with the physical development of Dadin Kowa Holiday Camp. All references being made regarding recreation and tourism shall therefore be restricted to holiday camp facilities, meant for individuals, organized bodies and retreats. It is intended as much as possible to preserve the natural landscape while new facilities necessary to complement the natural features are introduced. The approach will involve extending structures into nature and vice versa.

1.8 LIMITATIONS

Information and data collection is not an easy business in most third world countries and this applies to Nigeria as well. The usual problems of illiteracy of respondents, secrecy, scanty statistics and scare finances are some of them. Dadin Kowa village, like most villages in Nigeria, has its own share of high-level of illiteracy among the host town people. Questionnaire administration becomes very difficult even where oral assistance is

rendered. This is one of the problems encountered i.e. lack of adequate statistical data; the research is reduced to collection of historical and oral narrations from very old persons whose sense of recollection is hampered by age and other social incapacitations. Resources are usually scare; this constitutes another problem, as funds needed for thorough information collection are not readily available. Lack of enough funds for logistics, aerial photos, land surveying are impediments to good quality outcome of this study.

1.9 RESEARCH METHODOLOGY

Research of this nature, that involves such a wild environment, will be based on survey research. This will therefore involve primary and secondary means of data collection. The primary sources will be based on site analysis, while the secondary sources will of course involve the review of past works on similar subject matter, such as books, published texts, unpublished theses, periodicals, journals, magazines, electronic devices such as Internet among others.

Finally, case studies of similar holiday camps/resorts that are operational will be studies, merits and demerits identified with a view to incorporating some to enhance the outcome of this work.

CHAPTER TWO

LITERATURE REVIEW

2.0 LEISURE, RECREATION AND TOURISM

2.1 LEISURE, DEFINITION

Like most contemporary English words, leisure, originated from the Latin word, "Licere" which means, to be free or to be permitted. The term itself came about through a combination of three basic concepts that include, time, activity and state of mind, however, emphasis was on Time and Activity. When viewed from this perspective, leisure as defined by Okunola L (1990) is "the time, which an individual has free from work or other duties, which may be utilized for purpose of relaxation, diversion, social achievement or personal development". He further says, "the amount of time available to an individual for leisure, determines what he can do at that period whether playing a musical instrument, traveling, sleeping etc."

Another view point which also relates to time and activity is the definition put forward by the "National Playing Association" of London, which defines leisure as "Free time" in other words, time spent neither in work nor in the necessary occupation of life such as sleep, eating, household chores, traveling to work and other essential duties. It is time available to an individual when he is free to choose the way in which he would spend his time."

"FREE TIME" also as defined by Walter Menhes (1975) is "the space between survival activities like working, cooking, commuting and sleep".

2.1.1 Types of Leisure

The various classifications of leisure are mainly based on activities carried out during one's free time. In actual sense, they are more towards recreation as the two are inseparable.

Five major types are put forward. According to Okunola (1990), they include:-

a. Practical Leisure

This type of leisure is based on creative activities such as handcraft, pottery, and gardening. These are home based, usually found among rural dwellers and are therefore associated with family duties.

b. Physical leisure

This form of leisure involves the physical participation of an individual in terms of exertion of physical efforts and the display of basic skills in a particular activity. These may include, swimming, indoor games such as snooker, darts, tennis, outdoor games like horse riding and walking among others.

c. Artistic leisure

This type of leisure is passive in nature in that it involves visual communication or appreciation. Bird watching, appreciation of natural landscape or visits to exciting cultural centres such as Museums or Monuments, caves and land formations form these types of leisure

d. Intellectual leisure

This type of leisure borders on broadening of knowledge and may involve reading of newspapers, magazines, listening to radio or television as part time. Usually it is done through organized clubs or individuals. It gives a feeling of fulfillment.

e. Social leisure

Based on social interaction among people, this form of leisure may involve visits, public meetings and any other social engagement to achieve relaxation and personal development. Leisure has been an integral part of human existence as man's early pre-occupation was hunting and gathering of food. He had all the time to kill but without sophisticated facilities to spend it. As man ventured into the challenges of living, he used his intellectual and innovative abilities in technological advancements which allowed for more free times as well as more sophisticated ways of spending this leisure time.

2.2 RECREATION DEFINITION AND TRENDS

Despite the contemporary nature of the word recreation, man has known the meaning since creation. The preoccupation of Stone Age man was nomadic as he moved from one place to another in search of food. Roaming the landscape, hunting and collecting fruits and roots, man was fully engaged in recreational activities albeit subconsciously. It is

also as natural as man himself as adventures excitements and romance are parts of Human life. The motivating factor towards achieving this fulfillment is what recreation is all about.

All definitions relating to recreation have certain elements in common. They range from leisure, time, fun, activities and relaxations. All of these are activities which constitute recreation making it broad enough to include play in its every expression and other activities that are usually not thought of as play, such as music, crafts, drama, every free activity and especially creative activities for the enrichment of life.

The National Playing Field Association, NPFA, (1974) defines recreation as "that activity which takes places during leisure time. It includes sport, enjoyment of he art and informal enjoyment of town and country side. Another definition by Abram (1971) says, "Any activity voluntarily undertaken for pleasure, fun, exercises, self expression or release from boredom, worry or tension, and which is physically or psychologically rejuvenating because it is different form the essential routine of ones life."

Perhaps, Fagbemi (2005) put it more succinctly when she says, "it is any activity consciously done, without compulsion for the sake of any other reward beyond itself, which provides man with an outlet for his physical, mental and creative prowess". She goes further to say that, "it is the pleasurable and constructive use of spare time that refreshes the mind and spirit of man after his toil."

However, whatever one may say about it, the bottom line is that it is an activity undertaken by man consciously without any compulsion and at a chosen free time (leisure) which has itself as the sole reward. This reward translates into man's achievement of physical, mental and creative ability. Activities that seem routine such as any form of play and even those thought to be not part of play like listening to birds songs or admiring nature's precarious arrangement of rocks are all recreational. Arguably, any activity that is capable of relaxing one's tensed mind from monotonous daily hustle and bustle life is recreation. These activities being disorderly, formless and informal give recreation the necessary appeal and value. Simply put, recreation is basically the sum of activities engaged in during leisure time.

2.2.1 Significance of Recreation

The need for recreation was captured in an expression put forward by Fagbemi (2005) in which she says, "Recreation is a fundamental Human need that contributes to human happiness in that it aids the maintenance of a balanced life comprising of work, rest, love and worship. Man is such a n animal that must have an adventure, excitement and romance. She further says "the pursuit of happiness, the love of adventure and the desire for achievements are strong propelling forces in man, which for large number of people are realized mostly in recreation".

Even machines require breaks at certain intervals after long hours of tasks, and it is more so with humans as man needs rejuvenation to maintain healthy and balanced physique outside his working hours. Recreation is essential for people that expend their energies

mechanically as man is essentially an outdoor being whose daily activities call into play the use of his entire body. These physical activities, engaged in during recreation, facilitate body coordination and development. Recreation is also used as a therapeutic and rehabilitative tool in some psychiatric treatment. Psychologists keep reminding us that for people who expend their energies mechanically, recreation is necessary. "A sound body ensures a sound mind" as the old saying goes.

2.2.2 Benefit of Recreation

Recreation provides far reaching benefits to both individuals and society. To the individual, apart from its nostalgic experiences which gives as much satisfaction during and after the experiences, it also gives experience to a large number of people with great rewards. Butler (1957), put it more appropriately when he says "Recreational experience is enhanced by the fact that they give almost as much of satisfaction in memory as at the time. Thus, such experiences are made possible for large numbers of people, and provide great rewards as well". Individuals derive nostalgic pleasures from recreation and the societal benefits are mainly constructive in nature. Some of the benefits derivable from recreational activities include;

a. Psychological benefits

The hustle and bustle of contemporary life with its attendant hazards, boredom in lifestyles, workplace tires all require outlets that can allow the release of such tensions. Psychologists recommend recreational activities for rejuvenation and uplifting of spirits or giving your life a little lift.

Fagbemi (2005) says "Recreation, particularly planned out of home recreation, recharges ones psychic batteries, sends participants back to work energized and refreshed, rejuvenates a tired marriage or romance and provides a new sense of daily excitement as recent excitements are recounted to friends and associates or as next outings are planned."

b. Health benefits

Certain recreational activities enhance physical fitness, promote emotional stability by affording rest and the ability to cope with nature. Cabot (1965) in collaboration with medical authorities testified that, certain forms of recreation cause increased circulation, greater respiratory activities, better elimination of waste and improved digestion. Also big muscle activities stimulate growth while sport and athletics contribute largely to the proper development of vital organs.

c. Community benefits

In this era of political thugs borne out of juvenile delinquency and ills of modern day life, recreation proves to be a solution to such societal malaise. Fabgemi (2005) says "Recreation lessens Juvenile delinquency, mental illness and other undesirable consequences and ills of modern day life." Though one may not be a delinquent or mentally ill, one is more at ease if these ills are diminished in his society. Social tensions lessen while human interaction is fostered by bringing together various groups for common cause.

d. Economic benefits

Economic benefits accruable to the society are far-reaching and wide if recreational activities are well planned. Recreational facilities at suitable destinations will mark an increase in property values of a nation. It boosts tourism with its attendant revenues from domestic and international destinatios, resulting in alternative revenue generation and employment opportunities as well as cut in cost of health crises will enhance economic growth.

e. Educational benefits

Through Tourism, man broadens his knowledge by gaining insight into the culture, historic beauty and diversity of places other than his own. New skills are acquired and personal interest are pursued as man is a social being.

2.2.3 Types of Recreation

There are various types of recreation, the choice of which depends on individual's reasons, motivations and purposes for engaging in them. Some of them include:-

a. Leisure Recreation

The choice of what to do with free time, which connotes leisure, is the driving force here. People engage in having fun, excitement, enjoyment, play, amusement or relaxation in their free time, which is void of any activity related to work. This type of recreation forms a break from monotonous day – to - day activities.

b. Business Recreation

This type of recreation is motivated by the desire to earn something while having fun. It combines both pleasure and business as such it is often short lived as long as the business lasts. The desire to make earning holds sway. It is usually formal.

c. Education Recreation

The motivation here is the acquisition of knowledge in a particular field or discipline and might involve individual or group and could also be formal or informal. It is more like business and pleasure as the benefit here is knowledge. At the end of it all, individuals have a sense of fulfillment as they are better informed, mentally alert and socially healthy.

d. Specific Recreation

These are therapeutic, spiritual or sporting in nature and are usually found in themed recreational centers such as spas and pilgrimages. People engage in these forms of recreation with the aim of being refreshed, at the end of the day.

2.2.4 Forms of Recreation

Recreation is classified into three major groups, namely, indoor, out door and out of locality recreation. The choice in which individual engages depends on the complexity of the participants' social disposition.

a. Indoor Recreation

These are recreational activities that are usually carried out in enclosed spaces but may also include about the home and high social content recreation. Indoor activities which are for the purpose of physical, mental and emotional refreshments; include, gymnastics, tennis, snooker, gardening, television watching, reading, listening to music among others are typical of about the_house recreation while eating out, drinking in bars, partying, social visits are examples of high social content recreation.

b. Outdoor Recreation

These activities of recreation are carried out outside and in open spaces and they include, skiing, boating, hunting, horse riding, golfing and football. Participants experience revitalization of spirit and they are usually carried out in natural environments as some cannot be carried out indoors. People tend to gravitate to open spaces where they will be in harmony with nature or relax within a natural setting.

c. Out of Locality Recreation

This type is Tourism in nature as it involves travels and stays of non resident on a temporary basis and might be indoor, outdoor or both activities. It is the sum of experiences and relationships arising from such travels and stays as far as they are non-permanent residence in nature. This form of recreation also involves a complete phase, which might include planning, anticipation, travel to site, on-site experiences, travel back to locality and recollection.

2.2.5 Typical Recreation Needs for Different Age Groups

Group	Indoors activity	Outdoors activities
Under five	Wheeled toys, Audio visuals	**Creative play, sand arrangements, hard surface for wheeled toys**
School children	Indoors games, Table tennis playing cards Audio visuals	**Outdoors games, running jumping, climbing, water play, pools adventurous areas**
Teenagers	Refreshment, social activities, Indoor games and sports	**Badminton, lawn tennis, swimming**
Early family and Housewives	**Refreshment, indoor games, cultural festival, exhibition.**	Badminton, lawn tennis, Swimming, Sailing.

Table 1.0: Typical recreation needs for various age groups
(Source: Okunola, 1990)

Different age groups have different motivations for recreational activities and different preference for recreations. While youths in urban centres go for westernized recreations, adults go for activities that are more purposeful. Although some recreations can be uniform irrespective of age, religion or culture such as festivals, religious pilgrimages, life patterns, and the likes, the younger portion of the population being larger in urban settings, needs to be catered for.

In any societal setting, the need to provide facilities for different age groups is therefore fundamental. The table below shows typical recreational needs for various age groups.

2.2.6 Leisure and Recreation

Leisure and recreation are human needs that are as old as man himself. The preoccupation of man in his primitive stage was hunting and food gathering as he wondered around. He had enough time to kill while enjoying the physical activities of hunting, riding or fishing. With advancement in technology and the use of imaginative precision in doing things, leisure and recreation become more important to the well being of man for self rejuvenation and mental well being.

However, though interchangeable, the words are different although with a thin dividing line. While leisure refers to "Free time", recreation means such activities carried out during such free time. Importance of leisure and recreation as earlier mentioned cannot be over emphasized but the unfortunate aspect is most people don't recognize that. Generally, urban dwellers are more conscious of this important part of human need.

2.3 TOURISM, DEFINITION AND TRENDS

Different people view tourism differently. While early American geographers looked at it as a distinct and significant form of land use with emphasis on physical development, as Jones observed that, "Tourism modifies the existing landscape to give rise to new and different urban forms" (Jones, 1993). Others see it as an economic venture arising from the totality of participants; and defined it as "sum total of operators, mainly economic in nature, which directly relates to the entry, stay and movement of foreigners inside and outside a certain country, city or region."

Lickerish (1962) felt tourism is a mass movement and defined it as "Movement of people or the incidence of mobile population on any given area and its resident population." Hunziher & Koape (1963) also adopted by International Association of Scientific Experts (AIEST) defined tourism as "the sum of the phenomena and relationships arising from the travel and stay of non residents in so far as they do not lead to permanent residence and are not connected with earning activities". This was however broadened to include business and vocational travels.

Bunkart and Medich (1981) looked at tourism in terms of tourist and his activities and defined it thus: "Tourism denotes a temporary short term movement of people to destination outside the places where they normally live and work and their activities during stay at these destinations". Yet, others see it through duration, Rabin (1982) for instance says "Tourism is movement of people to destinations outside their places of residence and staying for at least one year and those activities should be confined to either leisure, sporting, Health and not including work." Recently, tourism is seen from economics' point of view as an aspect of demand and supply rather than product and production. McIntosh & Gocldner (1984).

However, a more comprehensive definition by United Nation World Tourism Organization, (UNTWO) is "The act of travel for the purpose of recreation and business and the provision of service for this act". It further says that "tourists are people who travel and stay in places outside their usual environment, for not more than one consecutive year, for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited". Distance between these places is of no significance.

It is also defined as a service industry, comprising of tangible and intangible components. Tangible elements include, transport systems; air, rail, road, water and recently space, hospitality services; accommodation, foods and beverages, tours, and souvenirs, related services like family, insurance, safety and security. Intangible elements include; rest and relaxation, culture, escape, adventure, new and different experiences.

From the foregoing, it is clear that early perception of tourism lays emphasis in terms of physical development, movement of population purely for leisure while recent perception sees it as a relationship arising from events as a result of travels and activities to destinations with various purposes which include leisure, business, physical well being and economic benefits. Since tourism involve travels, and expenditure by foreigners which serves as a source of taxation and income for the enterprises that (export) services to these travelers, tourism development is a strategy employed by investors to promote a particular region for the purpose of commerce through exporting of goods and services to non locals.

2.3.1 Classification of Tourism

Tourism can be broadly classified into four groups based on the principal actors of tourism i.e. tourist and destinations. They include:-

1. Inbound international tourism; this type of tourism involves visit to a country by non residents of that country.
2. Outbound international tourism; here residents of a country visit another country.
3. Internal tourism; this involves visits by residents of a country to their own country.

4. Domestic tourism; this is a combination of inbound international tourism and internal tourism.

5. National tourism; consists of outbound and internal tourism.

For tourism to take place certain factors are required to be fulfilled and they include some or all of the following:-

1. Discretionary income; which refers to extra money to spend on non-essentials.
2. Time in which to do so. This refers to leisure time or free time one has apart from time of obligatory activities like work.
3. Infrastructure in the form of accommodation facilities and means of transport, here reference is on destinations and facilities, as well as means of reaching such places.

2.3.2. Types of Tourists.

Traditional vacation and conventional holidaymaker were considered as the main tourism and tourist respectively, however, modern trends have revealed different types of tourist depending on participants and their destinations. They include:-

a. Family Tourist

The existence and inclusion of children determine this type of tourism, Tourists in this group choose destinations with elaborate arrangements that cater for various age level of children including infants, early school children and teenagers. Self-catering and regiment that reduce costs of staying, are the main target here.

b. Hedonist Tourist

Desire for physical pleasure and social life motivate this type of tourist. Being purely pleasure seekers, this group composed of mainly younger people also travel in single sex groups of friends and prefer the freedom and economy offered by simple self catering accommodation.

c. Backpacker Tourists

These are tourists that are cost conscious as such they travel with rack sack or backpacker in their desire to keep expenses to the minimum. These tourists, mainly young people predominantly students on vacations, are truly global in nature.

d. Visits to Friends and Relations Tourists

Strong social factors or sense of family duty, motivate this type of tourism. They lodge with family or friends who play host and take them to places of local attractions at the destinations such as weddings, funerals and similar gatherings.

e. Excursionists or Day-Trippers

These are domestic tourists not disposed to traveling but resort to visiting local attractions like waterside resort, rural areas, museums or theatres, mostly in one day or less.

f. Educational Tourists

These types of tourists are motivated by participatory activities. They may include search for knowledge through visits to destinations, students exchange programmes, language classes in a

foreign land for a period. Themed tourists to pursue a common academic interest such as archeology are also some of the examples.

g. Religious Tourists

Pleasure is de-emphasized here as tourists are motivated by strictly a sense of duty and obligation. This is restricted to the faithfuls of a particular faith and participation is mostly in groups of believers.

h. Snowbird Tourists

The bid to escape from domestic harsh climates or other environmental factors motivates these types of tourists. Some retired people take long vacations such as "summer sun holiday", to take a suntan and escape their snowy home countries at mild sunny climes. Another motivating factor is to reduce or avoid expenditure on heating and improved health conditions.

i. Social Tourism

Tourists here see tourism as a social right of citizens that brings social benefits as such they reach for state support or subsidy as they go for visits, mostly non profit to mainly holiday centres which offer subsidized resort facilities.

k. Short Break Tourists

Weekend breaks, availability and ownership of cars, faster aircraft motivate this type of tourist. Mostly found in developed countries, since 1960, tourists travel for shopping, visiting friends and relatives, romantic weekends for couples, including special activity break like golfing. These generally happen within the weekends or public holidays.

l. Eco-Tourists

The desire to see and appreciate nature, historical features, and the protection and preservation of natural environment is the driving force behind this type of tourists. This form of tourist is gaining a lot of preference recently as tourists are bored of the usual mundane facilities found in tourist destinations, they want to be part of nature.

m. Business Tourism

Desire to make earnings at tourist destinations through transactions and connections motivate this tourism. It is also business and pleasure as leisure activities is undertaken during and after the business. Business was recently included in the definition of tourism as early definitions excluded them.

n. Tourism with non-conventional characters

There are other forms of tourism although with non-conventional characters, they include:-

o. Adventure Tourism

This type of tourism involves tourists participating in physically challenging activities and at times very dangerous. They include safaris, trekking in remote areas, hiking, mountain trailing, river rafting, white water boating through rapids and fishing in large turbulent waters. The tourists engage in these activities and often are not concerned with conventional destinations.

p. Village Tourism

These are groups of tourists that visit a remote village and mix with the locals learning their way of life and the local environment. Their stay is usually temporary.

q. Rural, Farm or Agro Tourism

Tourists travel to farming, fishing or plantation locations with a view to learning these activities. They participate and help the families of such communities by going out to farm with farmers and fishermen for fishing.

r. Camping or Caravan Tourism

Here camping facilities are developed around attractions or recreational features along highways where parties and other recreational activities take place.

s. Ethnic Tourism

Tourist that look back home by paying visits to their original homelands or places of birth or ancestral origin especially those in diasporas, black Americans or blacks coming back to their roots in Africa, form this type of tourism.

t. Nostalgic Tourism

Tourism is about nostalgic experiences as such some tourists want to do it all over again by visiting such places they once experienced some memorable or eventful activity.

2.3.3 Trends in Tourism: Global Perspective

Globalization, which tends to bring about common global economic activity with focus on global economic growth, has all economic growth parameters geared towards this goal. Tourism, being second largest contributor after manufacturing towards economic growth, has become a major focus especially in Europe which is the major stakeholder in the industry.

A workshop held in Budapest, Hungary 2004, with a theme; "European tourism forum", examined the new trends in tourism and came up with resolutions that are viewed to boost the tourism business. This applies not only to member states in particular but global in general since the bulk of the travels are to tourist destinations that are Eco friendly. It is believed, such resolutions will help develop tourist destinations in third world countries if incorporated in their local tourism policies.

This report of the workshop conceming "New Trends in Tourism" during the Europeans Tourism Forum 2004 in Budapest reflects the contribution of the initial statement provided by Mr. Martin Lohmann, the contribution of the speakers and the different and sometimes divergent views expressed by the participants in the workshop.

Several new trends in the tourism sector have been identified during the workshop, which will contribute positively to the tourism economy but will also need further support by special policies in the field of tourism services and products. The current tourism development is characterized by the following trends:-

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1. **Demographic change:** The proportion of people over 60 in Europe is growing. They are likely to retain their independence for longer, and health, spa and 'keep fit' tourism is among the segments likely to benefit from it. They increasingly spend longer periods in tourist destinations considered to provide pleasant living conditions, particularly in the south and off-season. In addition, more tourists with special needs that must be catered for to enable them to fully benefit from tourism want to travel. Apart from at least 10% of the population formally recognized as **disabled** in one way or another, a growing number of tourists can be expected to differ from reduced mobility as a result of a temporary disability or age.

2. **Young traveler**: Studies have shown that about 20% of all tourists arrivals are people between 15 and 26 which results at the moment in 140 million arrivals per year, 70% of whom are mostly in European countries. Especially the new member states are bearing a big potential in this target group both as countries of origin and as tourist destination for younger people. (Fagbemi, 2005).

3. The change in the demographic structure of the population and the travel attitudes will result in new product demand. By the end of 2002 low cost airline had captured 12 percent of all intra-European Union air capacity. According to International Aeronautic Transport Agency (IATA) forecasts, the low cost carrier market is expected to increase to 35percent of European air traffic by 2010. 75percent of the low cost market share is said to represent new customers.

4. New fare structures and the **e-market** will change booking be behaviour and favour personally composed and 'non products, are affecting package tours, both in short-haul and long haul traveling.

Tourism policy has to take into account these trends:

a. The group of disabled people needs special provisions along the complete chain of transport, visiting destinations, experiences, accommodation and information.

b. Young people need special tourism products offering affordable and safe holidays, cultural experience, exchange with other young people, multi-cultural events, and activities. In addition, young travelers need special accommodation facilities, special support and fares for transport. A major problem is the barriers through visa requirements, especially multiple visas within the European Union.

c. The challenge for the tourism in the member states is to market their tourism products in a professional way, to promote public private synergies, to cope with quality standards and to maintain the cultural and natural heritage as a main asset of tourism in these countries.

d. All airlines will need provisions for consumer protection for the refund of advance payments (including taxes and supplements) and the repatriation of affected customers in the event of airline failure.

Positive and negative impacts of these new trends in tourism

Most of these trends will lead to new tourism demand and thus create additional jobs and Gross Domestic Products (**GDP**) especially in the new member states. But they may have also adverse impact on the environment and the social welfare in the tourism sector, some of which include:-

1. The impact of air transport on climate changes is likely to accelerate; additional volumes may have negative effects on the carrying capacity of destinations; overcrowded destinations may be in danger of losing their environmental and cultural asset, which are basis of the tourism experience.

2. Low cost air transport may have negative effects on the employment in the transport sector and negative developments concerning social issues in this sector have been raised especially by trade unions. There has been also identified a lack of consumer protection in the case of financial failure of low cost airline and legal loop-holes concerning the tour operators package on the other hand.

3. Tourism has the potential to contribute to environmental protection and poverty reduction by capitalizing on biodiversity assets.

4. Tourism can also increase public appreciation of the environment and spread awareness of environmental problems bringing people into sector contact with nature and the environment. Tourism often suffers from environmental damages caused by other sectors (e.g. water pollution) and can provide a mechanism for creating awareness among the stakeholders.

The challenges ahead

The central challenge for global tourism, its businesses and destinations, is: how can the sector growth expected over the next two decades be managed in such a way as to ensure that it respects the limits of its resource base, and of those resources' capacity to regenerate, while being commercially successful through a competitive quality development that takes into account diverging developments in the various types of tourism, and creating wide societal and environmental benefits?

Tourism development is a complex interaction among many actors with shared responsibility concerning the environmental, economic and social 'sustainability' of the sector. This involves for example the tourism industry by promoting a sustainable use product, the consumer by developing sustainable consumption patterns and the public authorities by creating the right framework to enable the sustainable use of resources and to create a commercial level playing field amongst all various stakeholders.

Conclusion drawn from the workshop

The European Commission, the other EU-institutions, the member states together with all tourism stakeholders, are invited, in the field of new trends on tourism, to:-

- Monitor and continue to sport the development of new trends in tourism, taking into account all aspects of sustainability (economic, social aspects and environment).

- Create a level playing field between operators in the tourism industry (e.g. subsidies for airline and airports, consistent liability provisions and consumer protection obligations for all businesses selling similar tourism products and taxation).

- Create a level playing field amongst the various stakeholders in air transport sector.
- Raise awareness of the positive impacts of tourism on a sustainable basis, can have on life, culture, nature and economy.

- Improve the contribution of tourism to the quality of life of all stakeholders by demonstrating the potential of health, senior and youth tourism in Europe.
- With all respect to security rules to improve the procedures for visa requirements, especially multiple visas within the European Union.

- Investigate and monitor the effects of low carries on the quality level of tourism products and destinations.

It was recognized that the growth of the low cost carriers has had and will have significant impacts. There was a division of views as to whether those impacts could be balanced as positive or negative. The European commission should investigate these impacts in more details.

2.3.4 Tourism and Recreation in Nigeria (local perspectives)

The strategic location of Nigeria though purely geographical accident favors it as an excellent tourist destination. Located wholly within the tropics, the country aptly described as the "Heart

of Africa", is richly endowed with ecological and cultural resources. The country is situated in the West Africa sub region of Africa between longitudes 300 and 1400 and 1400 latitudes. It is a vast country and shares borders with Niger Republic and Chad to the North, Benin Republic to the West, Republic of Cameroon to the east and the Atlantic Ocean forms the Southern boundary. The country has thirty-six states and the Federal Capital Territory situated at the heart of the country serves as the capital city called Abuja.

The country is blessed with a warm climate, fascinating beaches and evergreen vegetation in the south, while in the north, savanna grassland is overshadowed by alluring landforms. Other interesting natural features in form of hills waterfalls, springs, mountain outcrops with temperate like climates and microclimates, and a range of unique and common species of wildlife are found in the country. Besides these natural features, the cultural assets of the nation are of universal recognition. The richness and diversity of the Nigerian culture is a manifestation of the socio cultural differences of the over 250 ethnic groups that inhabit the land for ages. These coupled with the hospitality of the over 140million people make Nigeria one of the most richly endowed potential tourists destinations in the globe.

However, inspite of all these favourable opportunities conducive for establishing tourism attractions and hence catapulting Nigeria among global tourist nations, the country's tourism industry is still at infancy.

Recreation in Nigeria started from traditional experience based on personal and interwoven with societal activities. This was before the advent of western education and such activities like

festivals; local wrestling, naming ceremonies, coronations and similar festivities were the vogue. With the coming of western education, recreational activities took a gradual transformation culminating in more outdoor recreation and therefore tourism activities.

Conscious efforts at establishing tourism in Nigeria started way back in 1962 when an association of tourism aimed at promoting tourism industry was formed. The Nigeria Tourism Association (NTA) as it was known was set up by a group of Nigerians and this led to the Nigeria's admission as a member into the Union of Official Travel Organisation, (UNOTO) in 1964. The present World Tourism Organisation (WTO) is an offshoot of the UNOTO. The Federal Government realizing the importance of tourism in global contexts took a giant step in assessing tourist's potentials and saddled the responsibility to the African Development Bank (ADB). The encouraging report prompted Nigeria into establishing the Nigeria Tourism Board (NTB) replacing the NTA through Decree 54 by the military Administration in 1976.

2.3.5 Tourists Attractions in Nigeria

Potential and existing tourist attractions abound in Nigeria dotting the landscape. Nigeria is greatly endowed with abundant intriguing tourist attractions. The nation has over 700km of unpolluted fascinating sandy beaches and savannah grassland is over hawed by alluring cloud forms, eight national parks, over ten game reserves, thirteen known waterfalls, tunnels, caves, springs, hills, and pockets of mountainous areas. Also the nation has a rich and diversified Nigerian cultures which is accountable to the socio-cultural differences of the over 250 ethnic groups that dwell in the land for ages. These coupled with the hospitality of the over 140milllion people, makes Nigeria one of the richly endowed potential tourist destinations in globe.

These attractions fall into seven broad categories namely natural, physical, monumental, cultural, manmade, eco/wildlife, and souvenir or arts and crafts. Description of these attractions according to their geographical locations (states) is tabulated for ease of identification. (See appendix)

2.3.6 National Tourism Policy

The Federal Government through the Natural Tourism Board (NTB) formulated certain policies, meant to:-

a. Generate foreign exchange

b. Encourage even development

c. Accelerate rural-urban integration and cultural exchange

2.3.7 Objectives

Certain objectives meant to enhance the achievement of these goals include:-

1. Encourage domestic and foreign private sector investment in tourism development, by packaging incentives for attracting such investments.

2. Identify and designate centres of attraction for tourism purposes by the private sector in the physical planning and promotion of such centres.

3. Promote the Nigerian environment to be favourable to foreigners

4. Establish effective organs for the planning development, promotion and marketing of the industry beyond Nigeria and including well-defined roles of the three tiers of government.

