HOLIDAY RESORT AT TIGA DAM IN KANO

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UMAR OTHMAN TOFA

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D E D I C A T I O N

I, Sincerely dedicate this work to the following persons:

ALH. ABBA USMAN	-	My father, who shouldred all my educational and financial burdens during the entire period of my education.
HAJIYA RAKIYA	-	My Mother, whose Love, prayers and advices kept me moving on.
BASHIR O. TOFA	-	My brother, who adviced me to take up Architecture in the first place and supported me morally and finacially.
SA'ADATU UMAR TOFA		My wife, who suffered due to my absence during my studies; and yet demonstrated understanding and and outstanding patience.
HAFIZAH UMAR TOFA		My daughter, for the betterment of her generation's welfare, I will work harder.

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I would like to specially mention the names of the people whose help on assistance proved very vital and crucial to the progress of this project. These includes:

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5. GARBA HALILU - ARCHITECT - Mins. of Works Kano

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1.00 INTRODUCTION

1.01 THE PROJECT

The project is for the design of a 'heliday recreation resort' at Tiga Lake area in Kano State. The resort will incorperate a wide range of recreational facilities, water and Land based. Catering facilities for dining and accommodation.

1.02 THE CLIENT

For the purpose of this design thesis (not a life Project), I will adopt the Kano State hotels Management Board (a Kano State government Parastatal), a body that is now in charge of the Management of Bagauda Lake resort and numerous other hotels/restaurants owned by Kano State government, to be the financiers of this scheme. It is very important for me to note that this Board has its own proposals for the future development of holiday reserts in the Tiga Lake are and that I have gained an insight into the Board's experience with Bagauda Lake resort and other Caterin facilities.

1.03 THE GENERATING IDEA

Tiga Dam (or Tiga Lake) is a man made Lake like Bagauda Lake - which is only 22 km away. In fact Tiga Dam (or Tiga Lake) which has a total surface area of 17,800 hectres is about fourty seven times bigger than Bagauda lake in area (Bagauda lake covers an area of 376 hectres. Bagauda Lake as of now is

supperting a commercially successful resort. To me, Tiga lake (second only to Kainji lake) presents a tremendous opportunity for people in the far north of Nigeria to experience and enjoy the bliss of Water front atmosphere. I am not suprised at all that people from everywhere in Kano State and probably from other states too, find time to visit the lake just to enjoy the cool breeze and the view of a large expense of water, so far stretched that in some places the water surface vanishes into the horizon where it appeared to have merged with the heavens. I can't imagine how wonderful it would be for these people, if only they could dip their feet in the lake. If they can stay a little longer to enjoy the breeze and perhaps enjoy a kind of peace and contact with nature which have eluded them in their Urban duellings.

2.00 RESEARCH

2.01 TRENDS IN HOLIDAY RESORT DEVELOPMENT

Before the advent of Nineteen centuary there were no holiday recreation resorts in the strict sense of the facilities available and function performed by a resort. Facilities in these times were limited to Inns, taverns, Auberges and hospices which were often located along main coach routes and in the towns where travellers can be accommodated for a night or so before they are ready to continue their journeys or having reached their destinations can be accommodated for as long as they wish to stay. The Nineteen Centuary saw a greater development of resorts when new and specialised resorts came into existence. These inluded:

(a) SPAS for health and Entertainment (eg Bath - England)

(b) CLIMATIC RESORTS - Strictly health resorts for the treatment of deseases like tuberculosis etc)

(c) ALPINE (MOUNTAIN)RESORTS - Including traditional Villagers.

(d) SEASIDE RESORTS - Mainly for leisure

(e) SKI RESORTS - First created in 1920 for the purpose of Olympic games in Chamonix.

With increasing opportunities after the world war there was a high demand for facilities. This was brought about in part by increasing affluence, education paid holiday, shorter working week and more flexible

holidays and also partly by a surge in the desire to enjoy nature and make more contact with it. Resorts build during these time were not integrated as they were built on a highly speculative basis without broader consideration of the relationship of the facilities and the long term needs of the resorts and of the areas in which the resorts were located.