2.3.8 Strategies for the National Tourism Policy

Strategies drawn to achieve these objectives include:-

- Provision of infrastructure

TRENDS OF INTERNATIONAL TOURISM IN NIGERIA (1992-2002)

YEAR	ARRIVAL (000)	% CHANGE OVER PREVIOUS YEAR	RECEIPT US $ MILLION	% CHANGE OVER PREVIOUS YEAR
1992	272	-	29	-
1993	294	8.1	31	**6.9**
1994	214	-27.2	34	**9.7**
1995	665	67.8	54	**58.8**
1996	882	33.6	85	**57.4**
1997	1,263	25.7	86	**1.2**
1998	1,293	21.1	142	**65.1**
1999	1,392	21.1	145	**2.1**
2000	1,459	21.3	148	**2.3**
2001	1,526		151	**2.3**
	1,593	**22.1**	**156**	**53.0**

Table 2.0: Trends of international tourism in Nigeria 1992-2002
(Source: Nigeria Tourism Development Corporation)

INTERNATIONAL TOURIST ARRIVAL AND RECEIPT (1992-1999)
Nigeria's Performance in Africa (%)

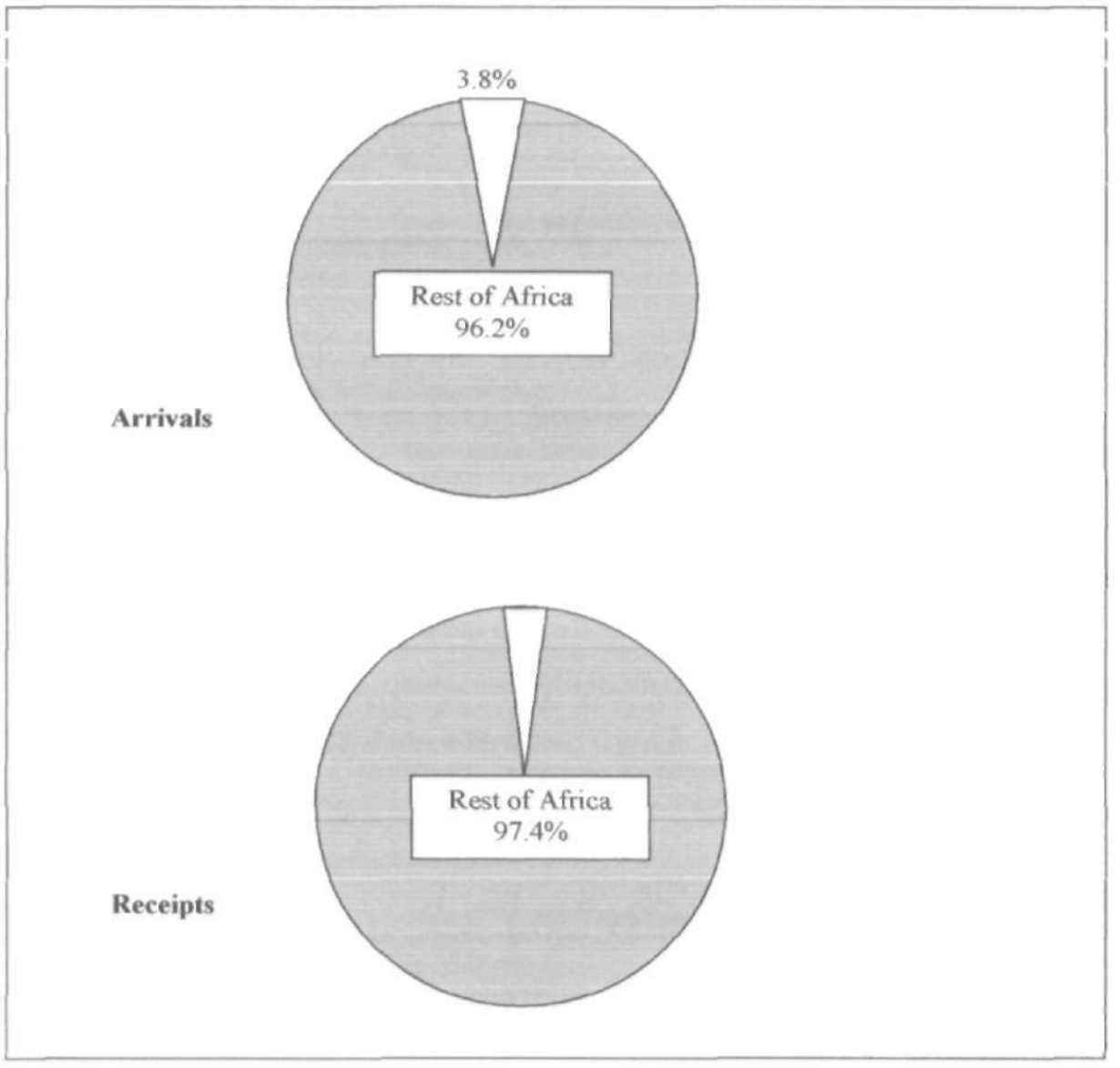


Fig. 2.1: Nigeria's Performance in Africa (%)
(Source: Nigerian Tourism Development Cooperation, Abuja, 2000)

2.4 HOLIDAY CAMPS, DEFINITIONS

The new Webster dictionary defines a holiday as "A day on which one does not go to work". From this definition, holiday is a form of leisure since leisure is defined as "time when one is free from the need to do any work at ones leisure when convenient and without any compulsion to hurry.

A camp as defined by New Webster Dictionary (1992) is "A holiday recreational centre especially for Children." It further expanded it to mean, "To live elsewhere other than ones home, temporary." This also means that one travels to a particular environment as a means of escape from the usual hustle and bustle and monotonous living conditions experienced in his usual environment.

A holiday camp therefore, refers to a resort/centre but without the elaborate sophistication found in a resort. For instance, in Britain, a holiday camp generally refers to a resort with a boundary that includes accommodation, entertainment and other facilities (wikipedia, encyclopedia, 2005).

2.4.1 Historical Development of Holiday Camps

In the late Victorian era precisely in 1894, camping as a form of leisure assumed popularity giving rise to the first holiday camp, known as "Cunningham camp for men" on the Isle of Man. It had temporary structures with campers staying in tents and conditions were basic.

Little improvement followed up to early twenties when a number of camps known as "Pioneer camps" were opened but with improved facilities in a form of basic accommodation and a

genuine camp atmosphere. Often campers participated in the running of the camps. Although life under canvass was considered a healthy living, soon they gave way to more permanent structures like chalets and communal buildings for eating and entertainment. Trade unions and the cooperative movement joined these early entrepreneurs in the camp business each offering exclusive facilities to their members, the most renown being **"Nalgo"** members for civil servants. Many notable camps among the pioneer camps came into being and one of the earliest established in 1906 was known as **"Caister socialist Holiday camp".** They provided accommodation in tents and campers helped out with the chores. The tents were however, replaced by chalets after the world war. John Fletcher expanded the camp up to 1951, by which time about eight hundred chalets and huts provided accommodation. It also had its licensed bar and organized games, sport and trips. The camp covered about ninety acres of land and was situated right on the beach, but now run by Haven holidays.

Another notable pioneer camp established in the 1930s and run by Harry Warner is "Northney Holiday camp". He opened his first camp in Hayling Island in 1932 and by 1951, the camp, was still popular. Glowing tribute by |holiday camp" Magazine captured the camps situation more succinctly when they wrote "its spirit of friendliness, its setting in the beautiful countryside by the waters of **Chi Chester Harbor,** and the bracing Haying Island climate have given Northney a popularity that has grown with the years". Three other camps on **Haying Island** about the same time with **Northrey** (1951) include the civil service camp founded in 1924 also now run by Warners. Other camps included **the Rogeston** hall camp run by the workers' Travel Association (1938) with fine modern architecture; **Civil Service** Camp (1951) run by Warners and the **Lorton Beach** Holiday camp (1933).

Of all the names associated with Holiday camps, **Billy Butlin** stands out ahead of the rest. Although his camps are by no means the first to be established nevertheless, they stood out by virtue of their site host camps at that time took at most few hundred campers, but Butlin's initial accommodation capacity in his maiden camp was two thousand. It was established in 1936 at Skegness. Inspired by his experience in Canada where he stayed in Holiday camp with permanent accommodation, coupled with the fact that campers were shutting between boarding houses in the town and the camp with the attendant inconveniences, he starter by offering a weeks Holiday for a week pay. It was a great success. Butlin introduced the **Redcoats,** a form of entertainment to curve out boredom when he realized campers were looking miserable for lack of something to do.

Soon after, Butlins second holiday camp was opened at **Clacton** in 1978, however, due to the world war that broke out , Butlins expansion was cut short as the first two holiday camps were taken over and turned into military barracks.

Another camp at **Filey** in Yorkshire opened in 1940 was also taken over by Butlin who entered into a deal with the government to buy back the camps after the war. On that understanding, he built more holiday camps at Pwllheli and at the end of the war, Butlin had five holiday camps in place.

The end of the war was a big boost to Holiday camp business with Butlin catering for a staggering number. Referred to as "Holiday villages by the sea", Mosrey could take 2000; Clacton 2005 but Skegness, Pwllheli and Filey could take a massive 5,500 visitors.

In late 1940s and 1950s, many more camps were opened and a particular distinctive building was the "Middleton Tower Holiday" camp near Morecambe. Although established as early as 1939 but due to war started functioning in 1949 after it received a new look. This camp came with some architectural innovations as it was designed to replicate an ocean liner on land. It had a "Sun ray room" several bars, a separate children's cinema and all the usual holiday camp style entertainment. Its capacity rivaled one of Butlins as it was able to Butlins as it was able to accommodate up to 3000 visitors in 1949.

Other new comers that came into the scene included Fred Pontin in 1940 who established his first camp at Brean Sands near Burnham-on- sea in Summerest. It opened in 1946 and by 1949, he had six camps in England; "Sussex Ideal: at Breckesham Bay, Chi Chester; Brinsands at Burnham-on-sea; Sand Bay at Weston-Super-Mare; Osmimaton Bay at Weymouth; "South Devon" at Paignton; and Buckleigh at westward Ho! In north Devon. He also had a camp in Ireland, Trabolgan described as "Small unit Holiday camp for the Connoisseur". The camps were quite small by standards, taking not more than 250 campers. Infact, Buckleigh's capacity was just for 60. This is the major significant different with Butlins.

Other holiday camps followed, by the 1950s throughout the United Kingdom. This form of holiday spread quickly throughout Europe and became so popular that many people were encouraged to book early and to avoid the popular months of July and August. It was suggested that holiday industry will be reduced, however, this campaign failed as the increasing number of campers preferred holidays in July and August.

These keep youngsters occupied and enable parents to follow their own pursuits.

Some facilities however come with chargeable fees, they include,

- Bars
- Restaurants
- Amusement arcades

This tourism activity although opened to all tourists, it however, lays more emphasis on people on vacations, retreats for organized bodies, families and individuals. Essentially therefore, the camp provides enabling environment for vacation, leisure and recreation.

CHAPTER THREE

ECO-APPROACH IN THE DESIGN OF HOLIDAY CAMPS

3.0 ECOLOGICAL ARCHITECTURE

Environmental degradation is fast assuming phenomenal dimensions posing serious threat to the survival of man and the ecosystem in which he is an integral part. This then calls for urgent responsibility towards safeguarding the environment from wanton abuse emanating from high technological advancements of post industrial era, with their attendant high energy demands and gaseous pollutants. Man in his quests for improved modern lifestyle engaged in activities with high consumption of energy and mineral resources, resulting in devastating air, water, land and chemical pollution. The danger looming as a result of this environmental degradation sent panic into governments and professionals urging the need for restoration of land degradation caused by erosion, mining activities, desertification, flooding, beach and marine ecological setting. This brings about environmental degradation though, depletion of ozone layer-giving rise to global warning and climate changes.

This responsibility, collective as it is, seems to lie more on architects as buildings are the greatest polluters on the planet. Buildings account for over half of total energy use in the developed world and produce over half of climate-change gases. Air conditioning alone pumps more climate change gases into the atmosphere than any other form of technology. Architectural processes such as procurement of building materials, manufacturing processes and construction activities are believed to be in the forefront of environmental degradation. Of course this is to be expected since the building industry is second largest after agriculture. In fact, more activities that last all year round are found in the building industry unlike in the agricultural sector, which

is largely seasonal. There is therefore, an urgent need for a new approach to the design of safe buildings that will have less impact on the environment thus "treading softly on the environment" or "do as little harm as possible".

It is pertinent to note that the enormous task of restoration of land degradation is beyond architectural designs rather it is a global phenomenon that involves various professional groups and governments. Ecological Architecture, though not a law but rather an ethic, is part of our professional responsibility as architects to design buildings and communities that are sensitive to the large environment and also friendly in nature. (Tukur, 2007).

3.1 DEFINITION OF ECOLOGICAL ARCHITECTURE

Ecological Architecture which also is often interchanged with terms like, "sustainable", "green", "environment friendly", "natural and organic", is any architectural design that takes into account such ecological principles as reduction of pollution, sustainable growth, recycling, energy efficiency, conservation of scarce resources, environmentally friendly materials and products that are cleaner, quieter and more durable (Walker, 1992). Broadly, it is a design that makes use of resources that come from the earth in such a way that they can be returned to the earth without causing harm, in a cycle that echoes the natural resources, including land and energy, with maximum efficiency at a rate that does not compromise the needs of future generations. As a matter of fact eco-design seeks to compliment and fit into the eco-system rather than impose itself on it, to the extent that the balance in the eco-system is maintained.

3.2 ORIGIN OF ECOLOGICAL ARCHITECTURE

The awareness of environmental degradation can be traced to the 18th century, when a biologist, Stephen Hales (1677-1761) demonstrated the relationship between plant life and the atmosphere. He opined that, one tree produces sufficient oxygen need for four persons to breathe (Wines, 1997). He further established the importance of trees on rainfall (Norton, 1996). This piqued the minds of people and sensitized them on the importance of trees and the need to conserve them. The mantle of environmental awareness was picked by conservationist, John Muir in the 19th century, who influenced the formation of a federal conservation policy in the United States of America (1876).

Despite strong opposition from government and other interest groups, the movement for preservation continued to gain momentum with Muir's disciples like Ale polo declaring that "a thing is right when it tends to serve the integrity and beauty of the biotic community. It is wrong when it tends otherwise".

The economic boom after the two world wars slowed down the movement and was picked up again by other advocates like Rachel Carson through his publications titled "Silent springs" which enlightened people on the dangers of pesticides especially DDT on the environment. More discoveries in the 1970s' on environmental degradation like ozone layer depletion, the bad states of the oceans, climatic changes; global warming in the 1970s, produced more environmental consciousness in people. As a consequent, a number of summits in Rio de Janeiro (1992) and the world eco-tourism summit held at Quebec Canada (2002) under the auspices of the World Tourism Organization and the UN environmental programme, have been held to look into the

issues threatening the earth and how to resolve them. Later, various non-governmental organizations like the International Union for Conservation of Nature (IUCN) and the World Wildlife Fund (WWF) were established to work along-sides the United Nations Environmental Programme (UNEP).

By 1980, this union gave birth to a document "World conservation strategy" presenting world wide strategies for the rational use of resources. In the area of wild life conservation, issues like poaching were addressed in the Lusaka agreement for African countries. National parks were established with walls around them to reduce extinction rates. In music, Joni Mitchell's "By Yellow Taxi, drummed the message into her listeners" (Claude, 1999).

The quest to preserve environment has been unrelenting and continue to date. Architecture, like most other facets of life that characterize man's world is no exception where quest for environmental consciousness is concerned. Through various eras, from Mesopotamian, which saw hanging gardens of Babylon to the ancient Greece, and the Roman Empire where open courts and atriums had gardens in them, man had been conscious of nature and integrated it into design. Other applications of the concept of the environmentalism can be seen in the vast landscape lawns and scenic vistas of the dark ages. In addition, though little attention was paid to the environment during the industrial revolution, architecture critics and social scientists like Karl Marx, J.S Mill, John Ruskin, William Morris and W.R Lethaby were not silent in their disapproval of the lack of acknowledgement of the place of nature in architecture. Ruskin noted that the inspiration architects should seek is not found in the machine but in "the world of flora and fauna" (Edwards, 1999).

Frank Lloyd Wright, father of organic architecture, made remarkable contributions in the field of ecological architecture with his advocating for architecture that blends with the site. One of his works, the falling waters stands as a good and remarkable example and makes a lasting impression for residential buildings. A number of firms now specialize in ecological architectural design. For example, Environ Arc focuses on green residential design with their emphases on the renovation and additions of existing houses. This is based on the belief that to avoid urban sprawl and decay, existing built environment should be recycled and reused. Many other architects have woken up to their sense of moral and social responsibility by designing buildings that are ecologically sustainable with less negative impact on the environment.

3.2.1. Architecture in Ecosystems

According to Lasisi (2005), "ecological architecture strives to maintain balance in ecosystem and also seeks to compliment and fit into the ecosystem rather than impose itself on it".

Man is an integral part of the ecosystem as he belongs to the biotic component of the system. Man, however, arguably is the worst enemy of the system through his numerous pervasive incursions into the natural environment. Largely, human history has been the struggle for survival which necessitated his search for food primarily, then shelter for resting, security and finally protection against the harsh weather through clothing. At first, these needs were subsistence as man treated softly and peacefully on earth surface; the basic tools required then were mere sticks and pebbles.

As population grew, needs for energy increased and the tool become more sophisticated leading to various civilizations ranging from stone age, bronze and culminating into the industrial revolution of the 17th century in which the discovery of steam engine made easier the tedious adventures of man. This era witnessed certain sophistication in the activities of man as machinery replaced manual labour.

Besides these struggles for survival, man was also engaged in penchant for exploring and mastering his natural environment. This resulted in some gains albeit with devastating effects on the environment. Mahdi (2004), put it more appropriately, when he said at a lecture delivered on climate and other physical factors, that "the need to conquer man's natural habitat, has resulted in three major events or turning points; the use of fire, the development of Agriculture and the invention of tools and later machines that brought about Industrial revolution." He further says, "each of these advances has brought benefits to mankind but often at the cost of environmental degradation." Man used fire for hunting and agricultural purposes, which although increased food and urban migration but of course had bitter consequences.

The biggest culprit in environment degradation is the Industrial Revolution also referred to as Energy Revolution. The machineries and their various sources of fuels (fossils) ranging from steam, coal and heavy consumption of energy and material resources employed in industries, created a "monster thing" threatening the balance in the ecosystem. While modern life style was made possible through these activities, however, man made a mess of his precious existence through polluting the clean air, required by organisms in the ecosystem required for existence man inclusive,. The water that 75% of the system is made of, the land that provides him with

food and natural habitat for other organisms, are also not spared. Emissions from poisonous gases and toxic wastes from chemicals resulted in large scale environment degradation leading to Ozone layer depletion, which is the major cause of global warming and abnormal climate change. Oceanification, Desertification and all sorts of environmental disasters are due to man's recklessness on the biosphere.

Construction is the second largest industry after agriculture as such the various processes of the industry that take place in the physical and natural environment result in devastating effects on the biotic and a-biotic components of the ecosystem. Architectural activities require various components of the natural environment; such features used as materials include soils, vegetation, hydrology, climate, topography, subsurface matter, aesthetics and host of others. Enormous energy and exhaustible natural resources are consumed through construction processes; it is therefore pertinent to look at these features with a view to understanding their relevance to the construction industry.

1. Soil

This forms the upper layer of the earth surface where plants, trees and floral matter grow and is made of different structural formations and texture ranging from lateritic, clayey, loose or sandy. They also have different bearing capacities, which have a direct relation to structural stability of buildings. The layers are of complex collection of a mixture of weathered rocks, fragments, mineral particles, organic matter and living organisms. Soils are important sources of building materials as well as determining factors in the stability of structures as far as their bearing capacities can withstand.

2. Vegetation

This refers to a complex distribution of the entire plants of a given environment making up the flora. It includes trees, shrubs, timbers, grass etc. Forming various patterns and occurring in different shapes, sizes and distribution. Timber, thatch, and bamboo used for construction purposes are found here.

3. Hydrology

Water with all its characteristics such as type, size and quality found in an environment is referred here. Water is extensively employed in the construction industry ranging from construction and visual or recreational purposes. Water bodies are important allies of the construction industry.

4. Climate

This refers to the general weather patterns on a given area, which manifests as a result of seasonal changes experienced. Changes in temperature, rainfall, humidity, wind direction, sun and cloud cover come because of such seasonal changes. Issues like openings, siting and materials to suit weather conditions are important to the construction industry.

5. Topography

This constitutes the basic landforms of a given environments describing the highs and the lows. It also includes gradients, drainage patterns, and locations of physical features like mountains.

6. Sub- surface matter

This refers to features below the earth surface, which include geology of rocks, underground water and valuable materials like sand, gravel. They are sources of materials in the industry.

7. Aesthetics

This refers to the beauty of natural formations such as landform diversity, vegetation patterns, surface water, views and vistas of the environment. They constitute the visual perception or appreciation of the physical environment.

8. Historical significance

The interpretation and external use of an environment is greatly aided by basic knowledge of the historical landmarks of that area. It is very important to the industry.

3.2.2 Ecological Effects of Architectural Processes.

Man's incursion into the natural environment because of his quest for more comfort has led to unquantifiable environmental degradation. It is believed that man's activities through bulldozing wetlands and clear cutting of forests in an attempt to make more room for new buildings, agricultural land, damming of rivers for energy and irrigation and mining has led to the depletion of the ecosystem tremendously.

In the same vein, architecture is equally guilty of the same crime as building industry being large, consumes enormous and exhaustible (natural) resources but often processes them to the ninth degree with devastating environmental consequences. These resources, some being in fixed

supply (metal ores) others that can be replenished too slowly and yet others renewable but fragile, need to be persevered and protected at all cost.

As mentioned earlier, architectural processes have contributed in no small measure in causing ecological damage. The processes include:-

a. Procurement of raw materials for building products.

b. Manufacturing processes.

c. Construction activities.

All the above processes have the most potential of causing ecological damage, which could be severe especially where architectural activities are carried out with impunity.

Below are some of the ecological damages that may emanate from such reckless architectural processes:-

1. Loss of habitat

The natural abode of plant and animal species is the natural environment, and in a given ecosystem, which could be wild undeveloped environment, these species are in harmony and in constant interaction. Felling of trees therefore, in search of timber for construction or removal of vegetation for agricultural or mining purposes, results in the destruction of such habitats. Also depending on the severity of alteration, removal of just one tree might lead to a microclimate as

the shade for plants below is depleted. Adverse decrease in wilderness often results in increase in competition for food, water and breeding territory among organisms in the ecosystem.

As the ecosystem is threatened through severe reduction in diversity, long term adaptability and survival of plants and animals is also threatened. This might result in decrease in the amount of atmospheric water since there will be decrease in water returned to the atmosphere through respiratory oles of the depleted flora and fauna. This might lead to draught and famine. Carbon (IV) oxide, which is linked to depletion of ozone layer leading to global warning, is a direct consequence of mass destruction of rainforests due to tree cutting, excavations and other construction activities.

2. Erosion

Vegetation cover provides the earth surface with protection against erosion, however, when this cover is removed through felling of trees and cutting of other vegetation, the topsoil is exposed to run offs and other weathering elements, fertile soil is removed which provides medium for growth of plants and other organisms. This makes it vulnerable, as particulate matter is washed into streams and rivers thus reducing sunlight penetration into the rivers. Plants below eventually die triggering of chain reaction that moves up the food chain. Amount of oxygen released by such plants is also reduced affecting other forms of life in the ecosystem. Furthermore, the dead and decaying plant clog the water making it unfit for human consumption and domestic uses as well as for wildlife.

3. Water pollution

Water pollution is another consequence of man's activities in the ecosystem. Through manufacturing of building materials, toxic waste and acidic by- products are released into the environment. They are washed away into water bodies thus increasing turbidity and opacity, blocking sunlight. In addition, ground water is polluted, as the waste from manufacturing is generally acidic in nature. This affects ground water resulting in contamination, endangering plants and human life.

4. Air pollution

Fossil fuels used by machineries for construction and manufacturing of building materials are sources of air pollution as these gases are emitted into the atmosphere. Toxic gases emitted as a result of combustion engines especially carbon (IV) oxide, and nitrous oxide are poisonous to life, as they destroy red blood cells. Also known as "Green house gas", carbon (IV) oxide is linked to global warming. Sulphur oxide and nitrous oxide react with rainwater resulting in acid rain, which damages buildings, kills plants and wildlife.

3.3 THE NEED FOR ECOLOGICAL ARCHITECTURE

The building industry is the second largest industry after agriculture and the biggest culprit in environmental degradation. Architectural processes such as procurement of building materials, manufacturing processes and construction activities are believed to be in the fore front of environment degradation. All the three stages of buildings life consume a lot of energy. First stage involves excavations and processing of minerals for building materials which require the use of heavy machineries and plants in which enormous energy is expended through the burning

of fossil fuels resulting in environmental pollutions. The second stage, which is the construction stage, also requires a lot of expenditure of energy during the construction processes. The final stage when the building is occupied, also expends a lot of energy through cooking, air conditioning and other household activities which impact heavily on the environment. An article from Inertia building system (1995-2005), stated that, "buildings, not cars are the major damagers of the earth". It further says that, "pollution from the heating and cooling of buildings exceeds that from cars, even in America." It is therefore, paramount that those in the building industry worldwide when embarking on building projects consider the use of eco-friendly approach seriously.

The benefits derivable from ecological design are numerous but can be broadly categorized into three and they include; economic, health and comfort. In their quest for the most cost and labour efficient options, eco-designers came about ecological design by accident. Though economic benefits realized at the onset are marginal due to high costs of start ups associated with energy efficient elements such as high performance glass or solar technology with long pay back periods, however, many eco products or technologies may cost less in the future due to high demand as already is happening in the case of photovoltaic.

Many modern materials and finishes commonly used in construction contain a huge number of chemicals and additives with a proven track record of causing illness. Chief among the culprits are volatile organic compounds (VOC'S), a large class of formaldehyde, organo-chlorines and phenols which readily release vapours at room temperatures or below. VOC'S are present in carpets, under lays, paints, varnishes, vinyl flooring, insulating materials, seals and adhesives, household cleaners and air fresheners, among other products. Health problems associated with

VOC'S range from skin rashes, nausea, asthma and other breezing problems to chronic fatigue and dizziness; many VOC'S are also suspected of being carcinogens. Designing and decorating with natural, untreated materials will help remove the threat caused by such toxins from the homes.

Eco-design encourages an innate feeling of well being and comfort. Natural light, fresh air and greater reliance on passive heating and cooling create environment in tune with biological rhythms - houses that feel like a third skin. Materials that connect with the land offer a quality of rootedness that gives a house a true sense of place as well as providing unforeseen sensual delights, such as the velvety sound quality of a straw bale house, for example.

Finally and perhaps most importantly, eco-design encourages an innate as it is empowering. It often involves going against the grain of accepted practice, taking risks and assuming greater responsibility. When we are consumers at the end of a long and complex production chain, we are neither in charge of our future nor of our present. Eco design promotes a better style of life in the fullest sense of the term.

3.4 CONCEPTS IN ECOLOGICAL ARCHITECTURE

Ecological Design is interpreted as the creation of maximum richness in diversity using minimum resources, with the waste being perpetually recycled (Edwards, 1999).

Biotecture is a combination of biology and architecture, and was coined by Rudolf Doernach in the 60s. An Italin Carlo Aamerico Lenzi in 1972 employing the terms bio-architecture' or "biological architecture" defined it as "a system of town planning and of architecture exclusively programmed on a biological base, adapted to the ecological characteristic of every environment so as to alter the free progression of micro and macro evolution". Arcology (Walker, 1992) is a

conception of architecture involving a fusion of architecture and ecology proposed by Paolo Soler, an Italian Architect resident in the United States of America.

3.4.1 Camps in Ecological Design

On the basis of building materials, three camps have been identified in ecological design. These are:-

- Those that use earth or organic form (degradable).
- Those that use hi-tech and recyclable materials where feasible.
- Those that straddle both camps.

a. The Earth/Organic Camp

This camp advocates the use of earth and organic forms. Christopher Day and Imre Makovecz are some of the proponents of this philosophy. Adherents to this notion of eco-design must have found inspiration from organic master pieces like Wright's Falling Waters. They tend towards a spiritual focus, construct buildings portraying an organic appearance, and employ the use of natural and local materials that blend the buildings with the site. In Day's case, the building seems almost camouflaged such that a lay viewer would be at a quandary as to which proceeded the other, so to speak, the building or the environment.

Traditional methods are sometimes used in design and construction so as to achieve a natural appearance. Building materials and low embodied energy such as soil bricks and timber are used while those with high energy content like plastic and steel are often avoided.

The use of adobe and other forms of earth materials are encourage by this camp. Unburnt earth is ecological, generates no pollution, requires little extensive maintenance after construction and is non toxic.

After the useful life of an earth building, it can be demolished and the earth will disintegrate back into the landscape without creating any environmental problem.

Earth construction is also known to consume very little or non-renewable resources. It consumes a negligible 4-8percent of cement for stabilization and for some construction methods like rammed earth, cement stabilization is unnecessary. These attributes make earth construction highly favoured among the organic camp. Furthermore, earth excavation does not damage the ecology as does the extraction of minerals and ores. Large volumes of earth excavated during huge constructions like roads highway can be recycled and used in building. It uses very little water, produces no industrial or chemical waste and is almost totally recycled (CEC Tech, 1995).

Timber is another building material largely approved by the Earth/Organic camp as it is yet to receive the scientific research for it to complete with new materials gotten from finite resources. Timber also fairs better than one is made to believe in terms of fire resistance even though this is hinged on its strength to thickness ratio.

Both earth and timber are known to be recyclable, bio-degradable, low energy consuming, non-pollutant and environmentally friendly. The earth/organic camp is on a mission to dispel misconceived notions about these materials and their "ruralness". However, the use of earth and timber in building does not constitute eco-design rather ample attention is also accorded the

environment upon which the building is to be sited to adhere to the organic principles of the camp. A five-storey earthen tower at isle d'Abeau is a successful example of the earth/organic ecological design.

The return to adobe materials and other forms of earth materials currently being advocated by Linda Watson, Sumita Sinha and others hold a persuasive argument. What with earth being one of the most cost- effective building materials available. Almost 33percent of the world's populations, mostly in developing countries, live in earth homes.

b. The Hi-Tech Camp

This camp uses modern technology and material available to them in addition to recycling where feasible in such a way to minimize the stain on the environment. They employ so called "intelligent building systems" which incorporate and facilitate the advanced protection of the world's energy. For example, glass that respond to heat and high temperature.

Proponents of this camp include Michael Hipkins, Future systems and Nicholas Grimshaw, who were probably inspired by Buckminister Fuller who examined the most efficient ways of enclosing space especially with his famous geodesic dome, which would be constructed from recycled parts. His "Klenex" hoses, which were of heap, recyclable materials, was for outdoor living and suggested sustainability (Opara, 200).

This recyclable feature is branded the 'Hi-tech' within the sustainable tradition of ecological deign. An example of Hi-tech ecological design is the Wetlands and Wildfowl Centre at Slimbridge, England. Hi-tech research is mostly in the area of energy economy, which is,

improving energy efficiency yet reducing energy demand and using renewable energy resources where applicable. This is in consonance with the Earth Camp, both groups consolidate Crane's sustainability creed of 'reduce, reuse and recycle."

c. The Eclectic Camp

Adherents to this camp straddle both Earth and Hi tech philosophies believing that these previous camps are "too self conscious and un-compromising" reflecting the environmental activism of the imagery of the earth camp while using the works of Brend and Robert Vale.

This camp is of a neutral character which permits more objective criticism, whether a design has achieved sustainability or ecological satisfaction rather than its outlined philosophy. Meaning this camp adheres the second (of four choices) of sustainable design, which encourages the use of locally sourced heavy weight materials and light weight materials of international standard and availability.

Both earth and hi-tech camps are not mutually exclusive in nature and there exists no clear-cut distinction between them. The classification of a design into either of these camps is hinged on its underlying philosophy, while the eclectic camp is not easily tagged.

It is worthy of note that the Nigeria's situation permits the exploration of any of these philosophies subject to the financial capabilities and interest of the client in view. All ecological designs embrace sustainable development i.e. development, which 'meets the needs of the present without compromising the ability of the future generation to meet their own needs'.

To achieve sustainability in design four choices were advocated from much debate.

a. Place must inform design (i.e climate, culture, local materials).

b. Heavy weight materials (stone, brick) should be locally sourced but light weight, more highly technological materials can be obtained globally.

c. Recycling is a choice to be made during and not after a design

d. Water matters as much as energy, and arguably more so globally.

The credo 're-use, reduce and recycle' are the three tenets of sustainable design according to John Crene. This implies reducing energy consumption, reusing existing building and recycling building materials (Brennan, 1997).

3.4.2 Ecological Symbolism

Eco-designs are flowering expressive structures, modeled on the laws of nature. Ecological design is known for its green symbolism. The pioneers of this philosophy include Aslop and Stomer, UK and Frank Gehry in U.S.A., who exploited the aesthetic potentials of ecology. Fragmentation based on nature's complexity as well as formal possibilities of the laws of biology is creeping into the mainstream of practice.

Gery's, proposed Disney music hall symbolizes a blossoming flower, his Guggenheim Museum at Bilbao, Spain, epitomizes the organic and amoebic forms of nature. The earth center in Dorchester and the Eden Project in Cornwall, U.K highlights water as much as energy in the configuration of the master plan or detailed design of buildings.

The typology of green buildings has been altered by eco symbolism; it can now have even a spiritual or sacred atmosphere. In Britain, a lot of new projects have 'symbolism dominating function' with such buildings 'educating the public in the difficult interaction between man and nature', thereby transcending the core principle of modernism, reconnecting man with nature and ultimately with God.

3.4.3 Passages

The concept of passages is that which connects buildings, landscapes and elements of social contextual and environmental communication. It alters the conventional relationships between the interior and exterior. It advocates that plant life and earth elements be as much a part of the physical substance of shelter as conventional building materials. Buildings are viewed as an integration of structures and landscapes in a mutable, metamorphic and evolutionary fashion constantly levels of information.

The 'Passages' concept proposes that walls are not to be seen merely as barriers, enclosures or compositional elements but can equally be information-filtering partitions, or points of passage that fuse and melt conventional inside/outside relationships and include narrative commentaries. The walls and floors components in a building should be pliant and fluid members and the walls serving as indeterminate ribbons of transition in space and as monitors of social and environmental change.

The strength of this symbolic concept of ecological design is seen in its great flexibility in the orientation of sheltered services, as the covered areas can be distributed arbitrarily. At its

potential creative height, "passages" can totally demolish the clear boundary between the end of architecture and beginning of landscape, the two being practically entwined.

However, the drawback of this concept lies in its application to high rise building. Features like mutation, fluidity, indeterminacy and chance are not as easily achievable in vertical structures, especially office towers where functionality and economy are key issues in design. This concept reveals that the interactive dialogue between buildings and landscape is an art and an ecological necessity.

3.5 RENEWABLE OR ECO - FRIENDLY BUILDING MATERIALS

A very crucial aspect of Eco Architecture is in the conscious selection of environmentally friendly building materials. Traditionally, the first consideration in selecting building materials is price but this is limited to the manufacturing and transportation cost. In choosing materials for environmental preservation the environmental and a times social costs of materials are of utmost importance. This is because the long-term costs of materials are paid not only by the client or owner but also by the occupants and of course, the environment.

Environmentally friendly building materials are those that are renewable. In theory renewable materials are harvestable or can be sourced with minimal devastation to their ecosystems, like wood. However, in reality, a material is considered to have a renewable source only if it can be grown at a rate that meets or exceeds the rate of human consumption. Laconically, eco-friendly materials generate minimal environmental consequences throughout the life cycle of the building they are built into.

3.5.1 Features of Eco-Friendly Building Materials.

The incidence of some of these features in a building qualifies it as environmentally responsible or eco-friendly.

a. *Recycled Content*

Products made partially or entirely from post industrial or post-consumer waste reduce the demand on natural resources. By recycling materials, the embodied energy contained in them is retained and the energy consumed in the recycling process for most materials is lesser than the energy used in the initial manufacturing. Aluminum, for instance is recyclable using 10-20% of the energy needed to transform raw one into finished products.

Some building materials with potentials for recyclable include glass, metals, plastics, concrete, bricks and wood. These materials often constitute the bulk of a building fabric. Waste products can easily be incorporated into their manufacturing processes. Plastics, glass and metals can be reformed by heating, concrete and bricks can be crushed into aggregates for new masonry, while timber can be re-sawn into smaller dimensions for refuse or chipped for use in composite materials as strand board.

The table below shows the energy content and rating of general building materials (Sinha, 1997).

Materials	Energy content (kwh/kg)	Rating
Soil/earth	0.01	Very low
Bricks	0.86	Medium
Concrete/sand Crete (1:3:6)	0.28	Low
Aluminum	27	Very high
Timber (local in the U.K)	0.2	low
Timber (imported)	1.1	low
Glass	9.2	medium
Plastics	45	Very high

Table 3.0 Energy Content and rating of Building Materials (Source; Sinha, 1997)

b. Embodied Energy Reduction

The embodied energy of a material is the sum of energy consumed to produce that material, from the collection of raw materials to processing up to delivery. This energy comes from the burning of fossil fuels, which are limited, non renewable resources with severe environmental consequences from localized smog to acid rain.

Material with high embodied energy inflicts severe damage to the ecology. For instance wood harvesting and processing require far less energy and cause less pollution than the mining and processing of ores.

c. Natural Materials

These require less processing and are least damaging to the environment. They also contain less embodied energy and toxicity in comparison to man-made materials. Natural materials have renewable sources and require eco-friendly when incorporated into building fabrics.

d. Local materials are often better suited to prevailing climate conditions. The use of locally produced materials shortens transport distance thus, saves energy and enhances local economies. Where materials like steel for structural strength, have to be imported, they should be used selectively and in as small a volume as possible.

e. Energy Efficiency

Energy efficient materials reduce or regulate the amount of generated energy that need to be brought into a building site. The long term energy costs of operating a building are heavily dependent on these materials. Materials that slow the rate of heat transfer through a buildings skin are preferred as this minimizes the need for mechanical cooling or heating. Depending on type, materials energy efficiencies are measurable using factors like R-value, shading co-efficient, luminous efficiency or fuel efficiency.

f. Durability and Low Maintenance

Materials that have longer life need to be replaced less often, and are more cost effective and eco-friendly than those that need to be replaced more often. This conserved the natural resources needed to manufacture the replacements.

g. Renewable Energy

Natural energies in the form of wind, solar radiation and geothermal heat surround building sites, and can be used to supplement or eliminate artificial energy systems. Building components that enhance day lighting, passive and active solar heating and on –site power generation are instrumental in conserving the natural environment.

h. Re-usability

This is a function of the age and durability of a material. Such materials can have useful years left when the building they are installed to have been decommissioned and can be extracted for re-use-in new structures. Some of these materials may possess such qualities that are not easily reproduced in modern times.

i. Water Conservation

The building products that have the ability to address the efficient use of water as well as reduce the volume of water to be treated by municipal septic systems; all these, result in chemical or energy costs. Water-saving showerheads and vacuum assisted or composting toilets are gaining grounds in the developed world.

j. Bio-degradability

This is the potential of a building material to naturally decompose when discarded. Organic materials (earth) return rapidly while inorganic ones do so slowly. Some materials are capable of generating hazardous materials while decomposing either alone or in combination with other substances.

3.5.2 Selected Eco-Friendly Materials and their Sources

1. Wood

Wood is commonly used in buildings and building products. Wood products such as plywood, particle board and others are extensively used throughout the construction industry. Wood is sourced by harvesting using the clear-cutting, process or selective cutting. The former is a fast methods process in which all vegetation within an area is harvested for processing; while the latter method chooses only those trees large and valuable enough for removal but preserves the surrounding vegetations.

2. Bricks and Tile

These are sourced from mining clay and adobe soil usually occurring in shallow surface deposited obtained locally even on a building site itself. Except adobe, bricks and tiles need to be fired into durable building materials. The process exposes the formed clay to high, prolong heat resulting in water resistant, permanent bricks or tiles. Glazed bricks and tiles are fired twice, the second firing which is done to melt and adhere the glazed finish which contain glass. Organic pigments can be used in colouring bricks.

The end product contains much embodied energy but is very durable, properly maintained adobe bricks are known to last up 350 years even without firing. Adobe and rammed earth construction is undergoing a renaissance. Globally, 40 percent of the world's population is molasses in earthen shelters; which are non-polluting, with high energy-efficiency, non-toxic biodegradable, and can incorporate waste from manufacturing or installation plastic binders in the earth mix and improved stucco systems are used to improve the water resistance of these structures.

3. Stone

Stone is naturally occurring structural materials gotten from hard solid mineral matter formed by the action of heat or water and occurring in fragment or large masses known as rocks. It may be quarried and worked into specific sizes and shapes for building purposes, such as ashlars, rubble or cyclopean.

Various building stones are obtainable from each of the rock types, sedimentary rocks are a source of limestone, travertine, dolomite, oolite, sandstone, bluestone, brownstone soapstone; metamorphic rocks give marble, verd antique slate, quartzite, gneiss, while igneous rocks are sources of granite, obsidian, malachite and serpentine. However, quarrying stone can be expensive and transportation difficult depending on the size and type.

3.6 ECOLOGICAL PRESERVATION

Smooth functioning ecosystems are of immerse benefit to humans. Healthy forests, streams and wetlands contribute to clean air and clean water by trapping fast-moving air and water, thus impurities that settled out of it are converted to harmless compounds by plants or soils. Foods, medicines and other essential products are obtained from the diversity or biodiversity in the ecosystem.

Human activities have encroached greatly on natural habitats, generating detrimental effects on the very ecosystem on which humans depend. This constitutes a fundamental problem. We must therefore preserve for ourselves the adequate materials basis without which man cannot survive.

The conservation of natural resources and their proper and innovative use to increase the usefulness of these resources rather than to waste the ecosystem is the crux of ecological preservation.

Many organizations and government agencies have adopted various approaches to preserving natural resources. A new approach is the ecological management, which treats resources as interdependent ecosystems rather than mere commodities to be extracted. Using advances in the study of ecology to protect the biodiversity of an ecosystem, ecosystem management encourages practices that enable humans to obtain necessary resources using methods that be linked to the ecology. Health, the needs of the human community are equally considered.

3.7 PRINCIPLES OF ECO-DESIGN IN TOURIST CAMPS

Tourist destinations in the form of resort developments provide as avenue for life enriching experienced of people. Therefore, it is important to preserve the attraction(s) to the place as well as the entire natural environment of destination. This enables a resort to have a longer, successful and environmentally responsible life and even improved patronages.

These objectives can be achieved by applying some guidelines put forward by Plog (1990) to suit the peculiarities of a given destination. The guidelines are as follows:-

a. Protect the Natural and Beautiful

The natural environment and attraction in a resort is susceptible to abuse and loss in the face of development and operation when a site is identified as an interesting palace to explore. The

important features, natural beauty and quality of the environment that existed before the development of such a place needs to be protected as it rarely can be restores if lost.

b. Reduce Density

Resort develops are often pressured to increase its capacity and ability to cater for large numbers of people. The defiles the major purpose of resorts to provide guests with an escape, a haven away from everyday hustle and bustle of their normal life.

c. Enhance Privacy and Camouflage

For many motorist and visitors to a resort, the underlying motivation is the need to get away, retreat and escape the daily pressures of normal activities thus, privacy should be provided. Buildings faced in opposite directions, footpaths wandering into hidden and interesting areas as well as colour schemes of building exteriors merging into nature are issues to be consideration in design.

d. Seek Quality

Quality creates an impression on visitors encouraging a longer stay and possible re-visit. Both in major and minor ways, quality should be sought by paying attention to small details in construction and maintenance. Neither the environmental nor architectural quality should be compromised; rather user comfort and environmental quality should be sought.

e. Emphasize Diversity

A wide range of activities are more like to satisfy the various kinds and needs of guest from day to day. The provision of different but standard facilities especially in terms of accommodation and recreation is instrumental in generating proper behavioral patterns from the guests, such behaviours that will inflict no damages on the environment.

f. Restore the Natural and Historical Values

Where the natural beauty and historical values and representation (of an old era) of an environment or attraction have diminished as a result of environmental maltreatment or negligence, a restorative work is needful. The original pristine features of the place may be restored by making efforts (like cultural treatments, natural recovery) to recover at least a vestige of its former glory. Cultural treatments involves practices like irrigation, fertilization and soil mixing while natural recovery is the slow process of allowing an area (the ground vegetation) rejuvenate itself.

g. Value Local Culture and Traditions

The developments of resorts are consequential on the local populace of the host or nearby community. Indifference to the values of this populace can deteriorate into the disintegration of once cohesive local cultures and the breakdown of established social moves. Also the presentation made to tourists as reflections of native tradition of the area may be but a mockery of the cultural heritage of the people, thus denying the tourists rich experiences.

h. Institute Height Limits

Resort developments with impressive tall building may offer maximum accommodation capacity with views and are landmark properties but they desecrate the landscape and defy the need to allow all buildings and man-made objects recede into the background so that the environment is given prominence.

History shows that most native cultures have adapted well to nature and withstand the test of time than most contemporary efforts by ensuring buildings do not block views of nearby residents and are lower in height than local trees.

i. Negotiate Open Areas

To preserve the environment and unique natural characters of resort destinations, open areas should be set aside. This extra breathing room enhances interaction with nature, ventilation and the long-term potentials of the area.

k. Gain Community Acceptance

The cooperation of nearby or host community should be sought. Their needs and lifestyle should be considered as well as their reaction to the intended development. Likely opposites or problems should be addressed tactfully and surely to prevent socio-cultural or social-political problems in future.

The preceding guidelines are all geared towards the preservation aspect of eco-design, which goes beyond preservation alone. It is a complex and far reaching approach which calls to play other professional aspects such as planning, engineering, environmentalists, and ecologists

among others. As part of coherent and intelligent approach to ecological development, it is necessary to incorporate appropriate aesthetics and design guidelines to ensure that the result is an ecological design, regardless of the development process. Environmentalists led by the prince of Wales, Charles, came up with certain principles termed "the ten commandments of ecological design" when embarking on the design of buildings. The principles serve as a guide towards achieving a responsible building that poses little environmental degradation, since it is not possible to achieve total eradication of environmental impact. They include the following:-

1. The place

"Respect the land".

The buildings should respect the land on which they are built. Rather than be super-imposed on the land, the building should blend with the land and pay homage to its surroundings.

2. Hierarchy

"Architecture is a language".

If a building cannot express itself, how can we hope to understand it? (Ecopolis Architect, 1997). Ecological Architecture should honestly reflect its antecedents.

3. Scale

"Buildings must relate first of all to human proportions".

The buildings should not be dehumanizing or intimidating but should be accommodation for the users.

4. Harmony

"The playing together of the parts".

Uniformity does not ensure harmony. Harmony can include counterpoints and is usually the better for it. (Ecopolis Architects, 1997).

5. **Enclosure**

"An elementary idea with a thousand variants".

This connects closely to the idea of place and location. Architecture and planning can either reinforce or undermine any effect of place by the way it responds to climate.

6. **Materials**

"Let where it is be what it is made of".

Put simply, in timber countries, timber buildings should be the dominant form of construction, in clay countries clay or adobe construction and in stony sandstone. This was the norm when importation of non-indigenous materials was too difficult or expensive. It gave unconsciously, an integrated character to buildings of a region, which we now need to regain by design and by insisting on local content in construction. This will strengthen the construction sector of the local economy.

7. **Decoration**

"A bare outline won't do; give us the details".

Decoration should be something of and about the thing it decorates, not a mask over the reality but make-up highlighting its intrinsic features.

8. **Art**

" Art should always be an organic and integral part of all great new buildings and most humble" (Ecopolis, 1997).

9. **Signs and Light**

"Don't make rude signs in public places".

Circulation pattern should be resolved in such a way to avoid the use of signposts.

Articulation of circulation is necessary so that people can naturally flow into spaces both exterior and interior.

10. **Community**

"Let the people who will have to live with what you build help guide your hand"

This is very important public input to ecological development should be involved.

Enabling a free flow of information about ecological development ideas and programs will ensure that people are taken into confidence, feel confident and are able to assimilate new or unexpected ideas.

3.8 ECOLOGICAL APPROACH IN CAMP DESIGN.

One of the problems the research sets out to solve is the provision of a destination with a difference. As mentioned previously, most resorts wear the same monotonous outlook a visitor is trying to escape from. In an attempt to provide a befitting destination in which man is returned to nature where he can participate as part of the natural environment, eco-design which lay emphasis on the preservation of existing natural element through emphasis on low energy consumption, use of eco-friendly materials, low pollution and therefore less environmental degradation, became the obvious choice. This environmental preservation will no doubt steer in the minds of users and therefore continue to attract more potential visitors.

Eco-design approach to the design of a holiday camp is the architects' social responsibility towards saving humanity from the irresponsible human activities on the biosphere. The ecological design approach to holiday camps and resorts is a response to the increased awareness of the need to preserve the environment. The principles of ecological architecture employed in

the design of resorts and holiday camps is a necessary ingredient for a functional solution to environmental degradation and respect for the environment

3.9 ECO-APPROACH IN THE DESIGN OF DADIN KOWA HOLIDAY CAMP

Having exhaustively discussed the principles governing ecological design, it is logical to attempt to practically employ them in the design of Dadin kowa holiday camp which is the theme of this thesis. However, to use all the principles in a given design is to aim at a perfect design which boarders on utopian. This approach therefore, will be restricted to some of the commandments in an attempt to achieve a manageable eco-friendly environment expected to attract tourist due to its uniqueness.

The following derivatives from the foregoing text on ecological architectural principles are considered:-

1. **Respect for the Land/Genius Loci and Regionalism.**

The land on which the building is to be constructed should be given high regard. The uniqueness of the area and the values of the people should be given utmost consideration in order to give the buildings identity. In this regard great environmental impact as in cut and fill should be avoided as the dynamics of the site can influence and enhance creativity in terms of design. In addition, the genius loci (the spirit of the place) are important to take note of in order to integrate it into the scheme of design. For this thesis therefore, concept of site planning, form and design will be derived from this existing site situation as regards to features so as to achieve proper integration.

2. Use of local and Natural/Biodegradable Building Materials.

Local materials sourced from the site allow for building with the natural setting thereby creating an aesthetically harmonious environment. Natural materials are biodegradable with the ability to breakdown safely and relatively quickly by biological means into raw materials and disappear into environment. These possess little or no environmental impact. Incorporating reusable and recyclable/biodegradable building materials in a project reduces waste, pollution and less energy use. Below are some of them;

- **a.** Earthen materials (reusable/biodegradable)
- **b.** *Bricks (reusable, recyclable)*
- **c.** Wood (reusable, recyclable/biodegradable)
- **d.** Straw bale insulation (biodegradable)
- **e.** Steel, Aluminum, Iron, copper (reusable/recyclable)
- **f.** Concrete (may be crushed and recycled)
- **g.** Wool carpet (biodegradable)
- **h.** Gypsum/drywall (recyclable, sometimes biodegradable)
- **i.** Linoleum flooring (biodegradable)

The use of renewable building materials has been suggested by Enertia building system, Inc. Wood for instance, should be used as close as possible (for its beauty, workability, energy efficiency and now renewable) to its natural state, but untouched as modern science can alter wood so it can not rot or burn or become food for insects. The use of other non renewable, energy intensive building materials such as steel, brick, vinyl, aluminum and insulation has also been recommended by the organization.

4. Cohesive integration of landscaping and structures.

The integration of the interior and exterior and the transfer of information between the structures are made possible using intensive landscaping. Landscape is defined as an art that combines the beauty, balance and form of plants with the look and feel of permanent structures to create attraction and pleasant surroundings. Landscaping are grouped into soft and hard landscape elements.

Soft landscape elements include trees, ground cover, flowers and water bodies and these all play specific roles on site. Trees relate buildings to site, give privacy, act as buffer, demarcate boundaries and provide shelter from wind, dust, sun and noise. Ground cover like carpet grass is necessary to suppress needs, provide pleasing effect and control erosion on steep slopes. Flowers control/direct circulation demarcate boundaries and spaces and provide pleasing effects.

Water bodies provide a feeling of coolness, calmness and tranquility. Some times used to divert the attention of viewers and they enhance social interaction. Hard landscape elements include road and pathway, parking, sculptures and furniture and they too, play very important aesthetic roles.

One ecological philosophy that incorporates the integration of landscape in its principle is "Ecologi cal Symbolism" as displayed by site in "passages" where buildings are conceived as an integration of structures and landscapes in a mutable metamorphic and evolutionary fashion constantly conveying levels of information.

The "passages" concept solicits that walls instead of being seen mainly as barriers, enclosures or compositional elements, can also serve as information-filtering partitions, or points of passage, that fuse and dissolve traditional inside/outside relationships and incorporate narrative commentaries (Wines, 1997).

This symbolic concept has great merit in its flexibility in the orientation of sheltered services, as the covered areas can be distributed arbitrarily. It allows for the line between the buildings and landscape to fade away as the two are literally entwined (Claude T, 2000). In applying it to this thesis, it is imperative to create an interactive dialogue between the buildings and the landscape in order to achieve wholeness.

CONCLUSION

This chapter has briefly analyzed the ecological approach to architecture and the various principles and elements that make achieving it possible. This analysis is necessary in the process, which is to terminate in the process of an eco-resort-A place where people and nature can interact while the faction of the basic need for which they have come is not compromised. In this way, the general environment and its ecological balance can be enhanced and preserved rather than be destroyed. Developing ecologically keeps the ecosystem in balance and in the end: man is a great (probably the greatest) benefactor.

"The ecological building weaves sun, air, water and earth into a complex interactive whole that support both your health and the world's vitality"

- One world design

CHAPTER FOUR

CASE STUDIES

4.0 PREAMBLE

The need for appraisal of already existing facilities elsewhere becomes necessary in view of the fact that these facilities have been put to use and therefore tested. For a sound design therefore, the successes and failures of such existing facilities will serve as a good guide or pattern in which the design, architecture and rudiments of holiday camp development can be based. Where possible, successes will be adopted while pitfalls will have their causes avoided or avoided completely.

The criteria adopted are based on the similarity they all have with our subject matter. In some cases, like the Yankari games reserve, it is selected as an inspiration towards achieving something similar as the main objective of our study. Others include Trappco Ranch and lake resort, Kaduna, Kaduna state, La Campaigne Tropicana beach resort, Lagos and Kwa Maritane, South Africa.

The study will focus on certain vital issues that are viewed to be possessed by a standard or befitting camp. They include:-

i. Scope of facilities, cultural and physical.

ii. Architectural identity.

iii. Materials and construction methods.

iv. Outdoor and indoor activities.

v. Natural attractions.

vi. Eco-preservation.

Finally, merits and demerits will be drawn to enable this study come up with a proposal devoid of most repelling factors found in such facilities.

4.1 CASE STUDY ONE: TRAPPCO RANCH AND LAKE RESORT, KADUNA, NIGERIA.

Located about three kilometers from Kaduna Airport at Gwayare village, the holiday resort stretches over 100hectres of interesting rolling country side and bush grassland. It is also a complete contrast from the hustle and bustle of Kaduna city due to its natural serene environment.

The site named after the pioneer owner, Mr. Trapp, an Italian, was established way back in October 2001. It is a tourist haven especially for students on holiday retreas and ceremonies. A crowd puller during festivities; it however, was closed down recently due to an accident at the lake in which several school children got drowned due to negligence of the management.



Plate 4.1: Exotic entrance hut to the resort.
(Source Field Work, 2007)

4.1.1 Facilities & Services

This holiday resort boasts of various facilities ranging from accommodation, recreational and educational. The following facilities among others are available, they include:-

a. 35 sleeping rooms of varying categories such as, 8 single chalets, 7 studio chalets, 4 double room chalets, 4 bedroom chalets and 1 manager chalet.

All of these rooms are adequately furnished complete with air conditioners, T.V, satellite receivers and other facilities.



Plate 4.2: Guest House facilities
(Source: Field Work, 2007)

b. 2 Restaurants, one close to the accommodation by the swimming pool known as "colletuquo" while the other is by the lakeside and close to a garden. They are accompanied with befitting bars to complement the services rendered.

c. Theatre style conference room with 150 people capacity.

d. Banquet hall with 80 people capacity.

e. Meeting rooms with 20people capacity.

f. Active and passive recreational facilities such as; volleyball courts, horse riding tracks, swimming pools, basketball courts, jogging paths, polo pitch, quad biking tracks, boating (speed and paddle), snooker, bird watching and Indoor games.

g. Administrative unit.

h. Bookstand.

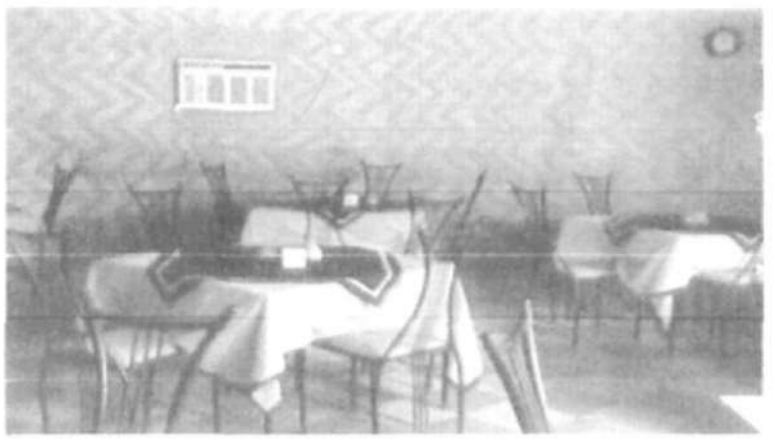


Plate 4.3: Restaurant
(Source: Field Work, 2007)

4.1.2 Architectural Identity

Hausa traditional architecture with rectilinear low rise planning concept was adopted in the scheme. The deliberate scattering of some units and staggering of accommodation ensure good natural ventilation and lighting.

The siting of various elements was based on zoning, as accommodation is located deep into the site while recreational activities are by the entrance. Organized and well-defined circulation complete with sign posts, located strategically completes the picture.

4.1.3 Materials and Construction

A traditional outlook was achieved with substantial traditional materials. This gives a picture of beauty, identity and durability. This concept is ensured even where non-indigenous materials are not used; they are faced with traditional materials.

The materials used include, compressed mud blocks laid with good pointing for walling, marble for flooring, and thatch covered zinc sheets for roofs. Simple patterns of timber strips are used for ceiling in restaurants and bars as well as providing internal sun shading. Stone-work topped with marble is used as bar desk, this was also used creatively to define walkways and kerbs while gravel cover for driveways.



Plate 4.4: The 'Kada' Pond in the Ranch with Stone Work Facing
(Source: Field Work, 2007)

4.1.4 Outdoor Activities

Outdoor recreational facilities meant to encourage interaction with nature to achieve rich experiences outside building confines have been generously provided at this resort. Outdoor recreational facilities found at the site include, love gardens, tracks for horse riding, cycle riding,

volley and basketball courts, jogging paths, children crèche, natural and artificial swimming facilities and a host of others.



Plate 4.5: Swimming Pool with Restaurant and Bar
(Source: Field Work, 2007)

4.1.5 Natural Features

The artificial lake partially bounded by a fascinating rock formation provided beautiful natural outlooks where recreational activities like speed boating and trail climbing are enjoyed. The location of Kaduna in Savanna region also ensures the presence of tall trees with beautiful foliage especially at the love garden, which creates natural habitat for birds, thus encouraging bird watching.



Plate 4.6: Rock formation for mountain trailing
(Source: Field Work, 2007)

4.1.6 Eco Preservation

Attempts have been consciously made to preserve the natural landscape through introducing facilities that compliment the natural outlook. The sitting of the restaurant and bar at the lakeshore thus overlooking the lake and the rock is one of such attempts.



Plate 4.7: Lake with Restaurant and bar
(Source: Field Work, 2007)

Trees are naturally preserved to check erosion and other ecological damages, while planting scheme within a botanical garden to preserve various species of savannah trees is being encouraged.

Most materials removed from the site such as stones and earth during excavations and construction are reused within the site as building materials to maintain ecological balance of the resort.

4.1.7 Merits

a. The Resort has achieved cultural identity through the generous use of traditional building materials which blend harmoniously with the environment.

b. Traditional outlook manifest from the entrance to various facilities depicting character in the use of local materials.

c. Good natural ventilation and lighting due to staggered and horizontal planning concept.

d. Ideal zoning of functions and space.

e. Well defined circulation pattern, giving ample view of resort environment as it meanders through the site

f. Use of local materials ensures cost effectiveness and self sustainability.

4.18 Demerits

The lakeside bar is prone to flooding whenever the volume of the lake increases due to low level nature of the finished floor level of the bar.



Figure 2.0: Trappco Ranch and Resort site plan.
(Source: Field work, 2007)

Fig 2.0: Studio Apartment (Scale 1:100)
(Source: Field work, 2007)

Fig 3.0: Two Bedroom Chalet (Scale 1:100)
(Source: Field work, 2007)

Figure: 4.0: Three Bedroom Chalet (Scale: 1:100)
(Source: Field work, 2007)

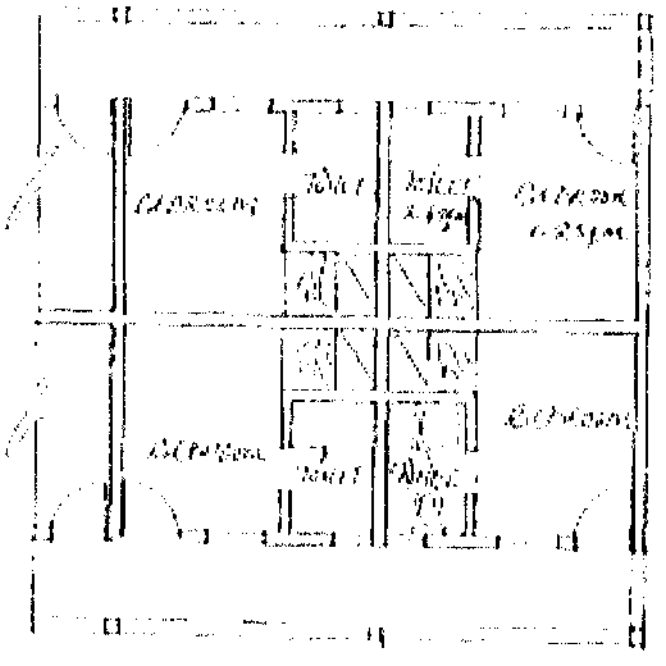


Figure 5.0: Single Rooms (Scale 1:100)
(Source: Field work, 2007)

4.2 CASE STUDY TWO: LA CAMPAIGNE TROPICANA BEACH RESORT, LAGOS.

La campaigne Tropicana beach resort is an enchantingly peaceful and quiet resort. The resort's policy is to showcase the very best in the rich and varied culture and cuisine of Nigeria. The idea of this resort was conceived in 1992 by the owner Mr. Wanle Akinboboye. It was developed as a resort in 1995.