Of course there was little to be desired out of the quality of such non integrated resorts. For instance large dominating buildings often out of scale with their natural serrounds as well as with each other were erected. There was an overloading of the infrstructural facilities as well as over concentration of structures altogether resulting in pollution, failure of services and lack of open spaces. Integrated resorts began to appear as early as 1935 (Cervinia in Italy). These were comprehensively planned and their construction was reasonably supervised and controlled hence they acquire what their predecessors lacked - in quality, efficiency, propriety and scale.

2.02 NEW TRENDS:

Recent developments in planning and designing of holiday resorts have evolved partly from studies and analysis of the function and successes of existing holiday resorts with a view of improving the situation and partly by the planners initiative to break new grounds and try new ideas.

Studies on some of the existing resorts have revealed certain failures like traffic congestion, high density, pollution, high costs and noise, all of which are the disadvantages of an urban area from which the people are trying to escape - in the first place. Undoubtedly these problems have been created by the over-development of the resort area often at the expense of taking proper advantage of the site with its scenic beauty and available natural resources. Generally, these problems arise also from inadequate and ineffective organisation and control of development from physical planning stage to the implementation stage. In future, resorts must be planned to maximise the gains and involvement of the local community as well as the regional community in general. This means that it will not be sufficient to plan a resort from it's internal point of view only and without considering its wider influence on its locality and the region of its location and Vice - versa.

2.03 <u>BAGAUDA HOLIDAY RESORT - A CASE STUDY</u>

This holiday resort (the first of its kind in the Northern States of Nigeria) is located off Kano to Zaria road - 54 kilometres away from Kano, and along Kano to Jos road. This indicates that the resort has a good road connection with the Kano Urban area and the neighbouring States.

(See location map on page.....).

The site on which the resort is constructed is adjacent to the reservoir of Bagauda Dam. Although the dam was primarily constructed for irrigation (of 1500 acres), town water supply (25 million gallons per day) and fisheries; it was not hard for the authorities to realise the possibilities of secondary benefits: wild life (or nature) conservation and recreation. To realise the primary and secondary benefits that such a dam and reservoir could afford to Kano State, the design and construction of the dam and the holiday resort was undertaken by the Ministry of Works and Survey on behalf of the Kano State government. The construction of the dam itself was completed in 1970 while the resort was commissioned for public use in 197 (see table for construction information).

Facilities at Bagauda Resort

(i) Chalets:

Altogether there are four types of chalets, when classified according to their individual character and the number of beds (persons)

* V.I.P. Chalets 4
* Traditional huts 50 (each of 2 beds)
* Single chalets 50 (" " 2 ")
* Double chalets 8 (" " 4 ")

∴ Total number of beds = 446

Observations: * No self catering chalets

* "Economy class" type of chalets (except V.I.P. chalets)

(ii) NITE CLUB:

Basically a discotheque with a bar service for all sorts of drinks. There is no kitchen or kitchnette attached to this bar although on few occasions (not always) a guest may order a snack from the main snack bar at the restaurant. There is a dance floor but no band stand which indicates that it was meant to be used as a discotheque. According to the Manager, the night club has a capacity of 250 persons which is very doubtful considering the fact that there was never enough space to take that number of chairs with their tables. A capacity of eighty persons is alright.

(iii) Restaurant

The restaurant can accommodate up to one hundred guests. The service is good and the atmosphere is enjoyable. The only critisms are that the waiters' affairs have worn out and there is no pleasant view of the lake from the dining space.

(iv) Swimming Pools:

The large olympic size pool is open to public (apart from guests) but at a fee of 50k per adult and 40k per child. The number of changing rooms

and lockers is adequate. However there is occassional overcrowding on special holidays (eg Sallah or Chrismas). The terraces for sun bathing a wide enough. And as I was informed, there is always a life guard. The swimming pool area which is adjacent to the Tennis courts (four in number) has a bar from which drinks and snacks can be supplied to sun bathers.

(v) Bank & Shop

The bank is a branch of Standard bank of Africa. It provides services to the staff of the resort, guests who need to cash (change) foreign money and also few of the villagers (especially workers at Tiga) around. It is indeed a small bank for a small community. There is only one official shop which is a bontique that stocks both Nigerian and foreign designs. However some local craft dealers or traders are around either at the snack bar lobby or under one of the trees.

(vi) Banquet Hall

There is a large banquet hall adjacent to the swimming pool area. The banquet hall is used for parties and ceremonies by individuals, companies or associations who hire it from the management. Back up services for such occasions are provided by the management at an agreed price.