4.2.1 Location

The resort is located on the Lekki Peninsula of Lagos State on the coast of Nigeria, facing the Atlantic Ocean. It can be accessed by road from Lagos on a well- maintained highway in a fifty minute journey from Victoria Island to Ikegun, the site of the resort.



Plate 4.8: Reception and Entrance gate
(Source: Field Work, 2007)

It can also be reached by boat via a thirty minute boat ride from one of the jetties located in Victoria Island. Such boat ride will be made either through the inland waterways that leads to a jetty close to the resort, from which an air conditioned bus will convey visitors to the resort.

4.2.2 The Resort

The resort has presently, ten fully equipped bungalows spread out over 60 acres of virgin green tropical land on the banks of fresh water lagoon and a superb sandy beach stretching along the warm equatorial seas of the Atlantic Ocean, bordered by the multitude of towering coconut trees and the green fields beyond.



Plate 4.9: Children Playground, Gate house and Botanical garden
(Source: Field Work, 2007)

4.2.3. Nature Attractions

The resort grounds are rich in varieties of wildlife and plant-life. Safe and clearly defined pathways have been carefully plotted through the green vegetation and waters of the tropical forest and fresh water lagoon, making it so easy to observe the many different colorful birds, bats, wild monkeys, squirrels, fish and other harmless creatures that thrive in the area.

3.2.4. Accommodation

Accommodation is provided in two villages of five two floor bungalows each. One village "labalaba" – meaning butterfly- is furnished in the Yoruba style, whilst the other, "kodi"- meaning shell- reflects the traditional Hausa décor of the North. Each bungalow is fully equipped with a comfortable sleeping area upstairs, (the Kodi village is better suited for families) a sitting area downstairs, a bathroom with shower, and all other modern conveniences such as air-conditioning or electric fans, color T.V with VCD player and films, CD player with radio, refrigerator and coffee- tea making facilities.



Plate 4.10: Chalets
(Source: Field Work, 2007)

4.2.5. Restaurant and Bar

The restaurant and bars are spread over the resort and consist of the Yoruba restaurant where dishes from the four corners of Nigeria are prepared in front of your table accomplished by the color and sounds of our resident traditional dance troupe, and "**Mama put**" a realistic dinning spot where food is served in the typical style the local area. **Wanle's Bar** where one can enjoy a cocktail over looking both the sea and the lagoon and **Angie's Bar** where drinks can be shared amongst friends in the midst of the forest.

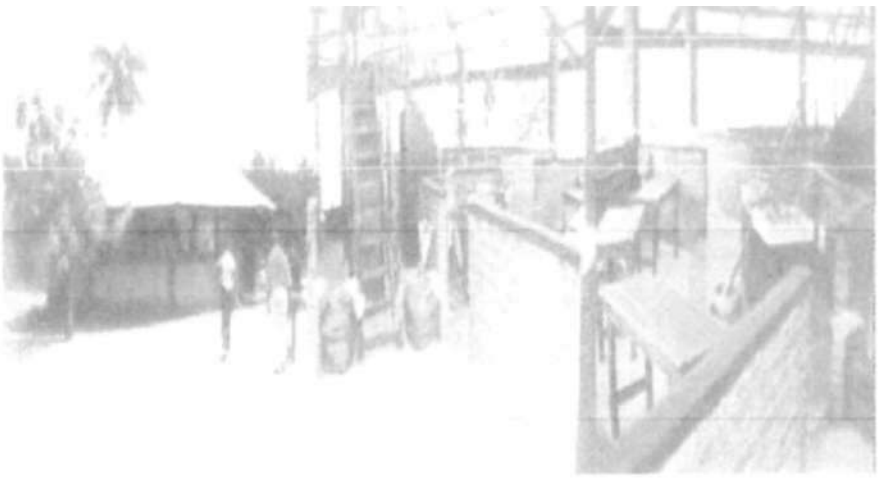


Plate 4.11: Bar, Restaurant, Sit-outs and Community Participation
(Source: Field Work, 2007)

4.2.6. Activities

1. African Aerobics
2. Base ball
3. Beach football/soccer
4. Bird watching
5. Board Games
6. Camping
7. Children's Activity Hut
8. Cultural shows
9. Hydro Biking
10. Jacuzzi
11. Fishing
12. Nature walks an Jogging
13. *Library Facilities*
14. Kayaking and Boating

4.2.7. Merits

1. There is an attempt to protect nature
2. Varied cultures are expressed in the interior materials used
3. The indigenes of Ikegun are brought into the resort
4. The natural environment is protected
5. Vehicular circulation is limited
6. Use of locally sourced material that blend with the environment
7. Provision for staff accommodation

4.3 CASE STUDY THREE: YANKARI NATIONAL PARK BAUCHI –NIGERIA.



Plate 4.13: New Administrative Block and Reception
(Source: Field Work, 2007)

Yankari is one of the eight national parks in the country. It is chosen as a case study because this project sets out to introduce cultural elements into the existing physical features such as body of water, range of mountains, wildlife and a host of others, to create an eco-friendly environment. It

is therefore imperative to look at the set up and see how the cultural and physical features are harmonized in the landscape of this case study.



Plate 4.14: New Activity Center
(Source: Field work 2007)

The park originally started as a game reserve in 1956 and later upgraded to the status of a national park in 1991 through a decree 36 of 1991 now replaced by act 46 of 1999.

4.3.1 Objectives:

The park exists for the purpose of protecting, conserving and managing all the biodiversity, biophysical, historical, cultural and archeological attributes found there for posterity, educational research, recreation and ecotourism.

4.3.2 Location:

It is located at about 110kms from Bauchi and 72km off Gombe Bauchi highway. It covers an area of approximately 224.10sqkm.

4.3.3 Facilities and service

The site is blessed with natural features which include,

a. Flora;

Complex vegetation cover of savannah woodlands, open canopy and continuous layer of annual and perennial grasses are found here. There is also the 100m – 400m wide swampy forest, gallery forest, revering woodland, savannah, swimming and fishing.

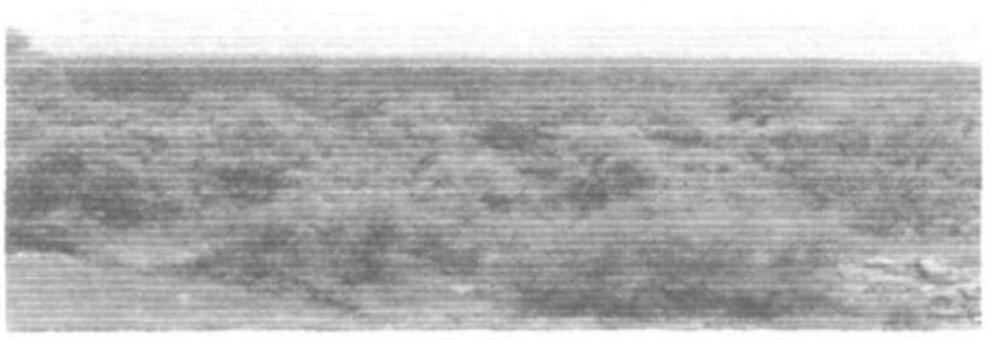


Plate 4.15: Typical Vegetation
(Source: Field work 2007)

b. Fauna:

The park has rich variety of wild animals which include more than 50 species of mammals like anubis, baboons, payas, monkeys, hippos, lions, leopards, hyenas, jackals, elephants, buffalos among others.



Plate 4.16: **Baboons Relaxing**
(Source: Field work 2007)

More than 350 species of birds with 130 residents and 50 pale arctic migrants, the rest being intra- Africa migrants are found in this reserve.

Fish, amphibians, reptiles and insects are also generously available. These include pythons, crocodiles and monitor lizards.



Plate 4.17: the waterbuck
(Source: Field work 2007)

c. *Historical/Cultural Features*

Historical and cultural relics of great significance are also available. Duke wells is a site of 132 shallow wells sunk into a bedrock exposure of red sandstone, 2.5m to 3.5m deep several centuries ago.

d. Warm spring.

Perhaps the most attractive feature is the Wikki warm spring out of the five large springs known as, Dimil, Gwana, Mawulgo, Tungan maliki and Wikki. Wikki is the largest and has been developed for recreation. It is 19m deep and 13m wide with a constant temp of 31°C. It gushes out of a rock formation.

e. Tourist Facilities

Guided park tours to view wildlife and other interesting features, either through the parks' open trucks or in visitors' private vehicle are available.

There is the camping ground at Wikki camp, a wild life trophy museum and an organized free lecture on conservation education to students.



Plate 4.18: typical single chalet with stone facing and thatch roof
(Source: Field work 2007)

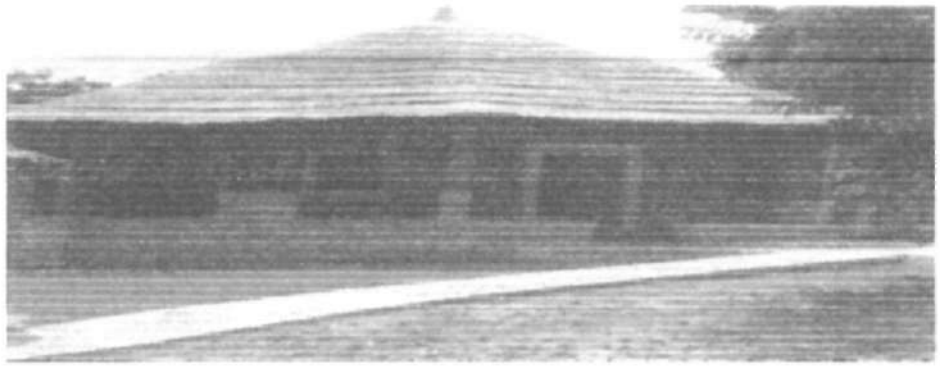


Plate 4.19: a typical executive suite with sit out
(Source: Field work 2007)



Plate 4.20: row of chalets
(Source: Field work 2007)

f. Accommodation:

The park has the following facilities:

1. 110 No. visitor chalets of varying categories and students/low income hostel.
2. Standard restaurant
3. 140 seat conference hall
4. Indoor and outdoor sport facilities
5. Table tennis, squash racket, badminton/ discotheque
6. Administrative complex
7. Museum
8. Souvenir shop
9. Public convenience



Plate 4.21: entrance to bar, restaurant and souvenir shop
(Source: Field work 2007)

4.3.4 Architectural identity.

The initial facilities were all centered on the Wikki warm spring. The accommodation is on the western side of the reception centrally located, the restaurant, the bar, souvenir shop, sporting facilities are all closely located on the eastern side of the reception/admin with the spring down the gorge directly behind the reception. Later, some chalets were constructed by the entrance to the resort. The workers' village and staff accommodation are also located within this set up by the entrance to the resort on the western side. The new chalets are by the eastern side.

The road leading into the resort terminates at the reception. Dusty roads lead to the chalets. There is no clear concept employed.



Plate 4.22: Traditional Architecture,
Source: Field Work, 2007

4.3.5 Materials and construction

The chalets have generally circular or semi-circular form with sandcrete blocks used for walling. Conical roofs covered with thatch, laid on long-span aluminium roofing sheets and held in place by wire mesh are employed. Enclosed verandahs with dwarf walls serve as sit-outs. Sandcrete blocks are used for walls with smooth cement rendering and painted in emulsion paint complete the picture.



Plate 4.23: typical thatch roof
(Source: Field Work, 2007)

4.3.6 Outdoor life

Active outdoor activities take place at the warm spring. These include swimming, water sports and outdoor games like squash tennis.

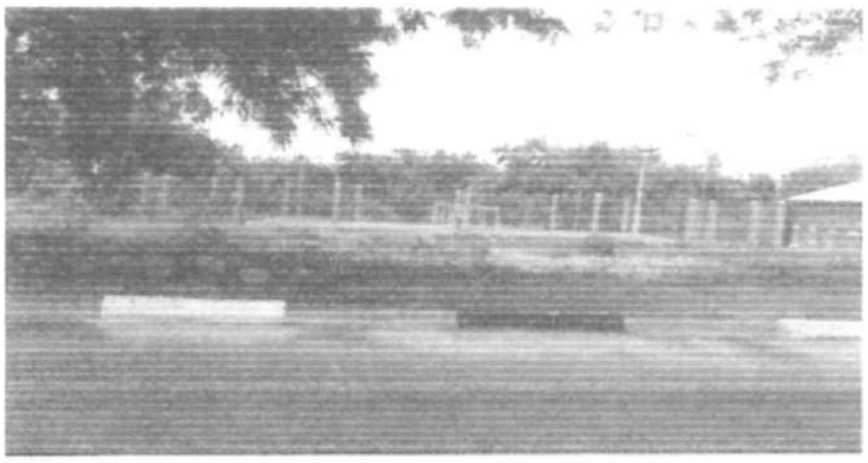


Plate 4.23: outdoor activity area
(Source: Field work 2007)

4.3.7 Eco-preservation

The resort was established to serve as a reserve with the major objective of preserving and protecting natural features including wildlife. Poaching is therefore discouraged through the employment of range security personnel. However, this is still the main problem of the place. The warm spring is also another area left without proper preservation as an artificial beach is clumsily constructed without the required harmonization.

4.3.8 Merits

1. Handrails and steps are provided along the slope to the spring to ease the tedious journey up after swimming.
2. Excellent recreational swimming place with clear view down to the base of the spring, the flow of the spring is just safe and comforting.
3. Game viewing is made safe through guides and open tracks provided by the management for a fee.
4. Ample spaces for camping and other out door recreation activities.

4.3.9 Demerits

1. Chaotic placement of facilities within a short range without defined individual autonomy
2. Lack of privacy as all activities are closely located. A visitor at the reception area can view every other visitor engaged in other activities around the accommodation, restaurant/bar, games, swimming and camping areas
3. Decentralization of certain facilities close to the swimming area and accommodation is necessary as they are inadequate and wrongly placed.
4. Poor circulation systems, as internal roads are poorly drained, dusty and confusing. No defined directions to various facilities especially the accommodation area.
5. Furnishing below standard as most furniture are outdated and out of use.
6. Poor security systems as baboons and other wild animals often invade rooms.
7. Steps leading to the swimming area are too steep. As suggested steps should have been introduced to the full advantage of the various contour levels this reduces the tedious flight especially for the persons with disability. In fact winding ramps should also be incorporated for their benefit.
8. Most material used is not in harmony with the landscape like zinc sheets, concrete and block work. Things avoided in the cities are encountered again at the resort.
9. The artificial beach is nothing more than that as one hardly notices it, there is need for a well defined beach complete with all the attendant facilities.
10. Despite portable water at the spring down the gorge, up at the chalets it is a problem.

Figure 6.0: Typical 1 Bedroom Chalet

(Source: Field work, 2007)

Figure 7.0: Executive Chalet
(Source: Field work, 2007)

Figure 8.0: Super Executive Chalet
(Source: field work, 2007)

4.4 CASE STUDY FOUR: KWA MARITANE, SOUTH AFRICA

An ancient alkaline volcano fashioned the very hills that Kwa Maritane stands on today. Hence it's name, which means "place of the Rock". From here, you can look out over the infinite plains adjacent to the Pilansberg national park-an area rich in wildlife and housing about 365 species of birds.



Figure 9: Map of a portion of the Pilanesberg National Park
(Source: Field Work, 2007)

4.4.1 Location

It is located within the Pilanesaberg National Park.

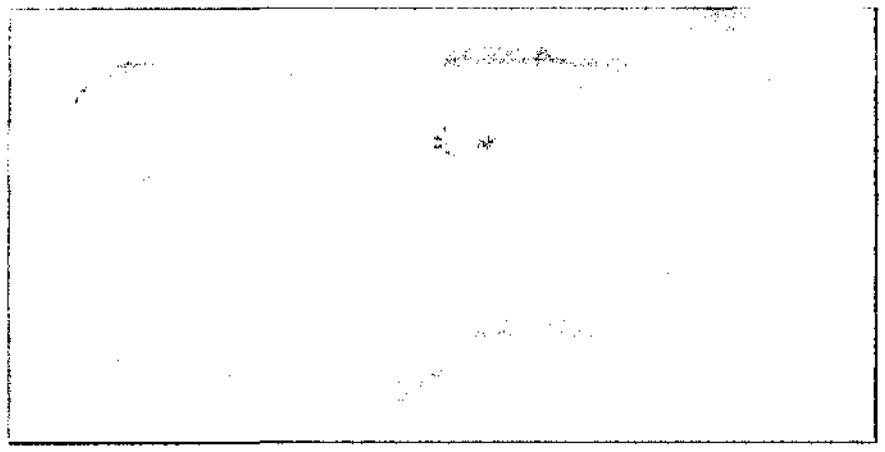


Figure 10: Site plan of the Park
(Source: www.legacyhotels.com, 2007)

4.4.2 The Resort

The resort is surrounded by 55,000 hectares of untamed nature, it is recognized as one of the best conference destinations in that region.

4.4.3 Facilities

It offers to visitors, accommodation, entertainment and other facilities befitting a resort.



Plate 4.12: Accommodation
(Source: www.legacyhotels.com**, 2007)**

The Hippo Conference Room at Kwa Maritane

Cinema style	School room	U-shape
16	14	12

The Rhino Conference Room at Kwa Maritane

Cinema style	School room	U-shape
100	54	40

The Cheetah Conference Room at Kwa Maritane

Cinema style	School room	U-shape
30	20	20

Figure 11: The Nare and Tau Conference Rooms at Kwa Maritane
(Source: www.legacyhotel.com,2007**)**

4.4.4. Merits

1. The natural environment is protected.
2. Vehicular circulation is limited.
3. Use of locally sourced materials that blend with the environment.
4. Provision for staff accommodation.

4.5. CONCLUSION FROM CASE STUDIES

After thorough and objective study of the selected case studies, certain issues that are both salient and or relevant have been deduced. These issues informed the design decisions of this Holiday camp, as they are eco-conscious in nature, which is the driving force in this design option. They include:-

a. Natural environments are natural sites for Eco Resorts/Camp. The siting is close to natural attractions usually at the periphery of the host communities/villages and away from towns and urban dwellings.

b. To ensure maximum effect of nature, small portion is developed while a greater percentage is left as natural habitat.

c. Human or man-made facilities are generally kept low, sometimes below tree heights thus virtually unnoticed

d. Respect for natural topography as in contour levels is paramount

CHAPTER FIVE

THE SITE

5.0 GOMBE STATE, BRIEF HISTORY

Gombe state was carved out of Bauchi state on the 1st of October 1996, with the head quarters at Gombe town. It has a land area of about 20,265,265 square kilometers, with a population of about 1.5 million people (1991 Census), 70 percent of who are rural dwellers. The state shares common boundary with Bauchi to the west, Borno and Yobe to the east, Adamawa and Taraba to the south. It is also bounded by Kano and Jigawa states to the north.

GEOGRAPHICAL SETTINGS

Gombe state is situated between latitudes 90'30' and 120'30' North and longitudes 80'45' and 110'45' east of the equator.

GOMBE STATE IN THE NATIONAL SETTINGS



Figure 12: Gombe State in Nigeria Map
(Source: www.theodara.com\maps)

ACCESSIBILITY

The state is accessible by air through Gombe International Airport. It is also about 300km, 198km and 150km from Jos, Yola, and Bauchi respectively by trunk 'A' roads.

MAP OF GOMBE STATE



Map of Gombe state
(Source: Google Earth)

PEOPLE AND CULTURE

The major ethnic groups in Gombe state are Fulani, Tangale, Waye, Bolewa, Tera, Jukun, Gera, Pero, Tula, Chamawa and Hausa. Historically, most of the ethnic groups are believed to have originated from the middle east. They migrated to thier present location from the lake chad region in the 19th century. The people of Gombe state are of diverse ethic, cultural and religoius background. Islam, chiristanity and traditional religious practices are the major religions of the people, however, Islam has the largest followership. The major occupations are farming, animal

husbandry, fishing and hunting. The rich agrarian cultures of the people are uniquely expressed in their rich art, craft work, festivals, dances and costumes.

The state is richly endowed with solid mineral resources such as; Bentonite, Limestone, Gypsum, Talc, Hulite, Zinc, Lead, Kohl, Uranium, Zircon, Agate, Galena, Mica, Tourmaline, Topaz, Bog Iron, Calcite, Dolomite, Silica sand, Granite, Sapphire, Aquamarine, Kaolin clay, Felspar among others. Gombe state is also a home of agricultural products and agro-based raw materials like tomatoes, sorghum, maize, rice, cassava, beans, groundnut, cotton, gum arabic to mention but a few

TOURIST DESTINATION

Gombe state is blessed with numerous tourist resources which are some of the main attractions to visitors and tourist from all over the world. Some of the attractions include the Kanawa Plantation established since 1940, with an area of about 173.2 square acres. The Bage hill located at Bolawa community of Funakaye local government area stretching about 60km long. The Balanga Dam is a man-made water dam located at the eastern part of Balanga, in Balanga LGA. The Kilang hill is located at Popandi village, Tangale in Kaltungo LGA. It rises to a height of 500m above sea level.

The Botobotoh Springs is a natural warm spring located at Tangale in Shongom LGA and was discovered in 1885. Others include Dadin-kowa dam site, Bima hills, Dutsen Mamaki, Cham valley, Kwaipipi spring, Maleri river and the tomb of Sultan Attahiru in Bormai, Funakaye LGA

MAP OF GOMBE STATE SHOWING ALL THE LOCAL GOVERNMENT AREAS

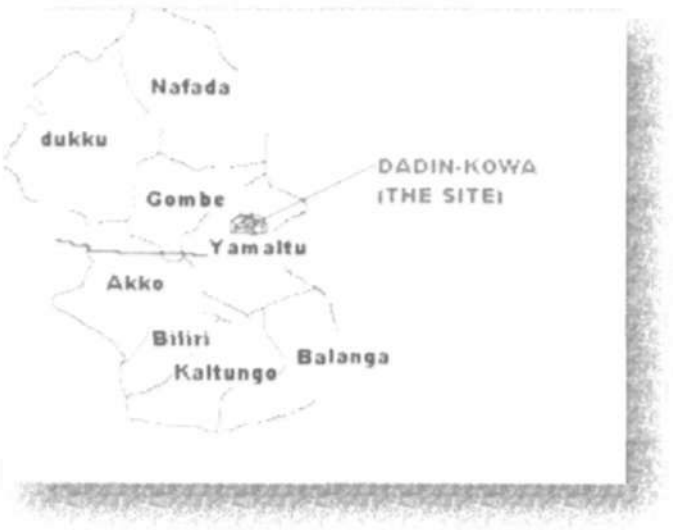


Figure 13: Showing Dadin Kowa Village
(Source: Ministry of Commerce and Tourism, Gombe State 2007)

THE SITE

Site; Geo-physical at a glance

The site: Dadin Kowa Dam site.

Location: Dadin Kowa Village, Gombe State.

Coordinates: lat. 9^0 30" and 12^0 30"N x long. 8^0 45" & 11^0 45"

Nearest city: Gombe 25km

Established: 1982

Area: 29,000 Hectares

Accessibility: Road, Air, Rail

Governing body: Federal and State Governments.



Plate 5.1: Showing site location map from Gombe to the site at Dadinkowa (Source: Field work 2007)

5.1 SITE LOCATION:

Proposed site for Dadin Kowa holiday camp is located approximately 25km east of Gombe metropolis. It is at a village called Dadin kowa in Yamaltu Deba local government of Gombe state. The road leading to the site is a Federal Government trunk 'A' highway that links Gombe state with Bomo and Adamawa states. The site is at an elevation of about 1000m above sea level and the highest point is at the top of the famous Bima hills, rising to about 2900m

The site is accessed through a secondary road which slopes gently as one enters the junction off the highway, from about 850m down to 650m and rises steadily and gently to about 1000m where the proposed site is located.



Plate 5.2: Showing entrance to the site through a secondary tarred road, with kerke hill at the background
(Source: Field Work, 2007)

The site is endowed with abundance of resources both human and natural, the most attractive being a dam constructed on the Gongola River. There is also the range of mountain outcrop covered with beautiful woodland, shrubs, grassland and wild animals. It is called Bima hills with highest point at 2900m.

One remarkable thing about the site is that one starts having its visual expression right from Gombe some 25km away. The smokey and hazy picture of the Bima hills with its imposing and intimidating nature in the landscape gives a pleasant experience. As one approaches Dadin kowa village, the haze and smoke thins out exposing dark green magnificent and gigantic range of hills so beautifully arranged by nature.

At the entrance to the site about 500m in to the road is a mighty hill called "KERKE" which welcomes visitors into the environment. From here the road drops gently in to a valley of about 1.5km distance then picks a steady rise of gentle gradient up to a height of 1000m stretching a distance of 3km. Along the road, trees and mountain out crops on both sides create a canopy of good foliage giving a cool and comforting relief.

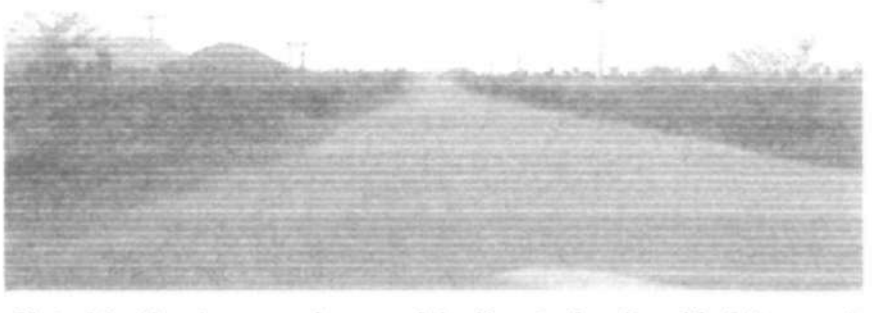


Plate 5.3: Showing secondary road leading to the site with foliage and canopy of trees
(Source: Field work 2007)

Both sides of the road have gentle slopes with captivating landscape. While the slope on the eastern part rolls into the river, on the western part however, where more of flat land exists, lies the "colony" accommodation used by the construction company that built the dam. It stretches a distance of about 1.5km along the road, which incidentally lies northwards. The 5km road terminates at a junction where two roads emerge, one leading to the dam (800m) north eastwards and the other goes westwards connecting some villages. The latter road was a social responsibility to the host community constructed by the contractor.

This area is at an altitude of 1000m and stretches several kilometers on a flat terrain. The place is a wide grazing and agricultural land suitable for developments.

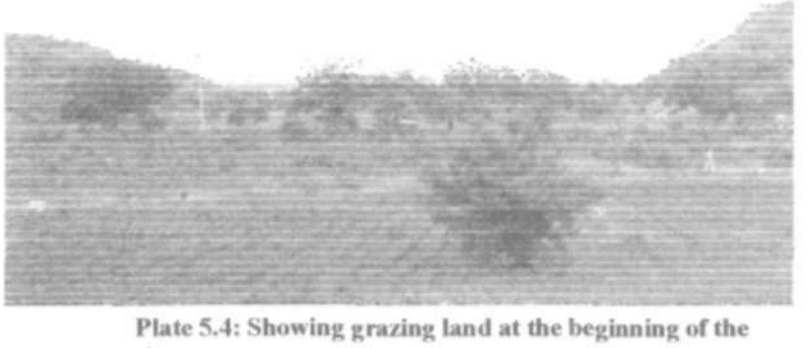


Plate 5.4: Showing grazing land at the beginning of the site
(Source: Field Work, 2007)

The eastern part facing the dam and the river has a gentle slope down to the river banks with a stretch of land 2km long and about 500m wide. This location has a direct view of the dam and the river which runs at the foot of the imposing Bima hills. The river runs north to eat circling the south western edge of the hills and leading eastwards eventually. The upstream of the river coming from the northern part is on the same level with the road (1000km) but drops sharply at the outlet of the dam gates to as low as 650m where the turbines are to be located thus creating a natural fall and the desired hydro power to drive the turbines. The river from here widens and meanders into the treatment plants visibly located about 2km away eastwards.

The site as mentioned earlier, thus has potentials for a tourist attraction from both human and natural resources available. The natural features include the river, dam, hills, woodland, savannah, wild animals and good topography for recreational activities and physical relaxation.

The abandoned colony facilities can also be put to use with little renovations, these include various categories of accommodation and recreational. Also available are infrastructure such as good road network, electrical supply from the national grid, water supply and communication.



Plate 5.5: Showing gentle slope with grazing land in the site
(Source: Field Work, 2007)

5.2 POPULAR FEATURES:

The site has both cultural and physical features. While the natural features constitute the larger part of the site, the human features, with the dam as the star attraction, are very few some of which are as below.

5.2.1 Bima Hills.

Among the natural features, perhaps the most significant at the moment is the Bima hills. This is a range of mountains stretching several kilometers and originating from Jos plateau to Bauchi and in to Bima hills at the periphery of Gombe town. The range continues in its journey through Dadin Kowa village linking up with Biu hills in Borno, to Adamawa and into Cameroon plateau.

The hills, rich in various species of vegetation and wild animals are the dream of any tourist out for adventure. Its scenic beauty is most captivating. It is a formation of gigantic and historic rocky hills with a magnificent sedimentary rock formation that expresses natural beauty and elegance. It has the same natural appearance from whichever direction it is viewed and also changes appearance with the seasonal changes, depicting a smoky outlook during the wet season and hazy in dry season.



Plate 5.6: Showing imposing Bima Hills
(Source: Field Work, 2007)

5.2.2 Flora and Fauna

Bima hills is a natural habitat for a biological diversity, with various species of flora and fauna making it Mecca for researchers and naturalists.



Figure: 14. Map of Nigeria showing vegetation
(Source: www.fao.org/.../doc/ Counprof/nigeria/nigeria.htm)

ecies of plants found there include variety of tropical trees such as, Buckea African ombreton slotinum trees and wood land savannah with an open canopy and continuous layer of num and perennial grasses. Besides tress there are also shrubs, grassland and even bare flat ound suitable for camping. Fruits and flowers are also abundantly available giving the scene a xture of beauty and fragrance.



Plate 5.7: Showing trees, shrubs and grassland
(Source: Field work 2007)

Various species of animals are found there, making the place more prone to hunting which is one of the major occupations of the local people. Birds of various colors and shapes as well as beautiful insects abound. One can not help but appreciate the work of nature.

5.2.3 Historical/cultural features

The hills have also historic and legendary mysticisms. The history of the hills is weaved around some legendary occurrences and supernatural beliefs of the people. Some traditions believe that a Mahdi (messiah) that would come and rescue mankind from the treachery of life will first appear from these hills before moving eastwards. This has turned the place into a Mecca of some sort, with pilgrims coming from as far as Sokoto and even Senegal.