(vii) Conference centre (TCHAD HALL)

This is recently added to the holiday resorts. It is a large conference centre (capacity - up to 500 delegates) of international standard. It has all the parapanalia of an international comference hall. It has been used on few occasions for international conferences (eg Chad C,nference and the British and Zambian conference) and also National conferences. Of course any conference means more use for the chalets and other facilities. The lack of similar facility elsewhere will definitely gaurantee business for this building.

(viii) Proposed boating facility

On the master plan, it has been indicated that this boating facility will be provided alongside other facilities. But upto now it has been ignored. This may not be unconnect with a fear that the reserveir (which will be used to supply drinking water) may become polluted. This may be the reason why no water based recreation (except angling) has been encouraged.

(ix) Open air theatre

This open air theatre is designed to accommodate about 500 persons (with a minimum area of 0.8sq m per person.) The theatre can be used for film projection and lecture having got a stage and screen ever though there is no clearly define film prijection

room or space. The theatre may possibly have been intended for use in drama and plays but the spaces in the back-stage which could have been the changing rooms were never completed. The open nature of such theatres demands the use of durable materials (since everything would be exposed to the weather and other environmental forces). The seats in this theatre are of timber which has already started to rot due to its' less durable qualities and lack of maintainance. The screen is metalic (painted white) and since it has no shading or/and protection against rain, it has already shown signs of rust (see photo-graph). This plus the fact that the audience seating area is being overgrown by weeds give an impression of lack of maintainance or not being used at all. The lack of ticket offices and high surrounding walls indicate the free and informal nature of the activities which take place in this theatre. My suspicion of the under utilisation of the theatre was confirmed by the resort's manager who indicated that the lack of a surrounding envelop and ticket offices meant that everybody around is free to watch any activity that may be going on free of charge aand this meant that the management could not make money to even pay for the artistes or films they have to hire for the occasion.


TCHAD HALL

















(x) Circulation

The resort has an immense network of roads - over fifty kilometres, mainly due to widespread planning of chalets. This meant high maintenance costs. I have observed during my visit, that many segments of the roads have patched or unpatched pot holes. Parking spaces in this resort are very adequate.

(xi) Delivery and Removals

Services (food stuff) delivery is by contract mainly except in few instances when the purchasing officer does the purchasing directly. The contract for the supply is always in a form of local purchase order - issued to the contractor one day in advance. This method is obvious considering that the kitchen's order (or requirements) for the next day is usually known only within the present day. Garbage removal is by the use of a resident tractor which goes round everymorning to collect garbage.

(xii) Employees

The resort is maintained and run by a number of 147 permanent staff and 14 casual labourers. The permanent staff are spread in Administrative, house keeping and kitchen fields - with house keeping taking the largest number of staff and then followed by kitchen.

(xiii) Guests

As expected the largest number of visitors are from Kano State then followed by other Nigerians and gastly the foreigners. However even then some of the foreigners seen here are workers of companies and governments in the country. In any case it is observed (and confirmed by the management) that the resort is used mainly by short stay visitors. The peak business times (according to the management) are on weekends and on special occasions (holidays) like Sallah day and Chrismas day.

2.04 ROCK CASTLE HOTEL

At the rock castle hotel, there are two types of rooms.

(i) V.I.P. rooms 4 (two of the rooms with family bed)

(ii) Twin bedded rooms 19

In addition to these there are two V.I.P bungalows each with three bedrooms. A part from this, there are no other facilities or enough room for extension. This is simply a hotel in a builderness.

2.05 CONCLUSIONS:

The lack of kitchens (or kitchenettes) in the chalets meant that the guests in the chalets will have to rely on the restaurant (and its' kitchen). This means that they will have to walk long distances (from their distantly located chalets) to the restaurant for even a refreshing drink or else they will have

to rely on room service (phone order) which means extra financial charges and long waiting for the stewards to bring the order using a single special van which is costly to maintain and inefficient especially at a time when many room service order (or requests) have been placed by different guests. "What happens when the van breaks down?" I can't imagine stewards carrying large trays of food and drink all these long distances. The impertance of efficient and reliable service (and hence satisfied customers) is as vital as character, atmosphere and tranquility to the commercial viability and social success of any holiday resort and for that matter of any catering institution (hotels, restaurants etc). To avoid this abominable stituation and also to encourage long staying by guests in the proposed resort, some of the rental accommodation (chalets) will have proper kitchens where long staying guests - usually families can cook their meals - thereby making some savings in their holiday expenditure. In addition to these some chalets that are not self-catering (ie having no kitchens) will be provided - mainly for individuals who prefer not to cook by themselves. However these type of chalets must be located very close to a commerical restaurant; and in the case of the self-catering chalets a shop or shops must be provided where the guests can buy their foodstuff

- to this end the Kuki settlement market may prove very useful. Except for the V.I.P. chalets at Bagauda resort, all other chalets are by their character and the amount charged per bed, economy class. This type of accommodation would have been better provided by a hotel, since from economy point of view there would be a greater saving of land, roads will not then be extensive and wide spread, construction costs will probably be less and even if it is more, it will be off-set by gains in revenues accruing, further more, catering services such as room service, reception services and other facilities for the guests will not be stretched over long distances. Since the proposed self catering and new catering chalets are intended for a particular but very limited group of people (ie long staying families and richer guests of course, who require greater privacy than obtainable in hotels) it will be a commercially inaptitude and blindness to ignore the business that is forthcoming from the economy class tourists who are the most likely dominant and more numerous users of the resorts facilities. To this end an economy class *(three star) hotel for upto four hundred beds (and no more) will be provided in the proposed resort.

* Economy class (or three star) hotel in this case simply means a standard hotel - with all the facilities of a standard hotel.

The De-luxe Standard (five star) rock-castle hotel close to the proposed site will provide the luxury loving guests with their "standard" accommodation. The very important basis for the character and commercial development of the proposed resort is that it is expected to serve guests staying for longer periods while Bagauda resort is expected to continue to serve short-stay and weekend visitors. Therefore it is highly imperative that leisure facilities in the (proposed longstay) resort should be extended, diversified and made the focal point of the resort. The "long stay" nature of the resort makes it desirable and convinient for the provision of post office, a bank (which are even available at Bagauda resort), a petrol station a clinic, a police and security post. These and any other possible commercial facilities can best be located in the centre of the resort for easy access from every point; except may be the petrol station - which is a high fire risk - which may be located just before or after the main resort entry. It will also be a good idea if a limited number of individuals and companies are allowed to build their bungalows and clubs etc so as to suppliment the revenue of the resort. The land can be leased to them.

3.00 THE SITE

3.01 SITE LOCATION

The site for this project is located at the northern end of the reserveir (see location map on page ....) The site lies within co-ordinates N269,500 and N271,000 and co-ordinates E214,500 and E215,500 (as indicated on the master plan and the site analysis map - pages ..... and ....).

This site is within the boundaries of Nawakin Kudu Local government authority. However, the reservoir itself has also crossed the boundaries of few other local government authorities (Tudun Wada local authority).