Also associated with the hills is the cave at the background of the hills called "MATA" which according to strong oral traditions, certain extra ordinary phenomena occur within the cave and

nobody ever came out alive. Another legend has it that every thursday night a white trojan flies across the hills followed by a flock of white pigeons bringing glad tidings to whoever is blessed to witness the occasion. The Bima hills with its beauty, legendary status and a phenomenal occurrence has become a popular pilgrimage centre among faithfuls from various walks of life. It is an ideal site for adventurers, theologians, researchers and rock climbers.

The hill has evidence of early settlements as there are traces of boundary wall on the leeward side. This served as security against invaders. It also has a crater lake at an altitude of about 2000m. This place is relatively flat and evidence of residential and agricultural activities abound. The highest point of this hill is measuring about 2900m and the lowest point is 800m.

Other hills include, Tolba, Kerke, and a host of other outcrops dotting the landscape. Legend has it that the Kerke hill has a crater lake through which if a stick is dropped, it will appear in the river. The rock formation of Kerke is a massive outcrop of loose sedimentary sandstone.

5.2.4 Dadin Kowa dam, N9 billion project (Feb. 2006)

The dam is sited on River Gongola which originates as a result of numerous collections of smaller rivers and streams from Jos plateau through the Dindima river in Bauchi and into Gombe through Dukku, Funakaye, Yamaltu Deba local governments and finally emptying into Benue confluence in Numan, Adamawa state. This is one of the longest rivers besides Niger and Benue in the country. The dam therefore is potentially sited, as there is uninterrupted flow all year round from the river and streams.



Plate 5.8: Showing the River, Dam, Fall and some vegetation
(Source: Field work 2007)

The Dam is probably one of the largest domestic and industrial dams in the country now. It is a multipurpose joint federal and state government's project sited on Gongola River with a water area of 29,000 hectares and a capacity of 50 million liters/day. Besides providing Gombe with portable drinking water, it also provides irrigation and fishing as well as recreational opportunities. It is also expected to provide several megawatts of electricity enough to sustain the north east zone. Installation of turbines and electric gates is the only outstanding work. To this effect, the federal government has awarded a contract of N2billion for the generation of 3000 megawatts of electricity and work has since commenced.



Plate 5.9: Showing the proposed site for beach
(Source: Field work 2007)

Although the facility is manmade, the sight and sound of the running water falling several meters below gives it an outlook of a natural waterfall creating cool local weather conditions. The site is conducive for adventures, picnics, sight seeing, fishing and bird watching.



Plate 5.10: Showing mist at the Fall creating a Micro Climate
(Source: Field work 2007)

Upstream of the river, boating and fishing activities take place and in fact, bulk of the fish consumed in Gombe markets is from this dam. Through boating, one can travel to historic places like the sites for tombs of Sultan Attahiru and Major F.C. Marsh in Bormi, Funa Kaye local government on the western part of Dadin Kowa about 10km away.



Plate 5.11: Showing fishing activities on the river
(Source: Field Work, 2007)

Sultan Attahiru was one of the legendary Sultans of the Sokoto caliphate. He was one of those African leaders who resisted the exploitation from colonization of his kingdom. He was dethroned by the British royal regiment under the command of Major F.C Marsh in 1876. However, it was not an easy task as a decisive battle ensued between the colonial regiment and the highly skilled caliphate soldiers. Both were killed in the battle and were buried side by side at Bormi village and the site is now a tourist attraction centre. Pilgrims come from the Sokoto caliphate to pay homage to their past hero and Islamic leader. It is also a researchers and historian haven interested in early colonialism and political history of sub-Saharan Africa.

Down stream, there is a waterfall in Kwaya-Kwasar which is also accessible through boating. It's a beautiful work of nature which will add value to the site as a tourist centre.

5.2.5 Others:

No doubt Bima hills and the river with the fall are the main prominent features, but other facilities are also available, especially efforts made by construction companies that carried out the dam construction back in the eighties. These facilities although fading, can still be put for immediate use, they include, club house, swimming pool, accommodation (assorted), restaurant / bar, games (tennis, basket ball court, football, horse riding, snooker).



Plate 5.12: Showing the colony
(Source: Field Work, 2007)

In terms of natural facilities, the site is endowed with grassland and open land of several hectares that is suitable for picnics, camping and other recreational activities. There is also the combined

natural and manmade facilities in the form of farmlands and irrigable land which complement the landscape, forming a beautiful and complete environment for site seeing.

The site can provide wide ranges of activities which will include among others, horse-riding, boating, spot fishing, trial climbing, picnics, mini golf, outdoor and indoor sport, archery, cultural dances, ceremonies and bird watching.



Plate 5.13: Showing dilapidated colonial bridge for mountain trail
(Source: Field work 2007)

5.3 TOPOGRAPHY OF THE SITE:

Topography of any size influences the natural system of the site as it controls flow of surface water or drainage. It is also through topography that pattern of erosion and sedimentation is determined. Soil formation, vegetation growth, microclimate, and land use requirements in terms of safety, stability, accessibility, spatial use and amenity values are all determined through topography.

The topography of this site is such that the site is already located on an elevation of 1000m above sea level stretching several square kilometers, 3km to be precise.

The site is bounded on the east with the river and the imposing Bima hills right behind. The hill rises from 600m to a height of 2900m at the peak of the mountain. The site slopes gently on this part from 1000m down to the 600m level at the river banks and the hills pick their height from this level of 600m to 2900m on the other side of the rivers. The boundary to the northern side of the site is some mountain out crops rising from 1000m to a height of 1300m. The western part stretches several kilometers a relatively sprawling flat land with no serious depressions. However, the southern part has a gentle slope and forms the gateway to the site. It is also along this direction that the colony and the road from the highway lay. Kerke is also located here.

The site is a mix of plain and undulating nature, the plain level usually occurs at altitudes of about 800m-1000m while lower levels are undulating some times rapidly. Kerke and Tolba hills terminate the landscape in this direction forming an optical arrest.

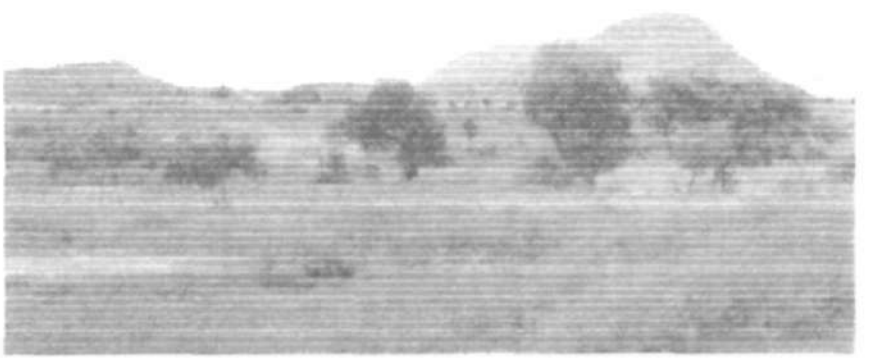


Plate 5.14: Showing undulating nature of the site with mountain outcrops
(Source: Field work 2007)

Out of the four directions bounding the site, the most attractive side is the one facing the dam, river, and the Bima hills on the northern part. It is here that the combinations of natural and human features are emphasized. It is a natural choice for location of recreational facilities especially at the periphery of the northern slope. Here the visual perception is of the imposing hills, the waterfall from the dam forming a stormy reaction as it hits the ground below with beautiful rainbows patterns bisecting the landscape. This is a sight to remember. It will be a pleasant view while one is dining, relaxing or from the windows of ones chalets or balconies. It is therefore here such facilities like restaurant, bars, chalets and indoor games are to be located. In addition, activities like boating and fishing at the bank of the river are also to be located.

Further down on the west, the gentle slope drops in a relatively flat space, the picnic and camping activities are to be located. The western plains being flat will be good for horse riding, games and parking.

Because of previous activities of the company that constructed the dam, the few streams on this level have all been filled up except one. The site is fairly drained through natural gravity. There is no evidence of erosion or gulley on this level but down the slopes, seasonal streams are visible but treatable.



Plate 5.15: Showing seasonal stream
(Source: Field work 2007)

Slopes on hillsides are generally steep and hazardous with streams screaming and cutting deep gorges. These areas are prone to erosion and sedimentation as they cut through carrying debris along, while depositing some. These areas are potential for amenity values for viewing, but very unstable, poor accessibility and unsafe for permanent facilities.

5.3.1 Surface drainage analysis

The drainage pattern of a site is determined by the characteristics of the topography. These include ridges, valleys, rivers, slopes among others.

The site is relatively flat at the 1000m altitude but slopes gently to the north in to the river at 750m level. It slopes on the south to a level of about 800m, but has plain level on west and towards east. Maintaining 1000m, along the areas that slope towards the river, there are two numbers of seasonal streams that empty into the river through valleys.



Plate 5.16: Showing a perennial stream.
(Source: Field work, 2007).

The hills have ridges and gorges that run down swiftly in to the river on the steep slopes. The site itself is fairly drained with no visible valleys excepts where the slope is hampered by out crops. The entire site drains in to these valleys along the slopes.

5.4 ECOLOGY, FLORA AND FAUNA

Due to its location in the southern part of the Sudan savanna belt of Nigeria, the site vegetation is a complex combination known as the Bukea Africana combretum glotonosum tree and woodland savanna with an open canopy and a continuous layer of annual and perennial grasses.

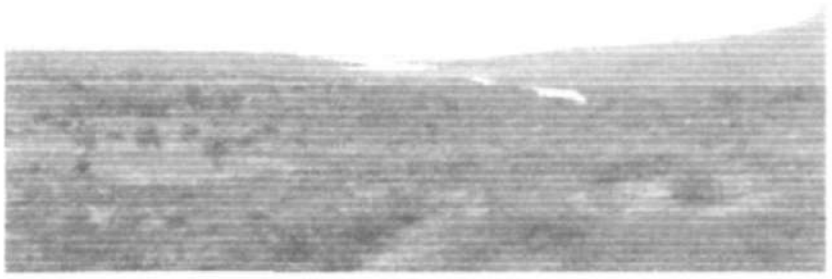


Plate 5.17: Showing distribution of vegetation.
(Source: Field Work, 2007).

Activities of man not withstanding, the site appears almost natural. The vegetation cover of the site comprises of woodland up the hills and appears thick enough to be mistaken for a rainforest, but sparsely distributed as one descends to 1000m level where the vegetation is mainly grassland as evidenced by herds of cows freely grazing the area.

There are scanty distribution of trees mainly tropical trees, shrubs and bushes. Down the slope to the river banks, the vegetation in very green and thick but generally made of shrubs, grasses and few trees. Bamboo forest is also available up the Bima Hills.

Species of wild animals found there include various species of monkeys, hyena, crocodiles, hippos and smaller animals like rabbits, squirrels and rats. Along the river banks are various types of birds and insects in symbiotic habitation. Crocodiles and hippos are the landlords up stream away from the dam and fishing area appearing occasionally at certain periods of the rainy season.

5.5 GEOLOGY

The nature of rocks found at the site are mainly sedimentary rocks of cretaceous age made up of Gundumi formations. The composition is a combination of coarse mottled light brownish and feldspartic grits within persistence of intercaution of dark brownish lateritic soils. Band of quartz pebbles are also common in certain areas loosely attached. The loose combination of broken pieces and the earth material surround the hills while the central core and the basement complex consists of coarsely crystalline prophylactic granites and granite gneisses particularly in rocks like Kerke and Tolba. Bima hills are of sedimentary and brownish sandstones.



Plate 5.18: Showing Rock formation.
(Source: Field Work, 2007).

1. Sub-soil characteristics

The road leading to the site and the existing building structures were constructed over 25years ago, but are still physically sound, indicating that the bearing capacity of the subsoil to support road and other building facilities is good. This is as a result of the rocky nature of the topography

but for multi storey constructions however, detailed sub-soil investigation to determine the bearing capacity of the underlying subsoil before construction is necessary.

2 Site development potential and physical constraint

Accessibility remains the major potential the site possesses for development, as the site is accessed through a well drained asphalted road right from Gombe 25km away. The road though constructed over 25years ago, needs little face lift.

5.6 VIEWS

In terms of vista locations, the site has wonderful points which include the range of mountains that have almost encircled the site. The river with its dam and human water fall is another visual attraction. Finally, the vegetation cover and local climate complement the scenic beauty of the landscape.

In terms of development, the flat sprawling plains along with the gentle slopes are suitable for development. Artificial lakes can be constructed along the river bank while spot fishing and boating flourish. Other activities like archery, horse riding, boating, spot fishing, trail climbing, mountaineering, picnicking, mini golf, out door, bird watching and cultural dances can also be achieved.

The major constraint to the site is lack of room for expansion along the vista locations. Development can only take place on the western side of the river as the northern side is dominated by the imposing Bima hills. Another constraint is the traffic noise from the road and

its attendant hazard as such development will have to be done away from the road axis or necessary measures be taken to dampen the noise pollution.

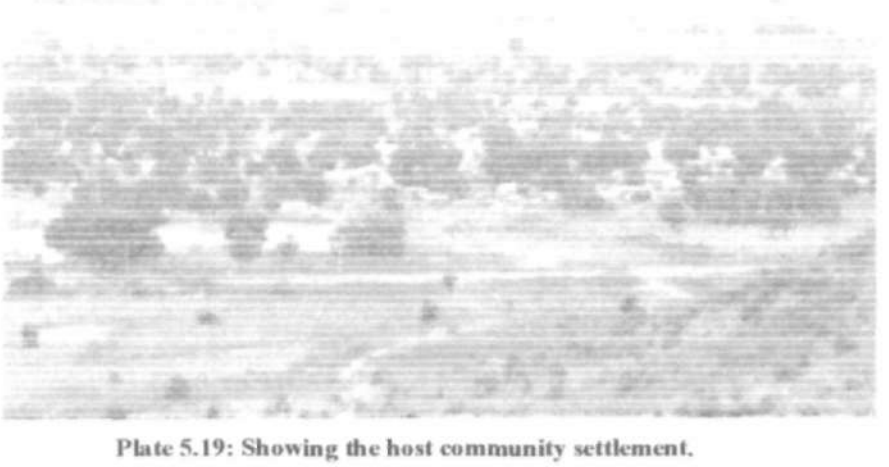


Plate 5.19: Showing the host community settlement.
(Source: Field work 2007).

The valleys along the seasonal streams in some areas if not checked through planting of trees, grassing and concrete embankment / stone pitching could also be a source of serious constraints.

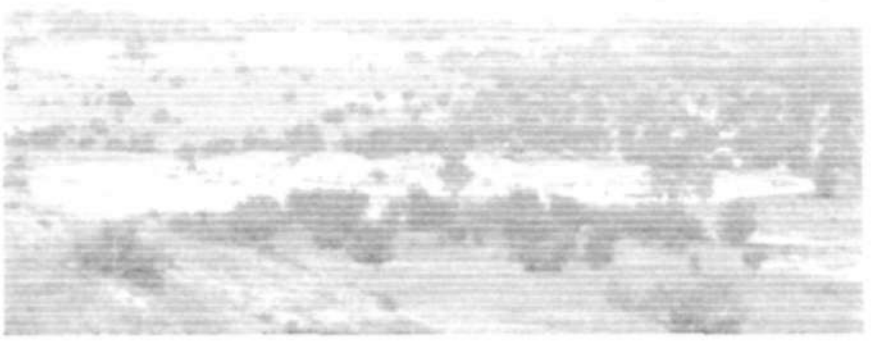


Plate 5.20: Showing treatment plant, staff quarters, river and other views.
(Source: Field work 2007).

5.7 CLIMATIC ANALYSIS

The climate in Nigeria is generally expressed in terms of wet and dry seasons. The seasons however, vary between the different zones of the country as a result of movement of air mass. The two air masses that control Nigerian climate are those from the Sahara desert known as north easterly winds and the south westerly winds originating from the sea.

Gombe is located in the north eastern region of Nigeria as such is heavily affected by the north easterlies characterized by cold dry and dusty winds during the harmattan or dry season. During the wet season, the south westerlies carry water from the sea and are characterized by hot, rainy season. Depending on the season, the site is affected by these climatic changes. The hot season runs from March till September while the cold season runs from October to February. The dust known as the harmattan which inhibits visibility, characterize part of the dry season.

5.7.1 Rainfall

Rainfall pattern in Nigeria as a whole decreases as one moves Inland from the coastal areas to its lowest in the southern boundary. Located north of 10^{0}N, Gombe experiences the onset of wet season late in March and ends around the end of October. The wet season lasts for four months and the mean annual rain fall for Gombe is 500mm which also is the same for Maiduguri, Yola, and Damaturu. Variability of rainfall is lowest between November to March during the cold dry season. It is highest in August/September with floods occurring along major streams courses. This pattern of rainfall is experienced at the site out around the dam site due to the mountain and the large bodies of water heavy rains are experienced due to local weather created by these features.

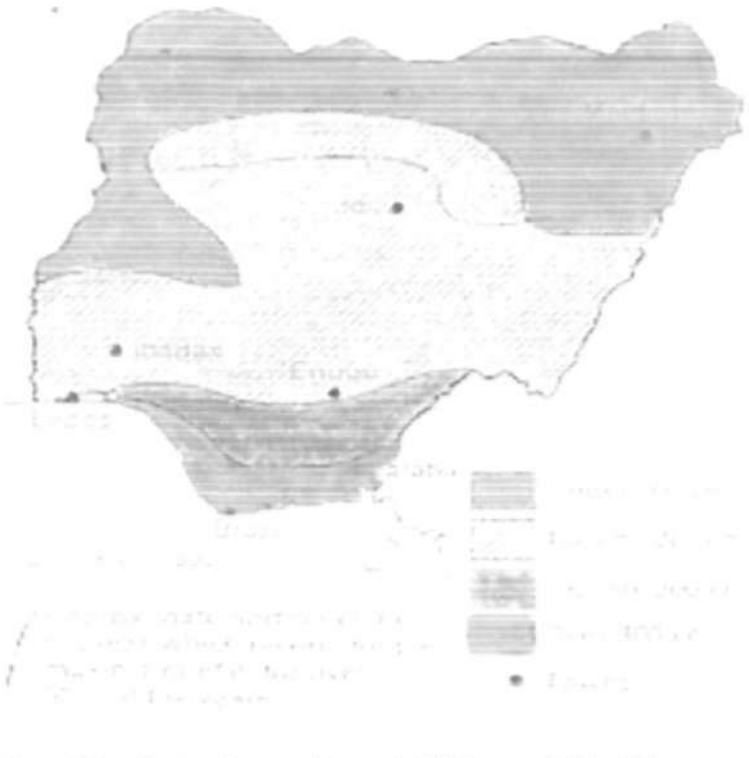


Figure 15: Map of Nigeria showing maxima rainfall for over 50% of the year.
(Source: www.fao.org/.../doc/ Counprof/nigeria/nigeria.htm)

5.7.2 Temperature

Depending on the season, Gombe and Damaturu zone experience temperature ranges from 20^0C in January to 27.5^0c in May, and 22.5^0c in September with mean annual temperature of 25^0c. Similar ranges are experienced on daily basis i.e. during hot wet and cold dry season. Days during the dry season are accompanied with cloudless skies and hence intense, solar radiation, heat discomfort results. Days are cool and nights much cooler during the harmattan season. Discomforting hot temperatures are experienced during days. This starts from early morning through mid day and nights are warm during hot rainy season these extreme conditions are to be given detailed considerations in this proposal.

The presence of natural features, mountain, water, trees and the like affect the site creating local temperatures sometimes going down as low as 15^0c and as high as 30^0c.

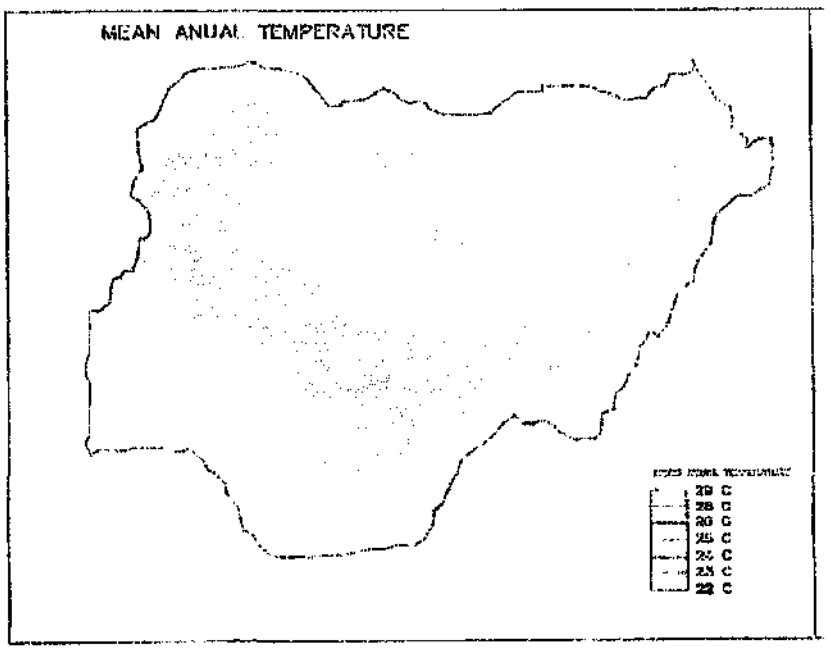


Figure 16: Map showing Mean Annual Temperature
(Source: www.fao.org/.../doc/ Counprof/nigeria/nigeria.htm)

5.7.3 Sunshine

The location of Nigeria between latitudes 4^0N and 14^0N of the equator where the sun is vertically overhead on two days yearly (March 21 and sept.23) is also true with Gombe which position is within the tropics. The mid-day sun varies very little from its vertical position at noon daily. Days and nights are almost equal all year round. Refracted light received is short since the sun rises and shines in a relatively vertical path. The result of this direct sunshine is intense and causes glare and discomfort.



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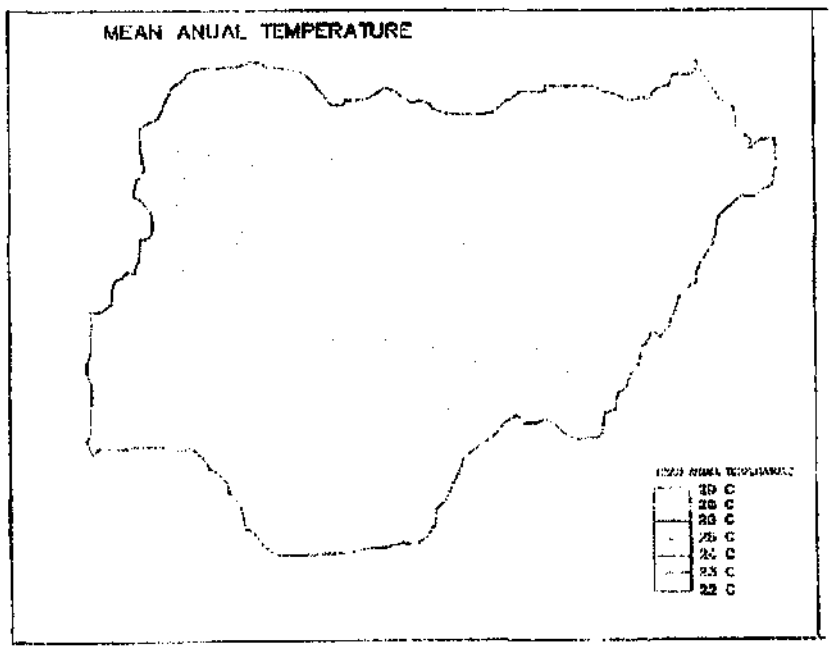


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Sunshine, like rainfall is another climatic element to be given detailed consideration right from the planning, design and construction of building in this region. It affects the choice of building elements as shading devices, detailing of fenestration and even finishes.

5.7.4 Relative humidity

This describes the amount of moisture in the atmosphere which to a large extent is dependent on the ambient temperature and wind movement. Relative humidity is higher at the coastal areas at any given time of the year in Nigeria. As air moves northwards, this decreases as the influence of wet westerlies decreases. The highest values recorded are (80-90%) and (76-86%) for southern and northern parts respectively around August. Lowest values between November to March are (60-80%) and (10-30%) for south and north respectively.

The northward position of Gombe experiences a steady and sometimes decreases of relative humidity with seasons. However the presence of the water body and the fall has tremendous influence on the local weather. The area around the site towards the dam has more moisture in the atmosphere than outside the site. So as one moves into the site, a sharp contrast is felt as a result of this local weather. The lowest value recorded elsewhere in January/February is (10-20%) but at the site it is about (15-25%).

CHAPTER SIX

THE DESIGN

6.1 DESIGN BRIEF

Dadin kowa Holiday Camp is intended to cater for the various needs of tourists irrespective of age, sex; in terms of feeding, accommodation and recreation while generating revenue to potential investors. In Eco-Design approach, preservation of natural attractive elements inherent at the site is the focus. Minimal environmental degradation due to architectural activities will be emphasized. It is also expected to reduce impact due to behavioral patterns of tourists and visitors to the destination. Besides revenue generation to investors, it is also expected to promote tourism in Gombe State and render poverty alleviation through provision of employment opportunities to the local community.

6.2 CLIENTS AND USERS

Globalization has come with a lot of emphasis on privatization as such the camp is open for private and public investors in a joint venture arrangement or Build Operate and Transfer (BOT).

6.3 DESIGN PHILOSOPHY

Eco-Tourism is fast becoming a new trend in tourism as its distinct features give tourism a difference. Eco Architecture with philosophy of environmental sensitivity implies designing with nature. This philosophy encourages the use of renewable, re-usable, recyclable and bio-degradable building materials thereby creating cleaner, quieter and healthy environment that is harmonious. This is the philosophy adopted for this project.

6.4 DESIGN CONCEPT

The choice of Dadin Kowa dam site for the holiday camp was deliberate because of the natural elements inherent at the site. Eco Architecture advocates the integration of natural and physical elements aimed at achieving a harmonious environment. The presence of such elements like, mountain outcrops, woodland, meandering river and the man-made fall at the dam informed the choice. The concept adopted naturally is based on the combination of all or some of these elements. The roofing system for instance, is conical in nature and takes cue from the shape of trees up the mountains. The body or superstructure of the buildings generally is circular in nature reflecting the circular forms of the mountain outcrops. The meandering walkways and roads are derived from the river and streams. The whole set up is organic in nature and the introduction of the facilities blending them with the natural elements turned the environment harmonious. The micro-climate from the fall with its attendant cooling effect gives a sense of serenity, neatness and a natural habitat for man.

Finally, the irregular free flowing and organic attributes of nature especially the mountain outcrops is adopted as the layout concept of activities. Environment friendly materials found at the site such as earth/laterite, timber, stone work, thatch, bamboo, water, sand and others are also chosen to complement the concept.

6.4.1 Design Consideration

The nature of the site and its corresponding climate conditions are taken into consideration. The slope in the site is relatively gentle starting from the southern side at an elevation of 100m and moves gently to the North into the river at the foothill of the giant Bima hill. Mountain outcrops

to the east and west form the boundaries on these sides. The microclimate created as a result of the fall on the northern side by the dam site gives the site a cooling relief from the harsh summer temperatures, which could be as high as 40^0C. North easterly and South westerly sweep across the site depending on the season with their attendant effect of harmattan or heavy rains. November and March come with harmattan while April to October come the rains. However, the entire site is often breezy and cool due to the waterfall. The banks of the river make a natural place for recreational activities, visual appreciation and nature interaction.

6.5. SITE PLANNING

The planning pattern takes topography and architectural features into consideration all in an attempt to achieve visual appreciation, enhance and preserve the natural environment. The site entrance is tapped from the existing spur road that terminates at the dam site. The road goes into the site with the first port of call being at the foot of the first mountain outcrop known as "Kerke". The reception /information centre, the conference hall, activity area (shops, snack bar, conveniences) are located at the periphery of this mountain with a befitting parking lot. This mountain being the highest point within the site has a control tower at the peak which serves as a security post as well as sight seeing point.

The road continues from there to the parking lot at the foot of the second mountain outcrop known as " Kishak" which is also the lowest mountain at the site. This mountain houses the main entertainment area with restaurant and bar, indoor games hall, amphitheatre and numerous sit outs, kiosks and suya joints. This mountain located close to the stream and over looking the river, is so chosen as centre of entertainment. The stream also provides abode for campers and

picnickers. The parking lot at the foot of this mountain also serves the final mountain known as "Tolba" which houses the accommodation and light entertainment. It is so chosen because of its closeness to the river and also its sense of privacy.

Paved pedestrians circulation is also carefully designed to follow the vehicular route, meandering and winding to various destinations. Conscious effort has been made to restrict vehicular movement to parking lots in an attempt to reduce environmental degradation.

To reduce environmental impact, vehicular movement is restricted with pedestrian networking taking over into the site to various locations.

The entire development is within the same vicinity though at different segments which allows for site appreciation from one zone to another and serves as a security measure within an overwhelming environment. This arrangement allows the administration oversee the entire resort without difficulty. Privacy within clusters is achieved in the accommodation area by separating accesses except in family chalets so that children can interact. The restaurant and recreational activities are planned close to the stream with the fall at the foreground to enhance the feel of nature. The chalets are planned beneath tree canopies and are in clusters around a ring. The entire accommodation zone is organic in form over looking the sides of the stream and the river to enhance closeness to the primary resource on site; water. A greater percentage of the site is left as a nature preserve for nature viewing, picnicking, bird watching, botanical garden, among others.

6.5.1 Site Landscaping

The site has an excessive grazing field as such it has grassland and scanty trees and shrubs as the main vegetation on the lowland and forests up the mountains. Tame forest vegetation will be the major landscaping element within the camp thereby preserving the natural forest outlook. The natural vegetation serves as windbreakers, air purifies and sound buffers. Hedges will be employed to screen the chain link boundary serving as security to the site. It also gives the site a natural outlook. Garden flowers and tree shrubs are introduced into the environment around the buildings and other areas as indicated in the design drawings. Other landscape elements used are garden seats for relaxation, stone walkways, log fences, and footbridges across the stream and the river.

6.5.2 Building Forms

The concept adopted is based on the organic nature of such features like mountain outcrops and the meandering river and streams. The building forms emanated from this concept reflecting the organic form of nature and ensure minimal destruction of the forest vegetation because trees do not grow in girds. The clusters of chalets are along grid circles.

6.5.3 Interior Space

One of the objectives of this study is to introduce facilities into nature and vice versa. The interior spaces are opened to the exterior in most directions to buttress the concept of passages and bring the environment into the buildings. They are finished with complementary materials like wood, which is its own share of devastation through tree felling. Paneling, earth/adobe,

thatch roofs, ceramic tiles and cane strips for ceiling are used extensively. Skylights are used to bring in the environment into the restaurant and bar, some chalets and other buildings.

6.6 BUILDING MATERIALS

Building materials are important components in Eco-Architecture due to their Eco friendly characteristics, which include being natural, renewal, recyclable, bio-degradable and locally available. The main materials used are Adobe/earth for the buildings, seasoned wood for pillars, trusses and beams. The roofs are made of thatch and bamboo which are also locally available. Well seasoned and treated timber has rich ecological properties being easily renewable and recyclable with potentials to be rational and cost effective. It has simple construction techniques and low energy consumption in construction.