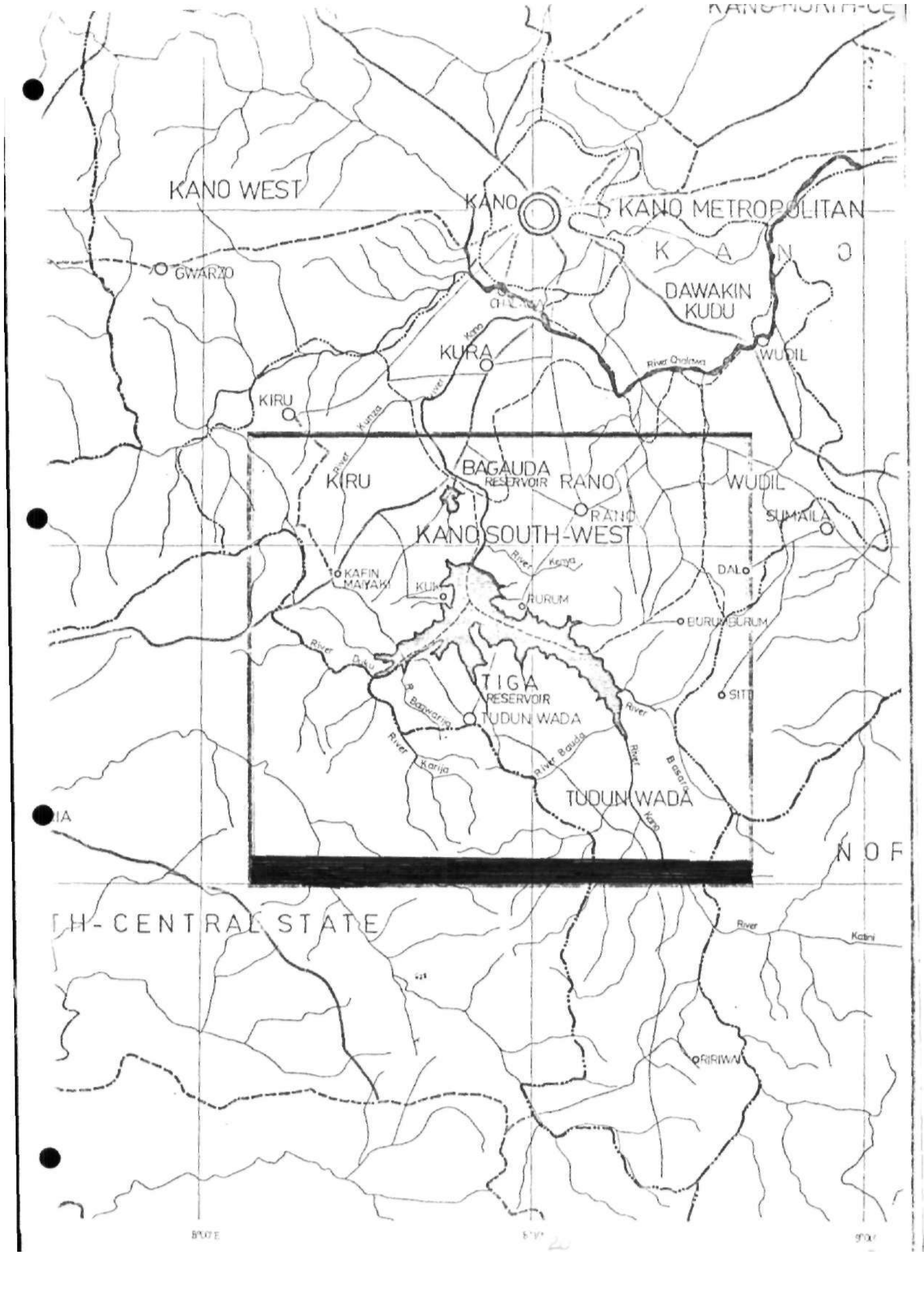
3.02 PICTORIAL VIEWS OF SITE

(i) AERIAL PHOTOGRAPH

The aerial photograph (shown on next page) covers a very wide area since it is taken from a great height. Therefore, apart from the difficulty of identifying the existing structures, it will also be unrealistic to judge the photograph's depth of field or in other words to relate the distance on land of one point from another point.

(ii) CLOSE UP PHOTOGRAPHS

These afford us closer views of what is on the site proper.


KANO WEST
KANO
KANO METROPOLITAN
K A N O
GWARZO
DAWAKIN KUDU
KURA
River Challawa
WUDIL
KIRU
River Kunza
BAGAUDA RESERVOIR
RANO
SUMAILA
KANO SOUTH-WEST
KAFIN MAIYAKI
River Kanya
DALA
BURUM
River Daku
TIGA RESERVOIR
TUDUN WADA
River Bagwarija
River Karija
River Bauda
River Kano
SITI
RIRIWAI
River Katsi
TUDUN WADA



















3.03 SITE ANALYSIS:

A EXISTING FEATURES (LEVELS, TREES ETC)