Concrete is used for below floor level columns and for floor slabs while grey aluminum sheets in some cases are used for roofing (being recyclable). However, thatch is to be laid on the roofs to complement the tree canopies above.

Other materials used are stone for walls up to sill level as well as walkways. Round wood for fencing and as columns and cane strips for ceilings also used.

6.7 STRUCTURAL SOLUTIONS

The buildings are raised from concrete footings with stone walls up to window sill level. The columns are along a radial grid. The accommodation buildings have columns connected to the roof rafters at an angle as structural elements. There are also timber columns along the radial grid

along the walls. Pad foundations are used to raise buildings with concrete floors raised on the stilts while normal strip foundations are used for the administration.

6.8 SERVICES

6.8.1 Water Supply

The dam with a capacity of 50million liters per day supplies the whole of Gombe town and some villages. Dadin kowa village is one of such villages and the site gets its supply through a network of pipes from the same source.

6.8.2 Power Supply

Dadin kowa is connected to the National Grid as such power supply is also from the same source which supplies the villages and the site as well. Conduit shall be used in interior spaces for safety and visual comfort. Alternative sources of energy through solar panels, floating turbines and wind mills are also proposed at the site.

6.8.3 Drainage

The Natural gradient of the topography is to be exploited as such rain and wastewater shall be drained naturally along the slopes. Drainages are provided along the roads covered with stone finished concrete slabs so that they double as walkways. The network of drains terminates into a large diameter pipe, which takes water out of the site. It can be recycled. The black water (waste from toilets) is channeled to soil pipes running down the slopes terminating in a septic tank. Inspection chambers are introduced where there is a critical joint of more than two pipes. Grey

water wastes (from wash and basins. baths. and sinks) are channeled into a waste pipe which runs parallel to the soil pipes but terminates into soak away pits.

6.9 FACILITIES AND SCHEDULE OF ACCOMMODATION

The basic facilities needed to cater for the tourists at the camp have been provided in terms of accommodation, administration, recreation, commerce, and it is tabulated in the schedule of accommodation below.

Table 4.0: **Schedule of accommodation and facilities**

SPACE	FLOOR AREA(m^2)	NO
INFORMATION CENTER	91	1
Entrance	32	1
Lounge	30	1
Information area	8	1
Exhibition relics	16	1
Manager's office	9	1
Secretary's office	9	1
Account's office	9	2
Offices	9	1
Store	18	5
Toilets		
TOTAL	132.8	15

SPACE	FLOOR AREA(m^2)	NO
RESTAURANT AND BAR	71	1
Entrance ramp	30	1
Lounge and bar	9.5	1
Bar store	20.5	1
Terrace	16	1
Kitchen	18	2
Servery	6	1
Kitchen store	16.5	1
Outdoor cooking	4	2
Changing room	18	6
Toilet		
TOTAL	152.1	18

SPACE	FLOOR AREA	NO
ACCOMODATION		
TYPE I		
Entrance		1
Sitting		1
Bedroom		1
Lobby		1
Toilet/bath		1
Terrace 1		1
Terrace 2		1
Type II (Single chalet)		
Entrance		1
Sitting		1
Bedroom		1
Lobby		1
Toilet/bath		1
Terrace 1		1
Terrace 2		
Type III		
Entrance		1
Living room		1
Kitchenette		1
Bedroom		1
Toilet/bath		1
Terrace 1		1
Terrace 2		1

Type IV & IV (Family Chalet)

Entrance		1
Living room		1
Dinning		1
Kitchenette		1
Bedroom 1		1
Bedroom 2		1
Terrace		1
Toilet/bath		1
Dressing		2
Lobby		2
TOTAL	217.3	30

CHAPTER SEVEN

7.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

7.1 SUMMARY

Global warning as a result of environmental devastation is threatening human survival and has recently been a source of serious concern to governments and organized bodies. Conferences on how to reduce this life threatening menace is the subject of discussions across the world ranging from Kyoto agreements to the Bali conference on reduction of water emissions from industries and vehicles. The preservation of the ecosystem is therefore important to man's survival with governments the world over becoming more eco sensitive and policies being made to ensure the developing of environmentally responsible buildings. The architect has ecological design as a tool at his disposal for achieving this.

Eco-design often interchanged with terms like 'green' or 'ecological' architecture, is an environmentally responsible and friendly approach to design with the objective of designing, constructing, rehabilitating and maintain building structures to minimize environmental impacts both during construction and useful life of the building.

Architecture is true to the environment, growing out of it rather than being imposed on the environment by deriving most of its forms and features from its surroundings. Eco design minimizes the impact of man on the natural environment by preserving important aesthetic and unique qualities of a site. This does not necessarily imply that the site must be in totally pristine condition, however, the natural conditions or values are maintained while providing for the

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APPENDIX

TOURIST ATTRACTIONS IN NIGERIA

STATE	CAPITAL	ATTRACTION	DESCRIPTION
Abia	Umuahia	- Arochukwu Cave	- National/Physical
		- National War museum, Umuahia	- Monument
		- Akwette Weaving Center	- Arts and Craft
		- Azumini Blue River Tourist village	- National/Manmade
Adamawa	Yola	- Gashaka Gumti National Park	- Eco-tourism (Wild Life)
		- Sukur (Unesco World Heritage Site)	- Monument
		- Lamurde Hot Spring	- Natural /Physical
		- Three Sisters Rocks	- Monument
		- Mandara mountains	- Natural/Physical
		- Kini Dam	- Natural/Physical
Akwa Ibom	Uyo	- Ibeno Sand Beach/ Mobil Oil Treatment	- Natural/Manmade
		- Oron Museum, Oron	- Monument
		- Mary Slessor House/ Tomb	- Monument
Anambra	Akwa	- Ogbunike caves	- Natural/Physical
		- Rojeny Tourist Village, Oba	- Manmade
		- Agulu Lake/Gully	- Natural
		- *Aguleri Game Reserve*	- *Eco-tourism*
Bauchi	Bauchi	- Marshal Caves, Yankari Park	- Natural

		- Wikki Warm spring, Yankari	- Natural
		- Yankari National park	- Eco-tourism
		- Tafawa Balewa Tomb	- Monument
		- Geji Rock and Painting	- Monument
Bayelsa	Yenagoa	- Oloibori Oil Museum	- Monument
		- Scale Tranoit Hall	- Resort/Manmade
		- Ogidi Shrine	- Cultural
Benue	Maiduguri	- Ushong Hills, Ushongo	- Natural/Physical
		- Ikwe holiday Resort	- Natural/Manmade
		- Enemabia warm spring Okpoba	- Natural
		- Montane Game Reserve	- Wildlife/Eco -tourism
		- Dajo Pottery, Makurdi	- Resort/Manmade
Borno	Maiduguri	- Lafi Falls, Kuya	- Natural
		L.G.A	
		- Chad Basin Natural park	- Eco-tourism
		- Gwoza Hills	
		- Kyarimi Amusement Park	- Natural
			- Resort/Manmade
Cross River	Calabar	- Kwa Falls	- Natural
		- Agbokim Falls, ikom L.G.A	- Natural
		- Obudu Cattle Ranch	- Resort/Manmade
		- Cross River National park	- Wildlife/Eco-tourism
		- Rock with footprints	- Natural
		- Drill Ranch, Calabar	- Zoo
Delta	Asaba	- Chief Nana`s Palace	- Cultural
		- Koko Port	- Natural/manmade

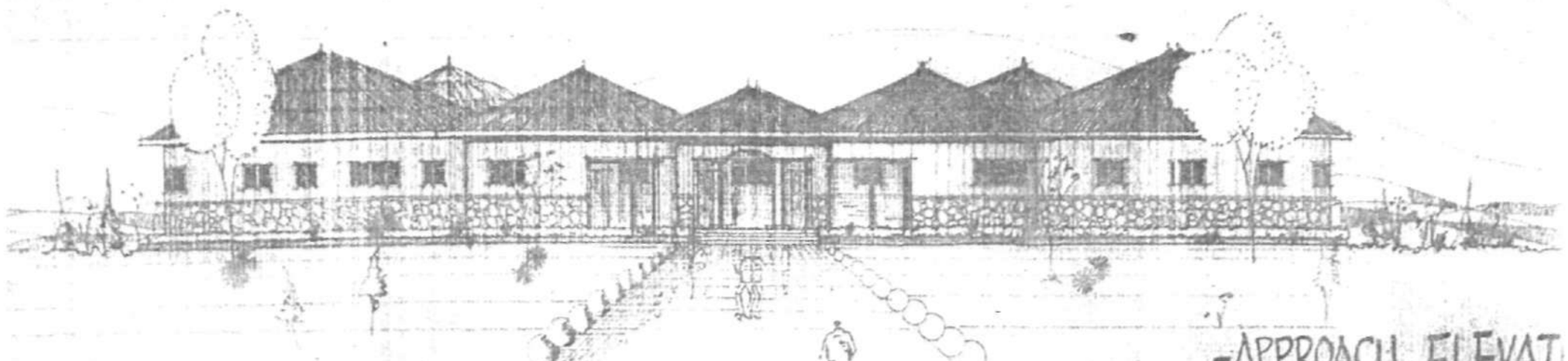
		- Escravo Beach	- Natural/manmade
Eboniyi	Abakaliki	- Umuana-Afikpo Golden Sand Beach	- Natural
Edo	Benin	- Fuger caves	- Physical
		- Okomo wildlife sanctuary	- Eco-tourism
		- Obas Palace, Benin	- Cultural
		- Ramat Park	- Monument
		- Sakpoba holiday resort	- Resort/manmade
		- Samovikal Hills	- Physical
Ekiti	Ado Ekiti	- Erinta Falls, Ekiti West L.G.A	- Physical
		- Oloscenta Hils, Ikene	- Physical
		- Ikogosi Warm Spring Resort	- Natural/Manmade
FCT	Abuja	- Abuja Garden, Central Area	- Manmade/Resort
		- Ecowas Secretariat	- Manmade
		- Aso Rock	- Physical/Natural
		- Usman Dam	- Manmade
		- Ibb Golf Course	- Sport tourism
		- Jabi Dan & Holiday Resort	- Manmade
Gombe	Gombe	- Tula Highlands/ Hills	- Physical
		- Tangale Dome shaped rock/ hill formations	- Physical
		- Dadin Kowa Dam/Tomato factory & Farms	- Manmade
Imo	Owerri	- Oguta Lake Resort	- Natural./manmade
		- Ikeji Festival, Arondizogu	- Cultural
		- Palm Beach Resort, Awoamana	- Natural/manmade

Jigawa	Dutse	- Hadejia/Nguru wetland and bird sanctuary - Ringing dyeing pit - Baturiya bird sanctuary	- ildlife/Eco-tourism - Cultural - Wildlife
Kaduna	Kaduna	- Jakaranda pottery - Nok terracotta village - Matsirga water falls Kafancha - Lugar dhal & government bridge	- Souvenir - Cultural - Natural - Monument
Kano	Kano	- Kofar mata dyeing pit - Emir of Kan`s Palace - Cooky amusement park - Bagauda lake/Tiga lake resort	- Cultural - Cultural - Manmade - Natural/man made
Katsina	Katsina	- 300 years old gobarau minaret - 10th century Kussogo well Daura - Emir of Katsina's Palace	- Monument/Cultural - Monument/cultural - Cultural
Kebbi	Birnin Kebbi	- Argungu fishing festival - Kanta museum, Argungu - Grimace Shrine, Zuru	- Natural/Physical - Physical - Cultural
Kogi	Lokoja	- ita-okueta weaving Okene - Kpata rock, Bassa - Confluence zone, lokoja - Luggard's residence & office Lokoja	- Cultural - Physical - Natural - Monument
Kwara	Ilorin	- Owu water falls, Owa Kajoda - Owe Kajita falls	- Natural - Physical

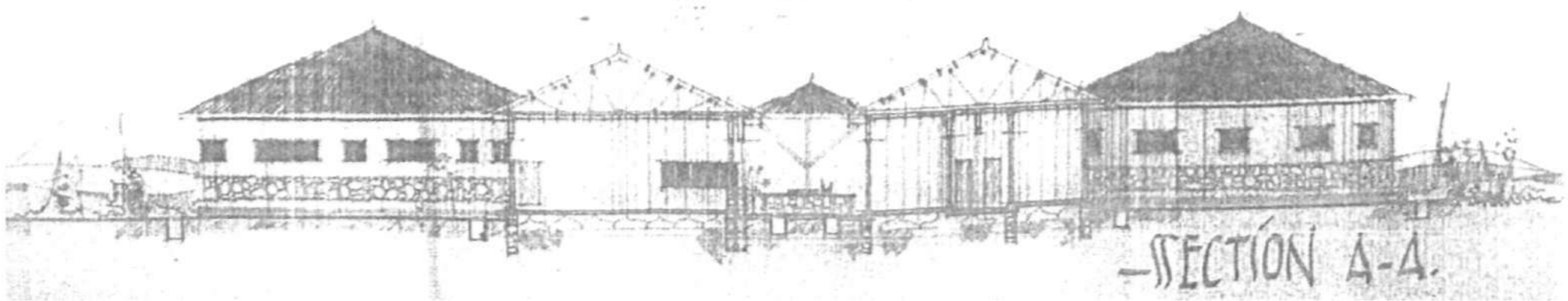
		- Ubo Aiyegunle Lake	- Physical
Lagos	Ikeja	- Bar beach Lagos	- Physical/manmade
		- Slave relics Badagry	- Monument
		- First storey building Badagry	- Monument
		- Tarkwa Bay	- Natural/manmade
		- Oba's palace Lagos	- Cultural
Nassarawa	Lafia	- Captain Tomb/hills	- Monument
		- Farinruwa falls	- Wildlife/Eco-Tourism
		- Ara rocks/festival	- Physical
		- Keana salt village, Keana	- Natural
		- Doma Dam, Doma L.G.A	- Eco- tourism
Niger	**Minna**	- Gurara falls, Gurara L.G.A	- Natural/physical
		- Zuma rock, near suleja	- Natural/Physical
		- Kainji lake National park	- Wildlife/Eco tourism
		- Mayanka water falls	- Natural
Ogun	Abeokuta	- Olumo rock, Abeokuta	- Physical
		- Adire market, Itoku Abeokuta	- Cultural
		- Ancient palace of Alake of Egbaland	- Cultural/monument
Ondo	**Akure**	- Idanre hills, Idanre	- Physical
		- Owo Museum	- Monument
		- Ipalc Iloro water falls	- natural
Osun	**Osogbo**	- Mat weaving, ipetu-ilesa	- Arts & craft/ Souvenir
		- Ooni's palace Ile-Ife	- Cultural
		- Ife bronze, Ile-Ife	- Physical

		- Erin-Ijesa water falls & hills	- **natural /Physical**
Oyo	**Ibadan**	- Alaafin of Oyo's palace	- **Cultural**
		- Agodi gardens, Ibadan	- **Manmade**
		- Ado-Awege suspended lake	**-Natural**
Plateau	**Jos**	- Assop falls, Riyom L.G.A	- **Physical**
		- Shere hills, near Jos	
		- International youth Tourism centre,	- **Physical**
		Kurara falls	- **Physical/manmade**
		- Jos wildlife park	
		- Solomon Lar amusem park	- **wildlife/Eco tourism**
Rivers	Port Harcourt	- Monument of king Jaja of Opobo	- **monument**
		- Ifoko beach Ifoko	- **Physical**
		- Okirka aquatic stadium	- **manmade**
		Port Harcourt tourist beach	- **Physical**
		- Isaac Boro Harcourt	- **manmade**
Sokoto	**Sokoto**	- Tombe of Usman Dan Fodio, Sokoto	- **Monument**
		- Sultan's palace, Sokoto	
		- Sokoto Museum	- **Cultural**
			- **Manmade**
Taraba	**Jalingo**	- **Mambilla holiday resort, Gembo**	- **Manmade**

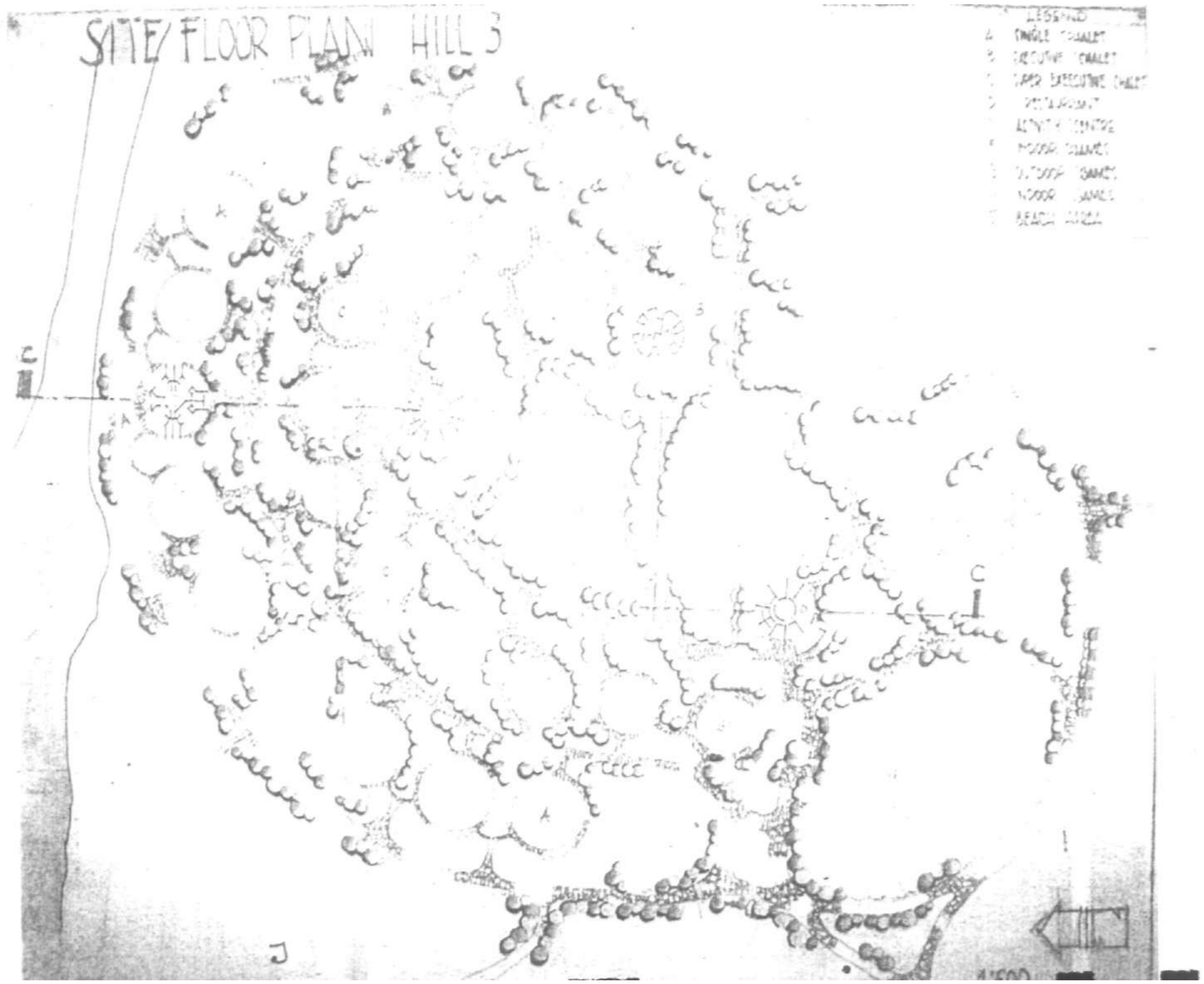
ELEVATION//SECTION. ACTIVITY CENTRE



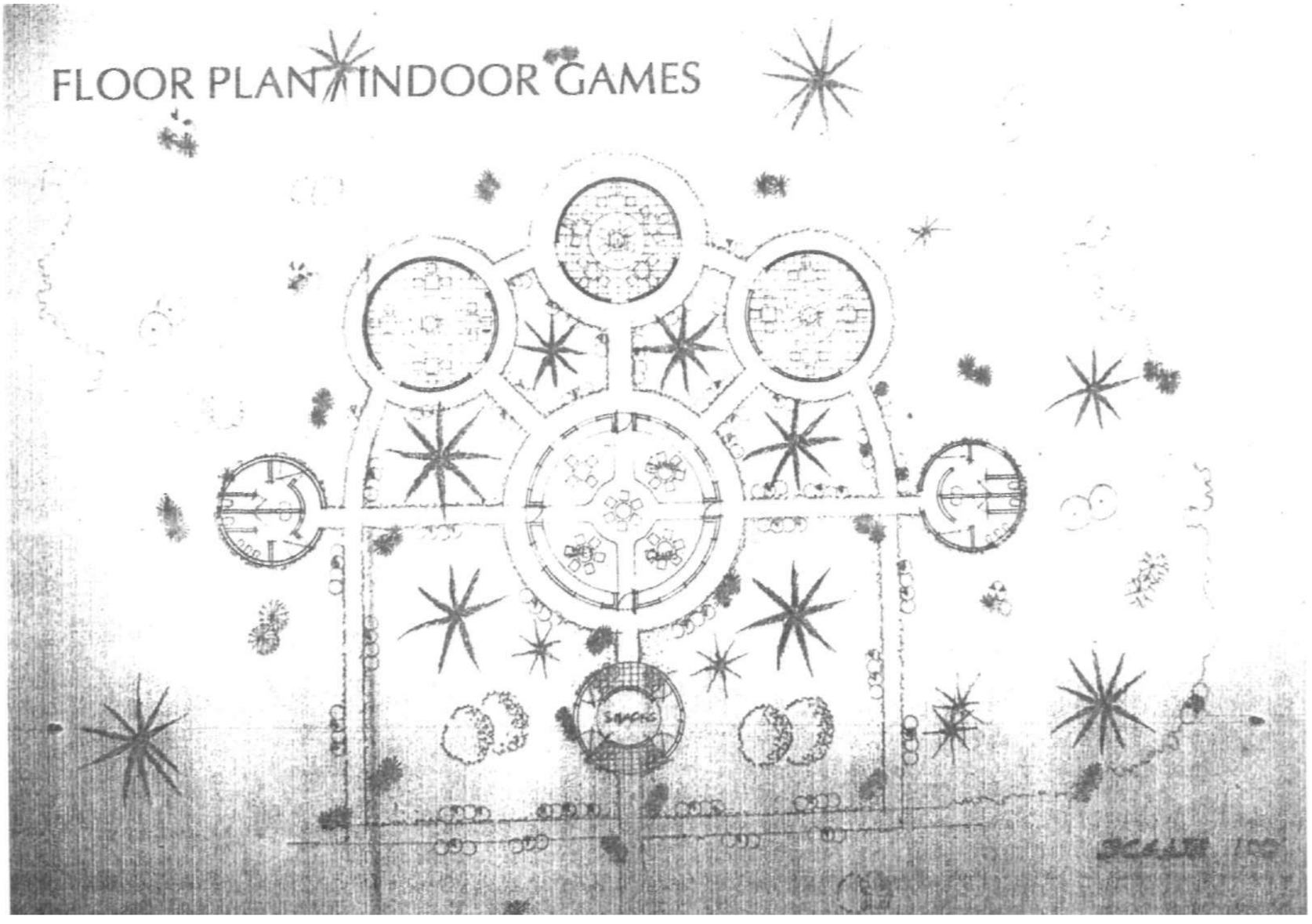
-APPROACH ELEVAT



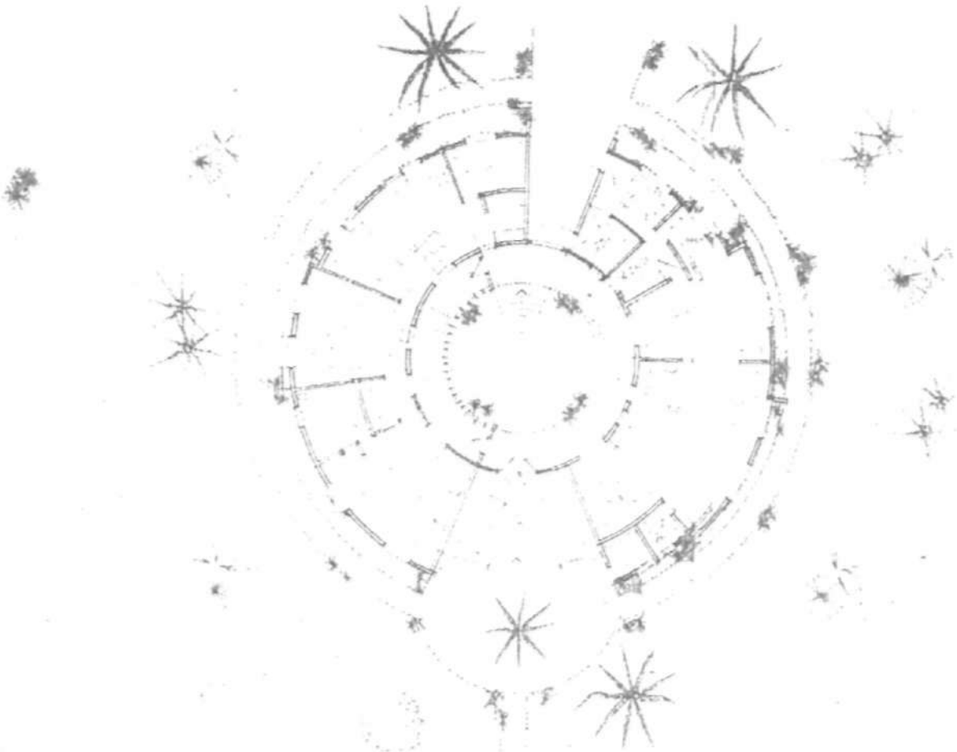
-SECTION A-A.

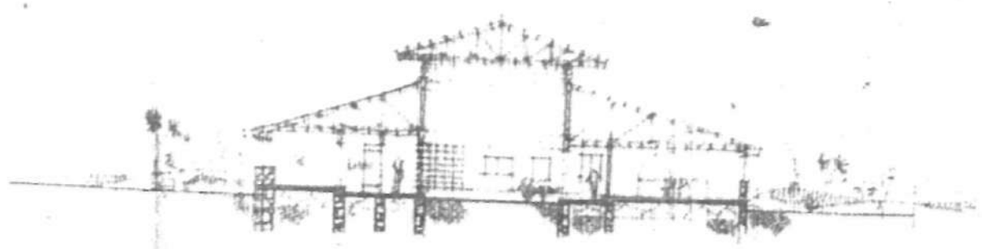

SITE/ FLOOR PLAN HILL 3
LEGEND

FLOOR PLAN / INDOOR GAMES

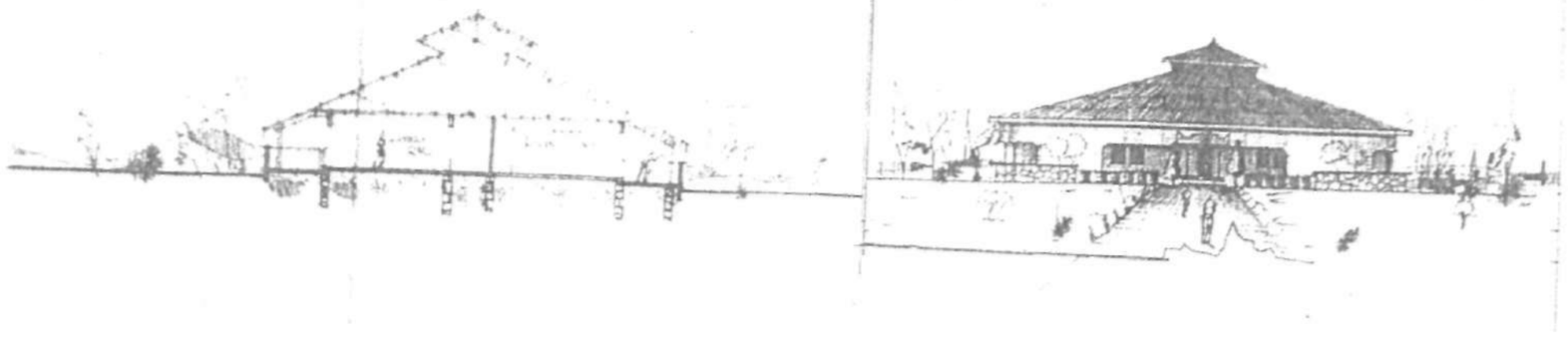


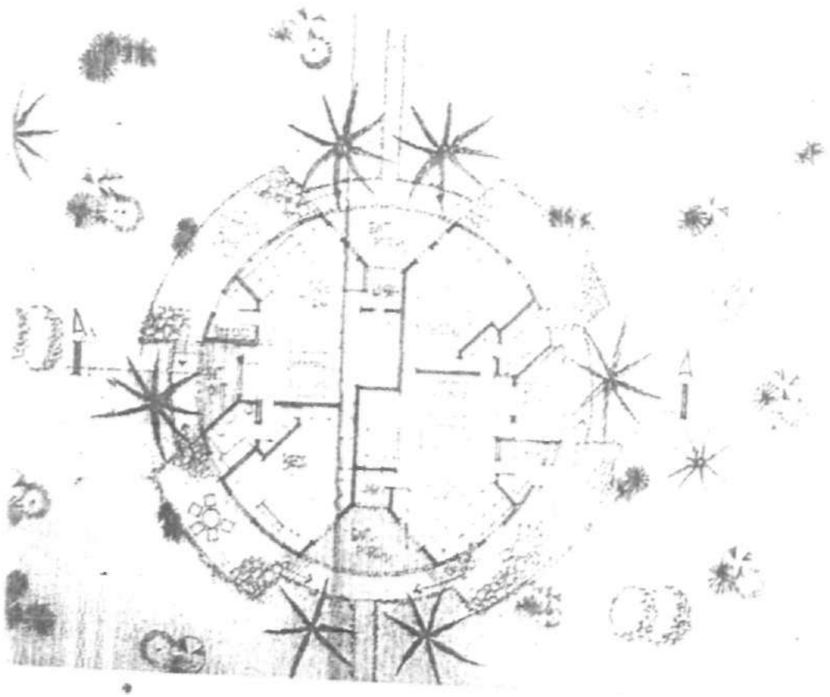
PLAN AND SECTION, SUPER EXECUTIVE CHALET

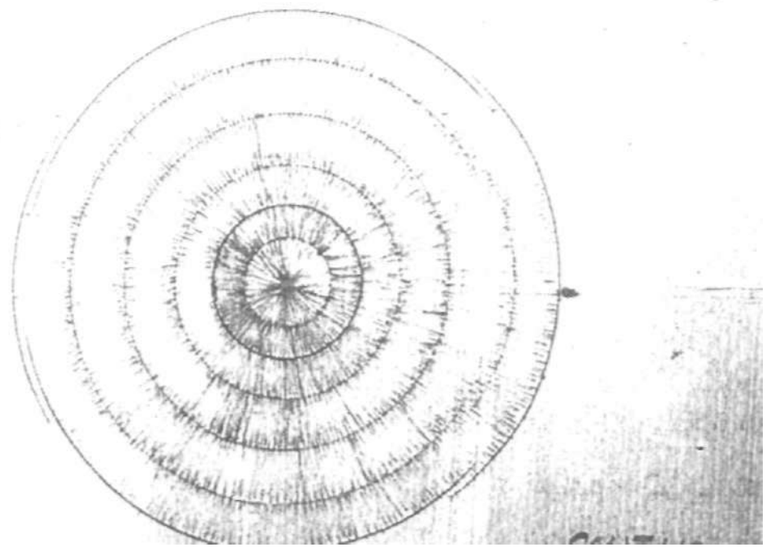




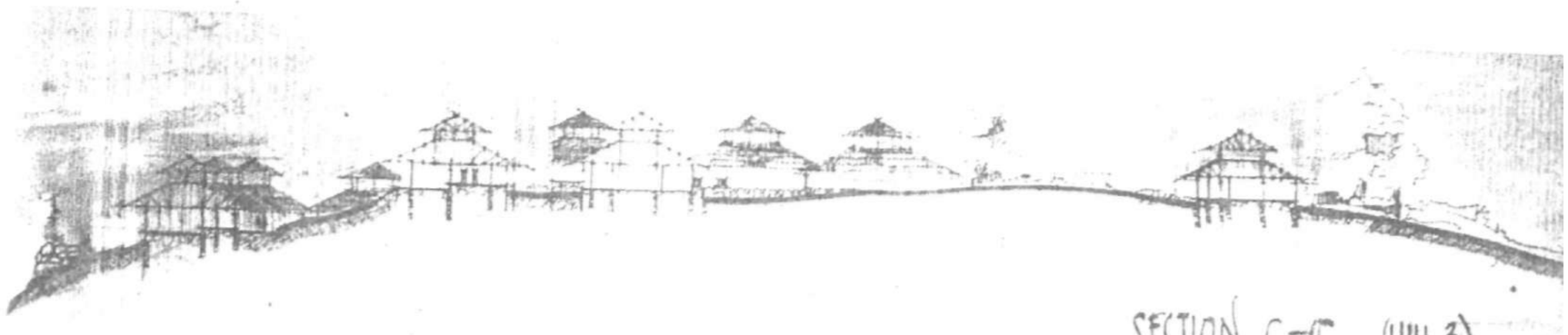
CHALET ii







SITE SECTIONS



SECTION C-C... (HILL 3).

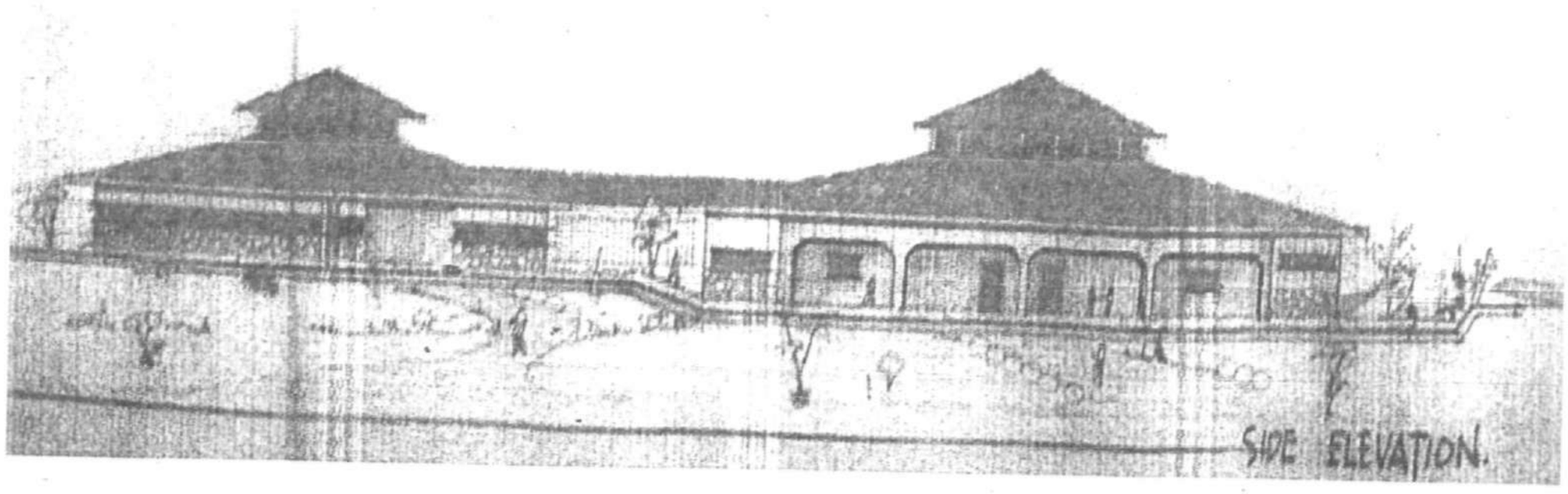


SECTION D-D. (HILL 2).

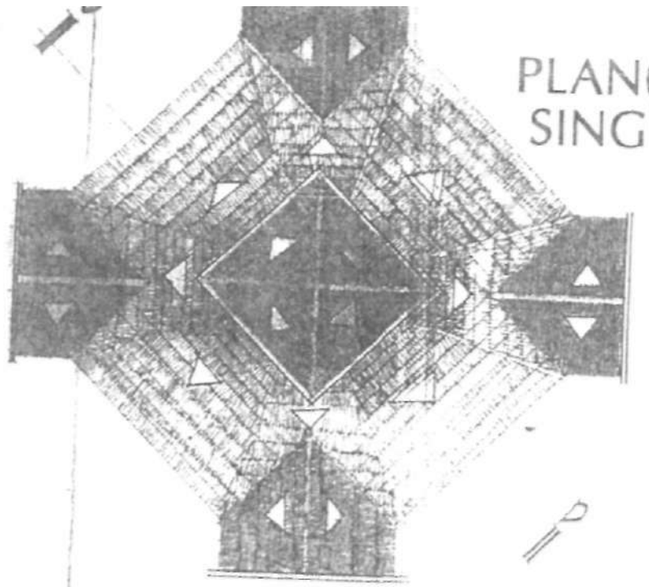
BAR/RESTAURANT



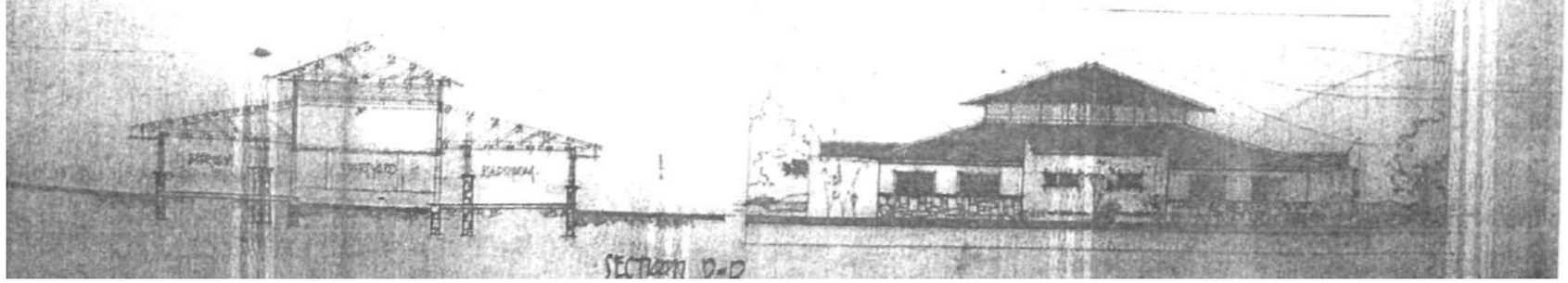
BACK ELEVATION



PLAN(ROOF), ELEVATION/SECTION.
SINGLE CHALET



ROOF PLAN.

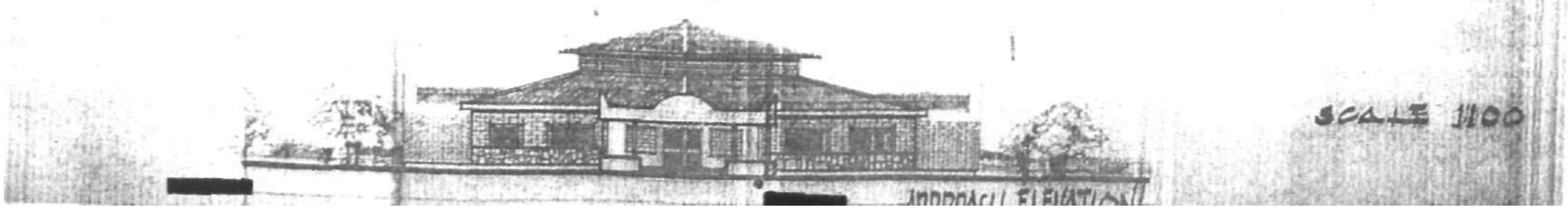


SECTION D-D



FLOOR PLAN.

SINGLE CHHALET

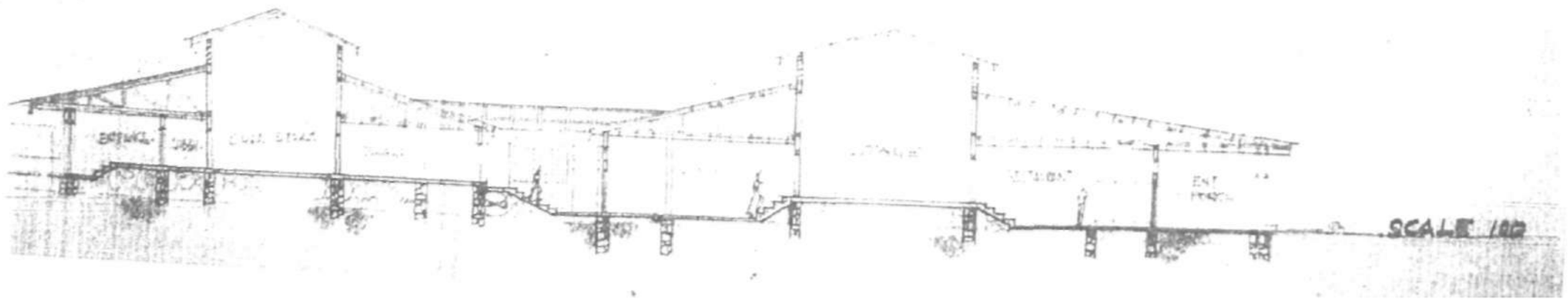


SCALE 1100

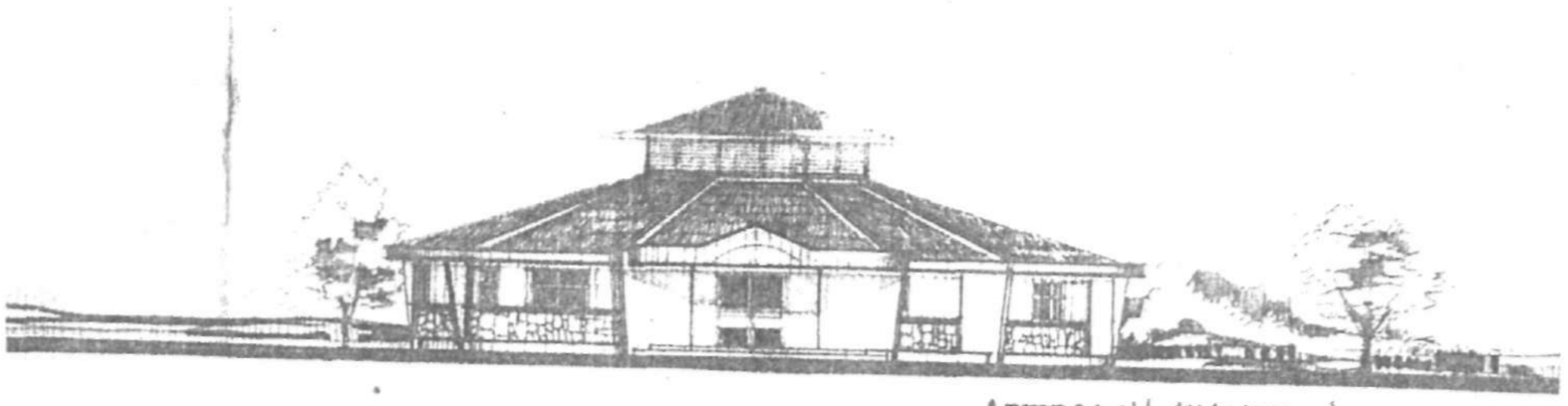
ELEVATION AND SECTION BAR/RESTAURANT



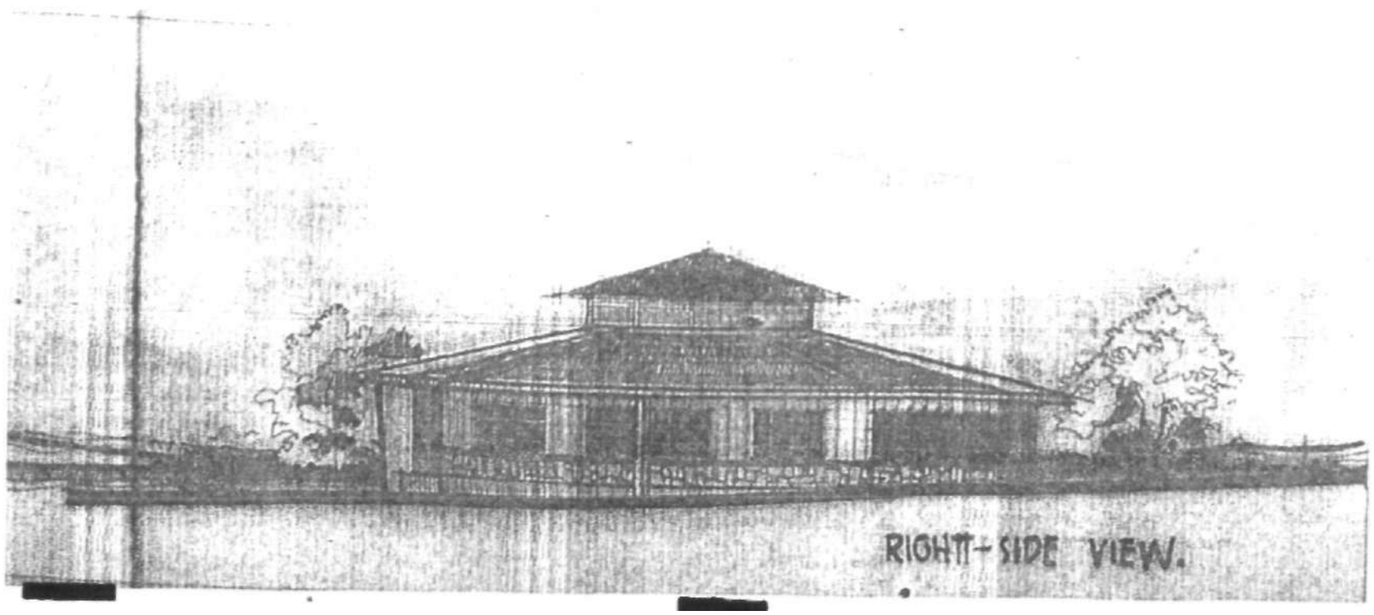
APPROACH ELEVATION.



ELEVATION . SUPER EXECUTIVE

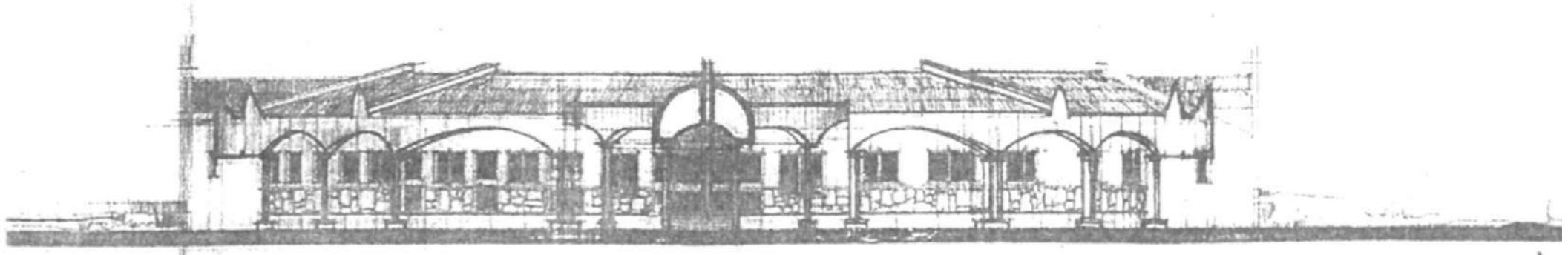


• APPROACH ELEVATION...

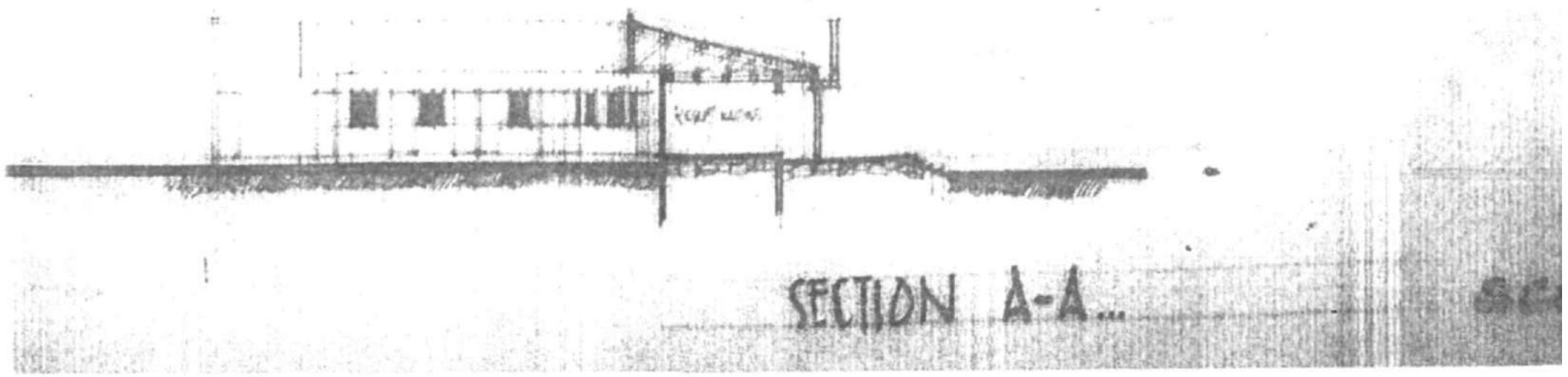


RIGHT-SIDE VIEW.

TION // SECTION. INFORMATION CENTRE:



APPROACH ELEVATION.



SECTION A-A...



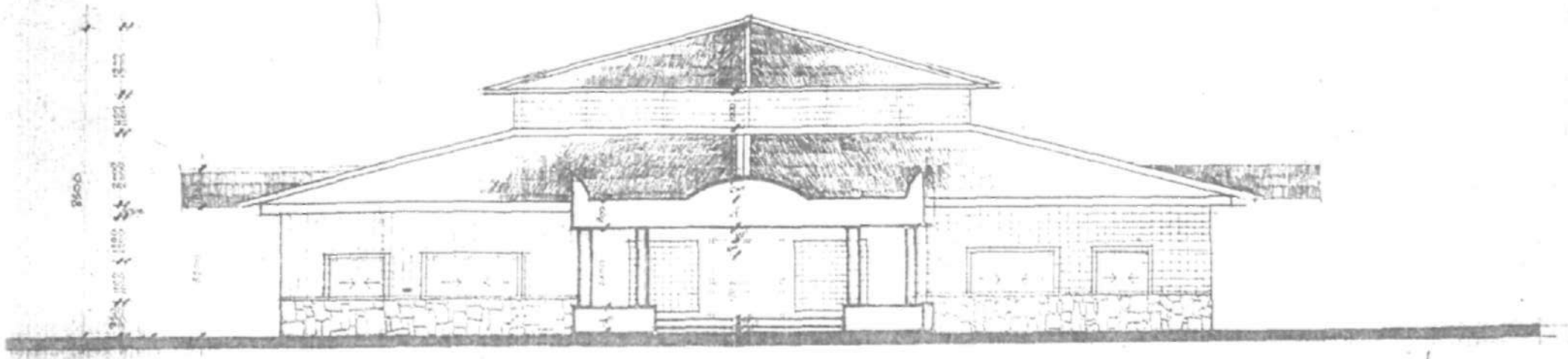
- THE CONICAL TOP, DERIVED ITS SHAPE FROM THE TREE FOLIAGE THAT HAS A ROUNDED SHAPE WITH CONICAL TOP. WHICH ARE FOUND ON SITE

- THE CURVATURE OF THE BUILDING CAN BE COMPARED TO THE FLOWING STREAM, WHICH IS FOUND IN THE SITE. AS WELL AS THE CURVATURE OF THE MOUNTAIN OUT CROPS.

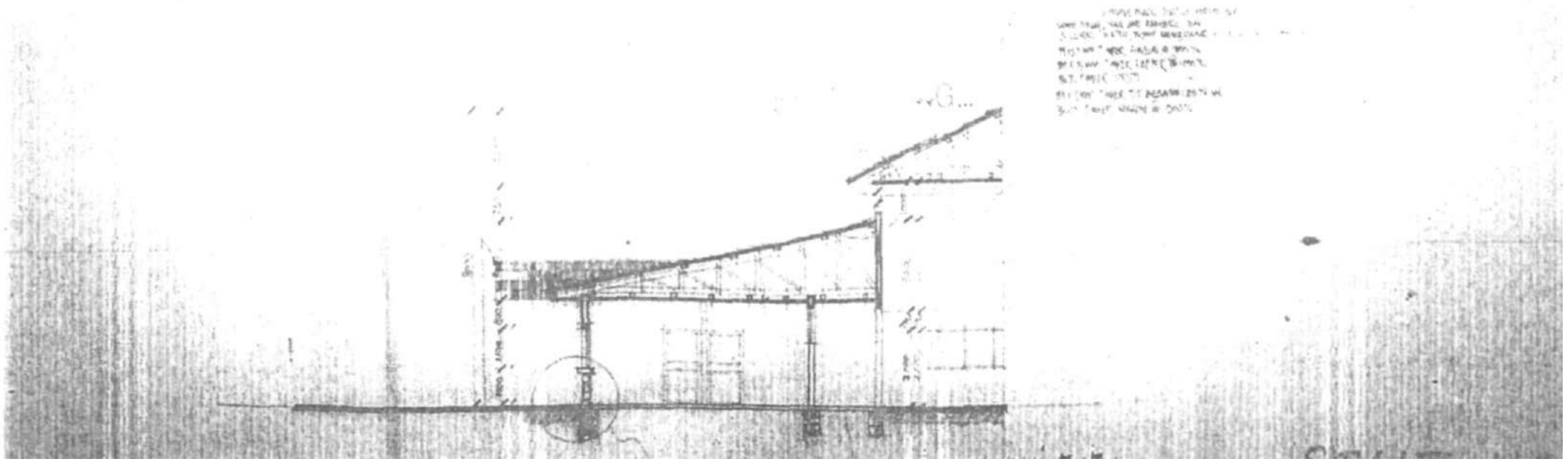
- THE STONE WORK USED ON THE BUILDING IS A DERIVED FROM THE ABUNDANCE OF STONE IN THE SITE.

- THE ABUNDANCE OF EARTH (LATERITE). ON THE SITE WILL MAKE BUILDING MATERIAL [illegible] BRICKS)

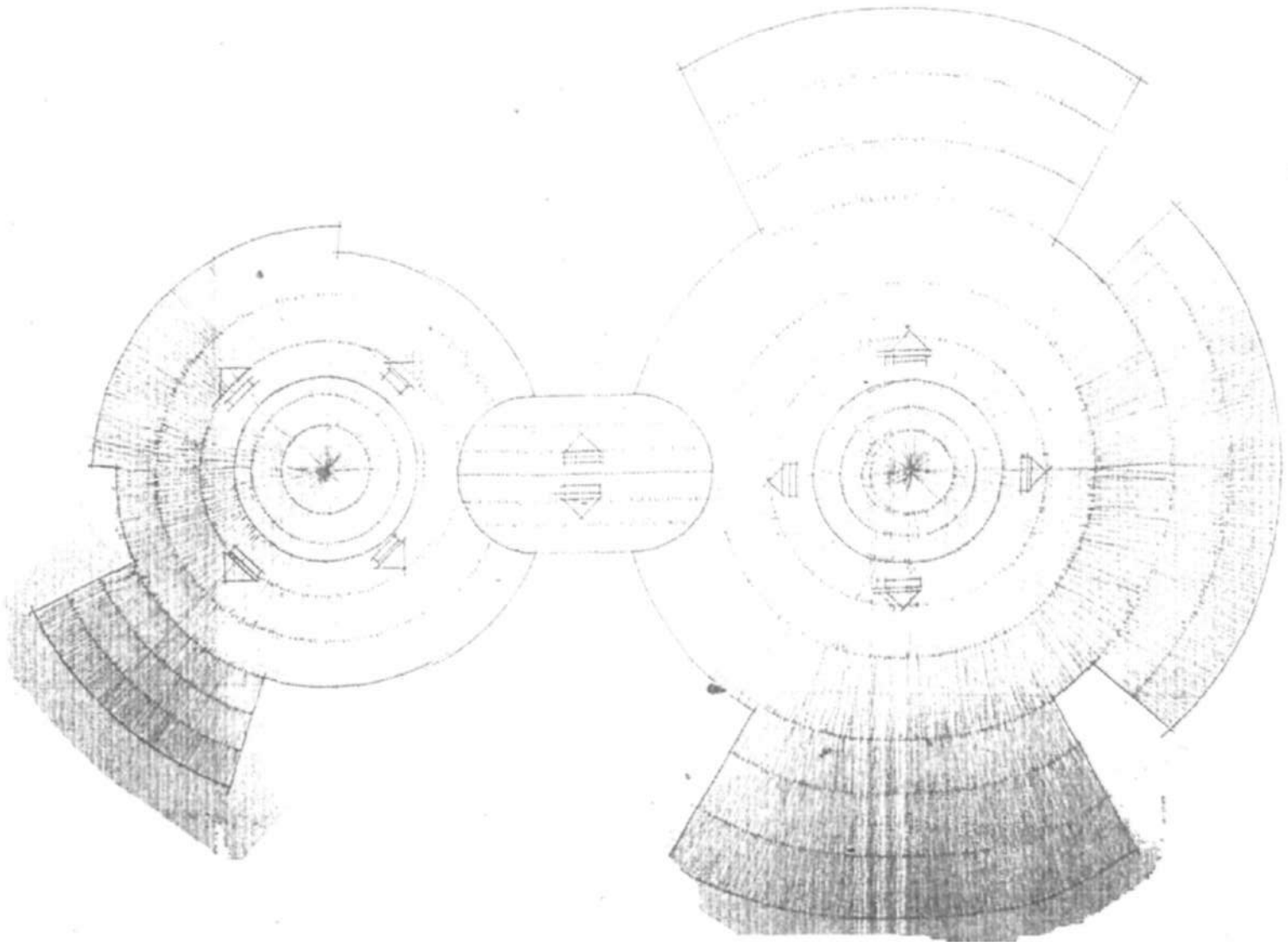
WORKING DRAWING ELLEVATION/SECTION



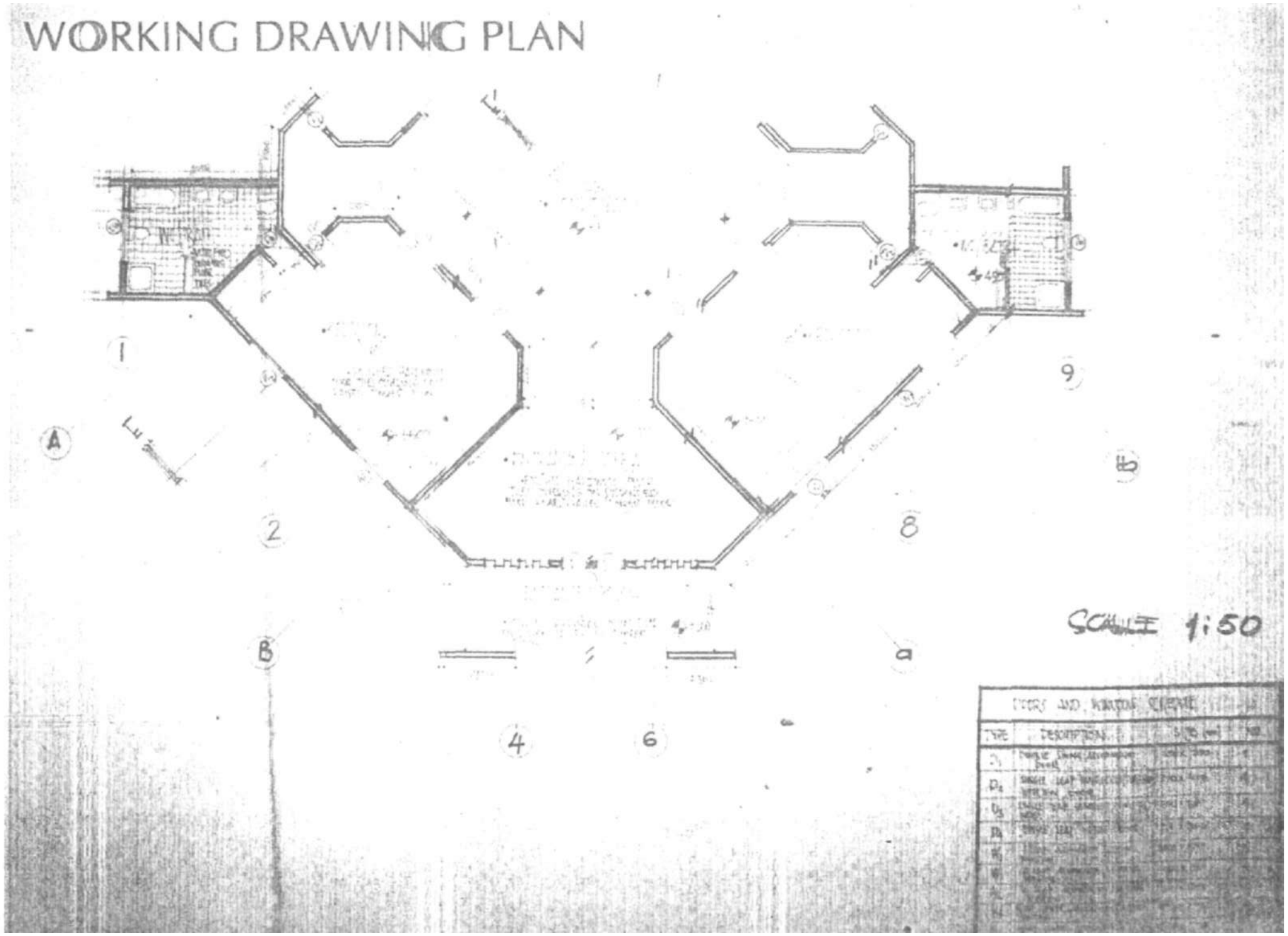
APPROACH ELEVATION.



ROOF PLAN. BAR/RESTAURANT.



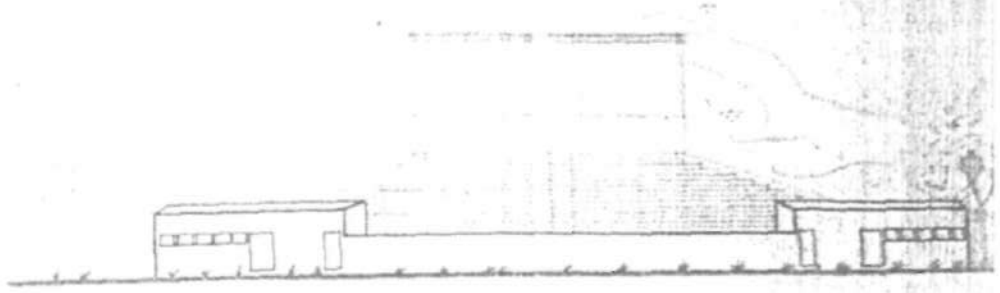
WORKING DRAWING PLAN



SCALE 1:50

TYPE	DESCRIPTION	SIZE (m)	NO.
D_1			
D_2			
D_3			
D_4			
W_1			
W_2			
W_3			

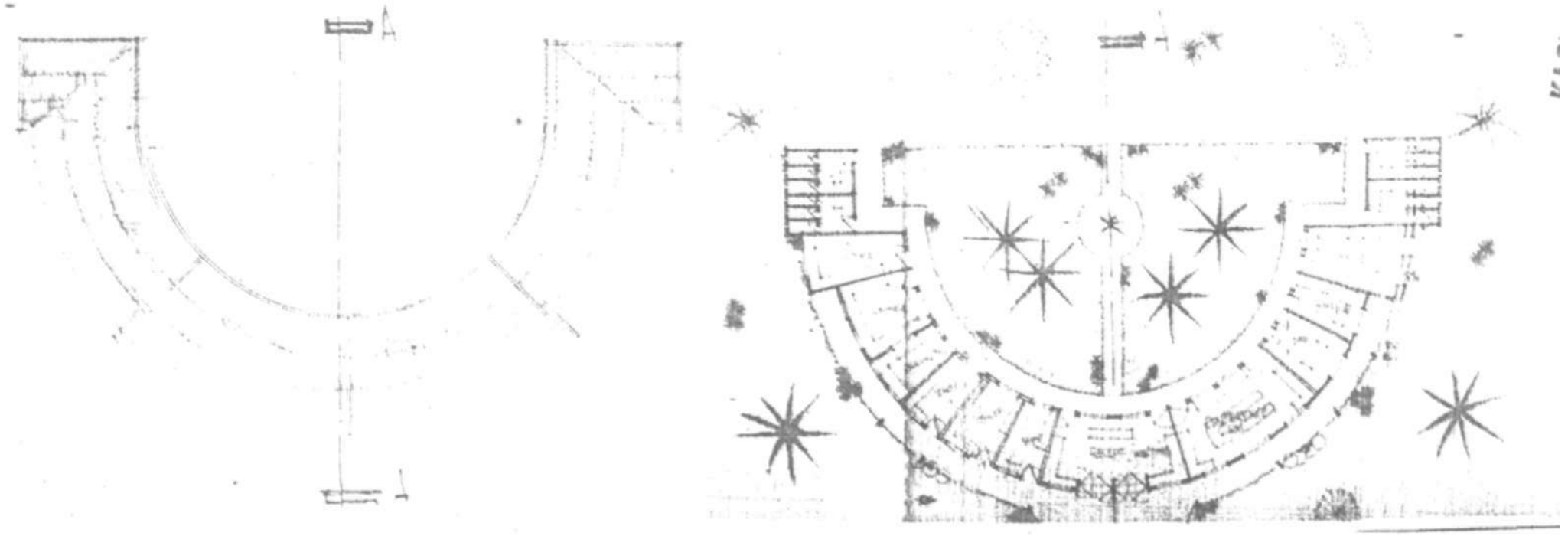
AMPHITHEATRE



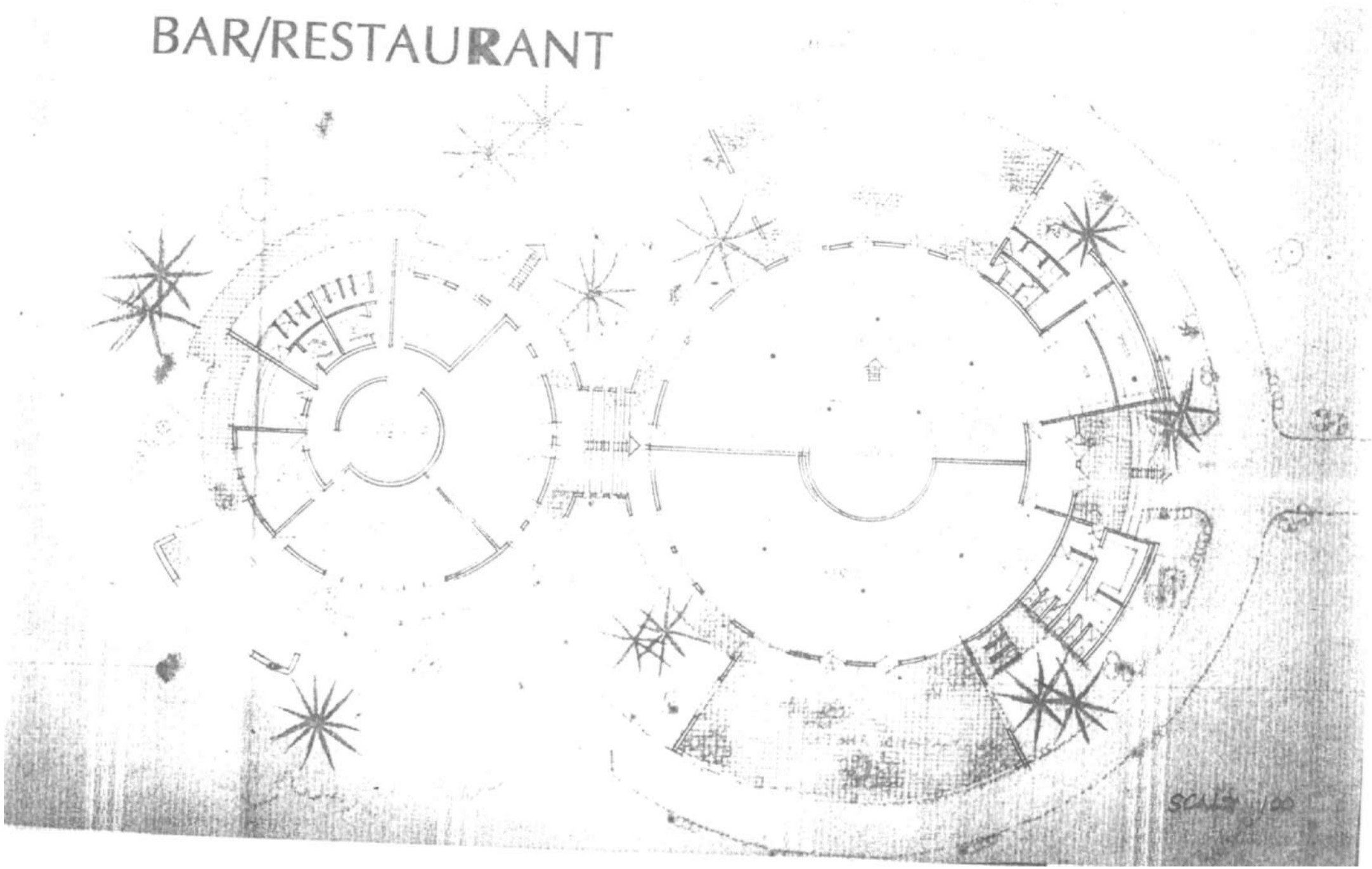
Approach Elevation.

SHEET NO..	**DADIN - KOWA HOLIDAY CAMP** ECO-APPROACH TO THE DESIGN OF HOLIDAY CAMP Name:- Ahmed Umar, Reg. No: MSC / [redacted] Env Des/ 41301/04-05 Mentor: Arc. S.S. Tulpules	MSC THESIS 2008

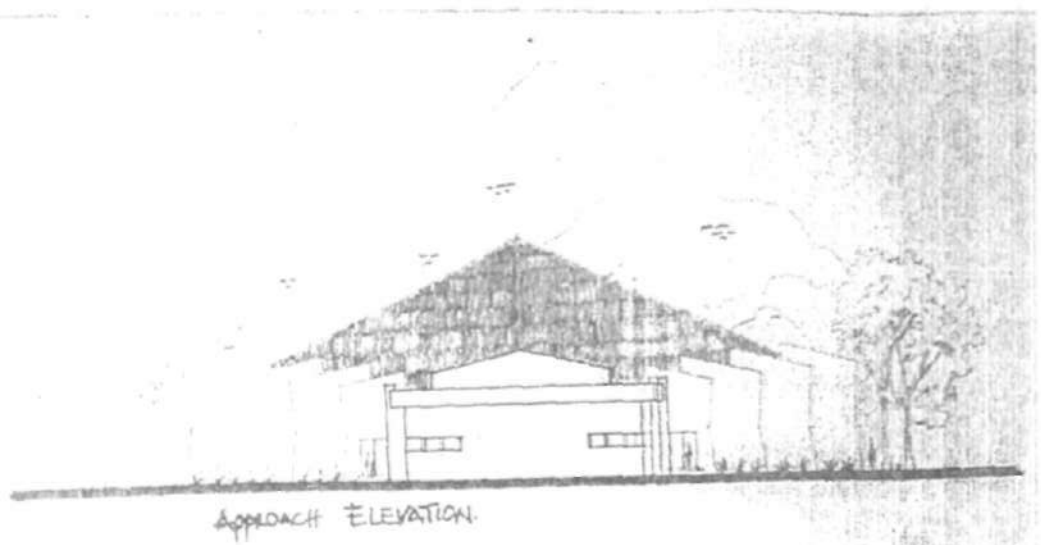
ROOF/FLOOR PLAN INFORMATION CENTRE



BAR/RESTAURANT

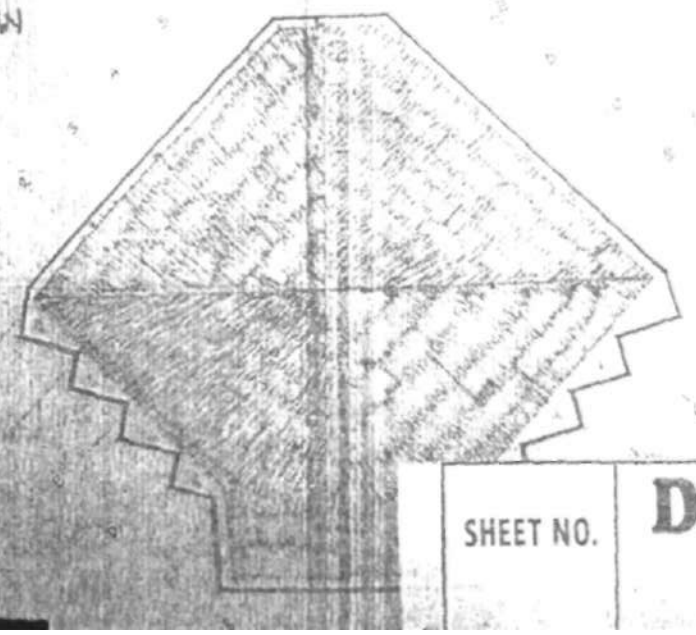


FLOOR PLAN



APPROACH ELEVATION

ROOF PLAN





SHEET NO.

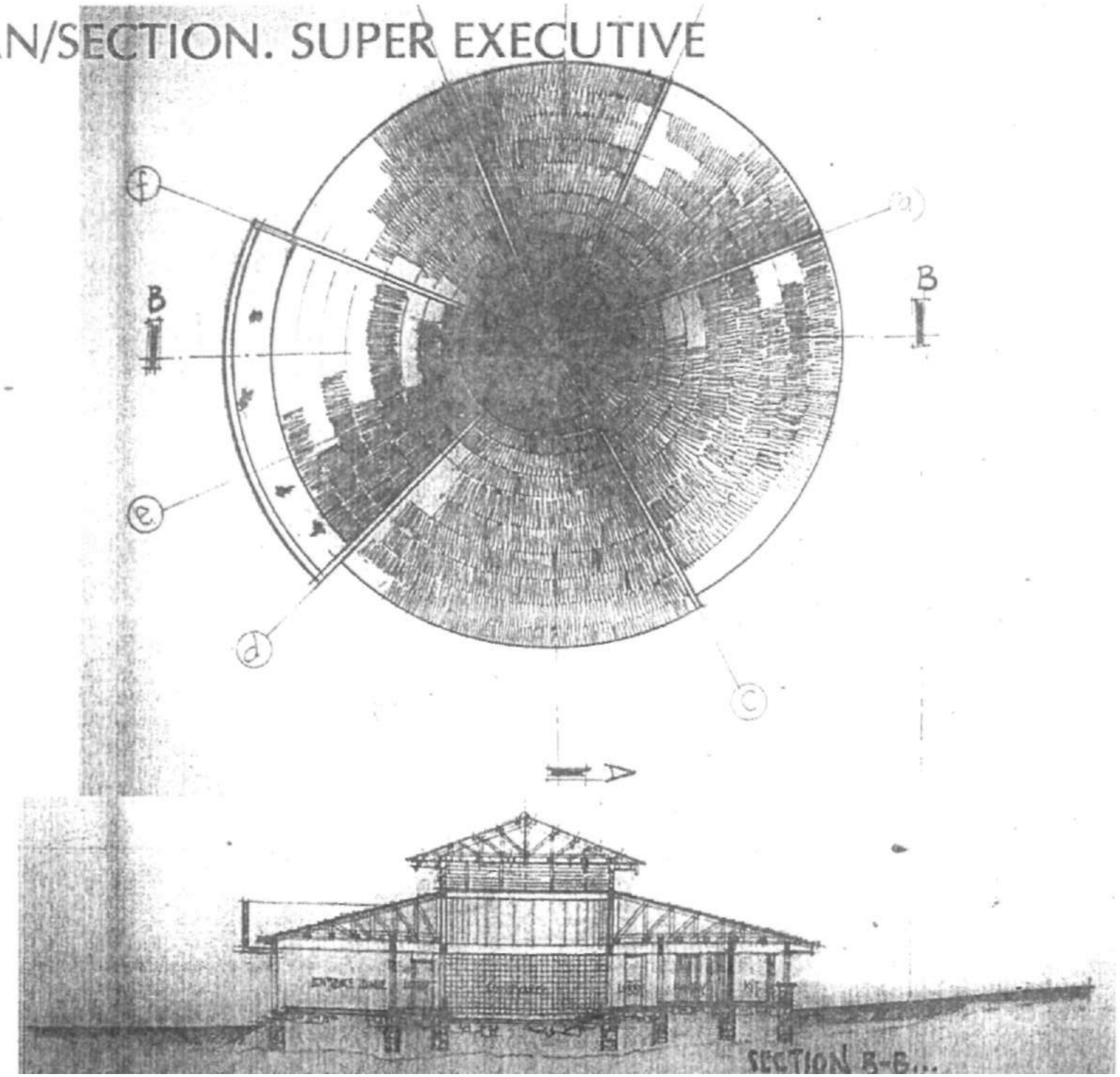
DADIN - KOWA HOLIDAY CAMP

ECO-APPROACH TO THE DESIGN OF HOLIDAY CAMP

Name:- Ahmed Umar, Reg. No: MSC / Env Des/ 41301/04-05 Mentor: Arc. S.S. Tulpule

MSC THE
2008

PLAN/SECTION. SUPER EXECUTIVE

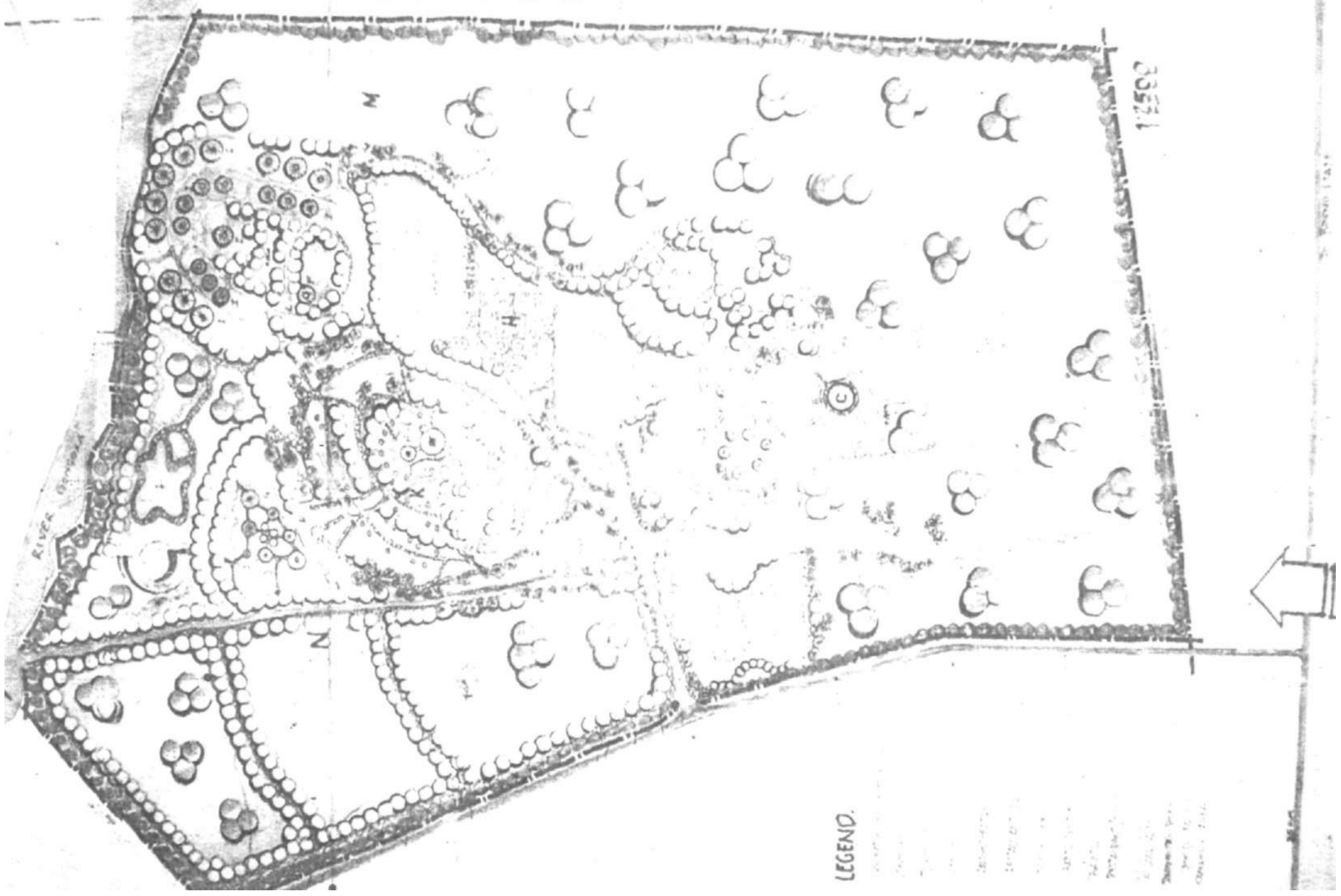


SITE SECTIONS

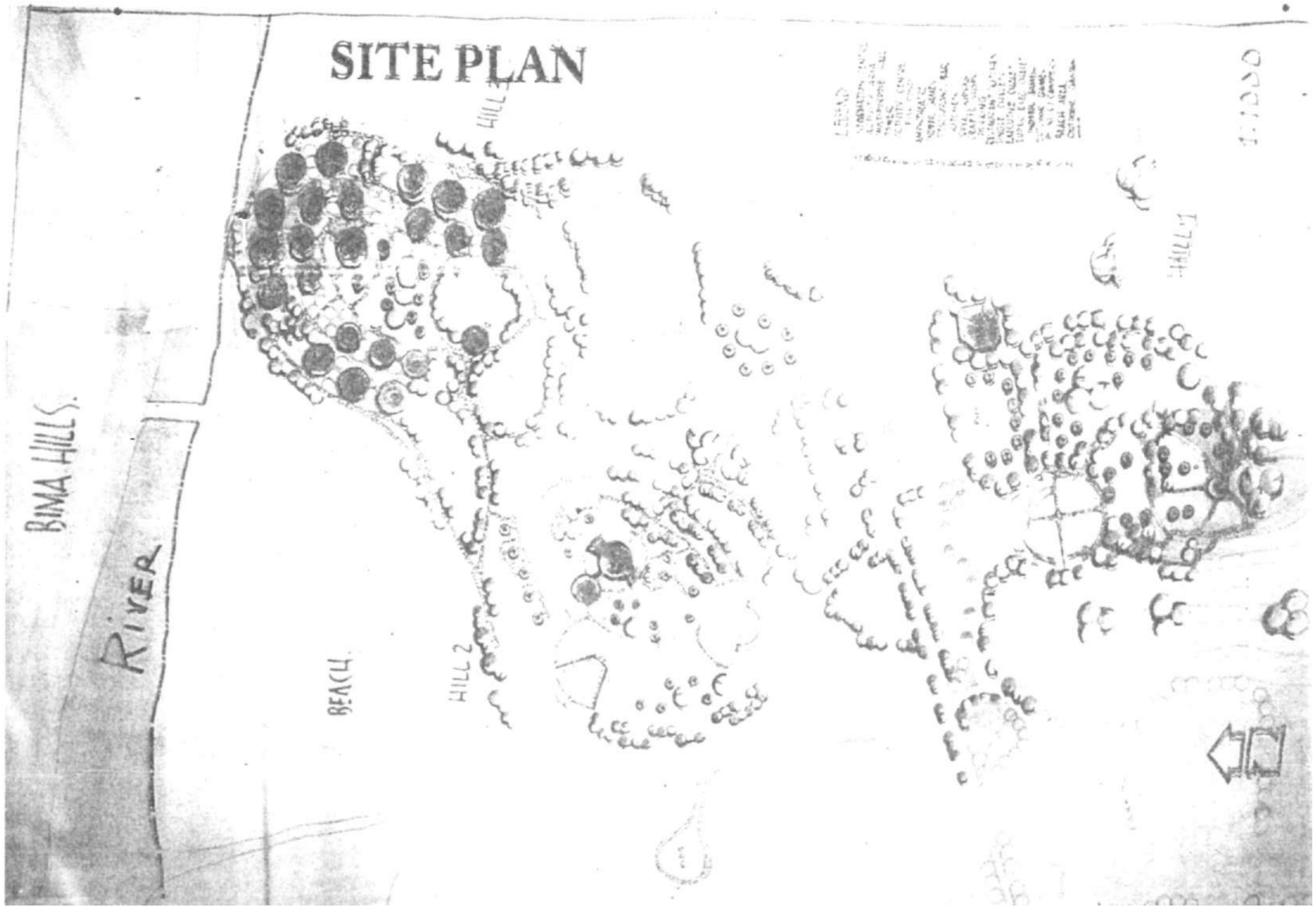




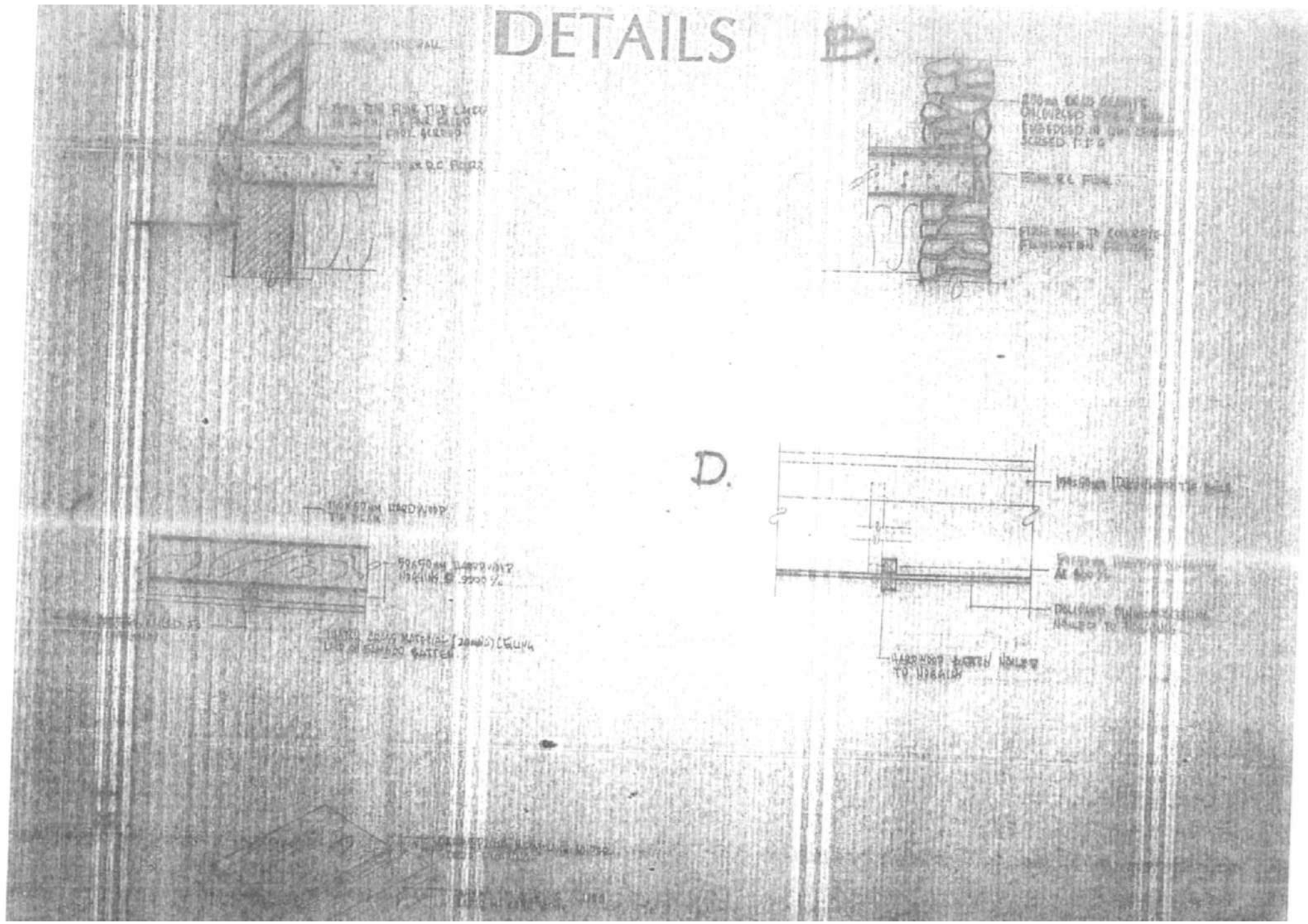
SITE LOCATION MAP



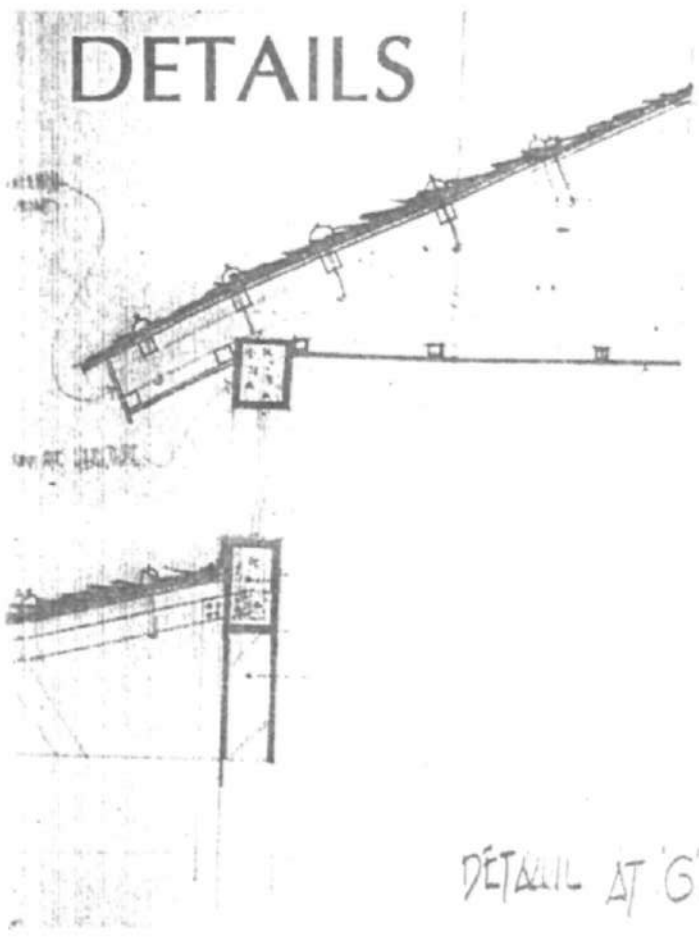
SITE PLAN



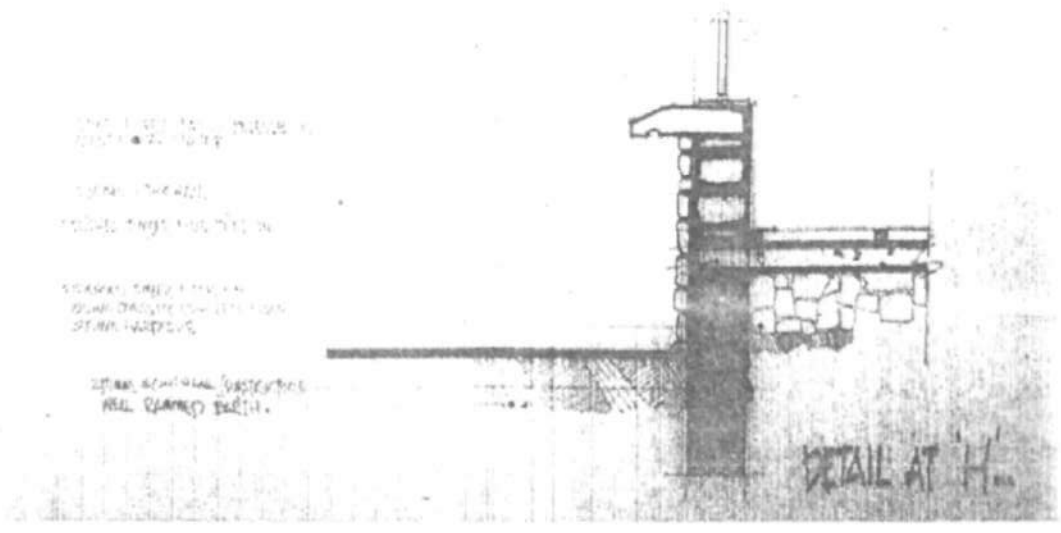
DETAILS



DETAILS



DETAIL AT 'G'...



SITE PLAN HILL 2