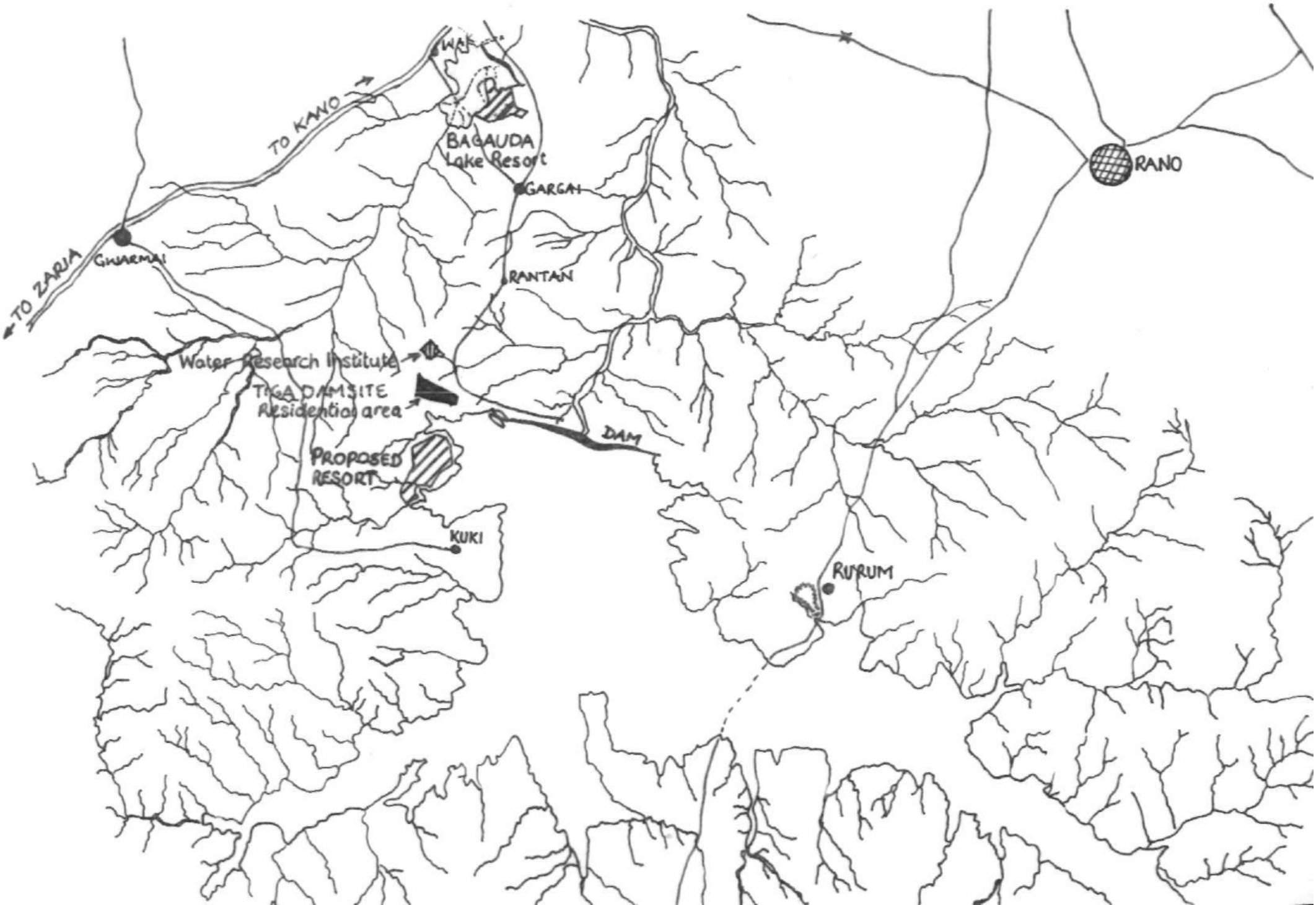
(i) All these are generally indicated on the site map except for trees which are scattered and could not be shown on a map of small scale that is available. I have observed that all the shrubs and trees are of no economic importance - by this I strictly mean to say that none of these plants bear any edible or cash fruit.

(ii) As for the levels, the site can simply be described to be flat. Close observation will indicate it to be sloping down into the reservoir. Even for a given wider area the slope of the land is very gentle (see site profile).

(iii) There is no existing structure whatsoever on the site proper. However outside the eastern and south western boundaries of the site there are two settlements - Fuki Village (south west) and Tiga workers settlement (to the east). Even these two settlements are about 3km from the site boundaries.

(B) MEANS OF ACCESS TO THE SITE

Although there is no existing road going through the site itself, the site can be said to have the best road connection more than any other point along the perimeter of the reservoir. This is because the site is planked close to it's eastern and northern boundaries by two interstate roads (ie Kano to Zaria and Kano to Jos roads) in addition to these important

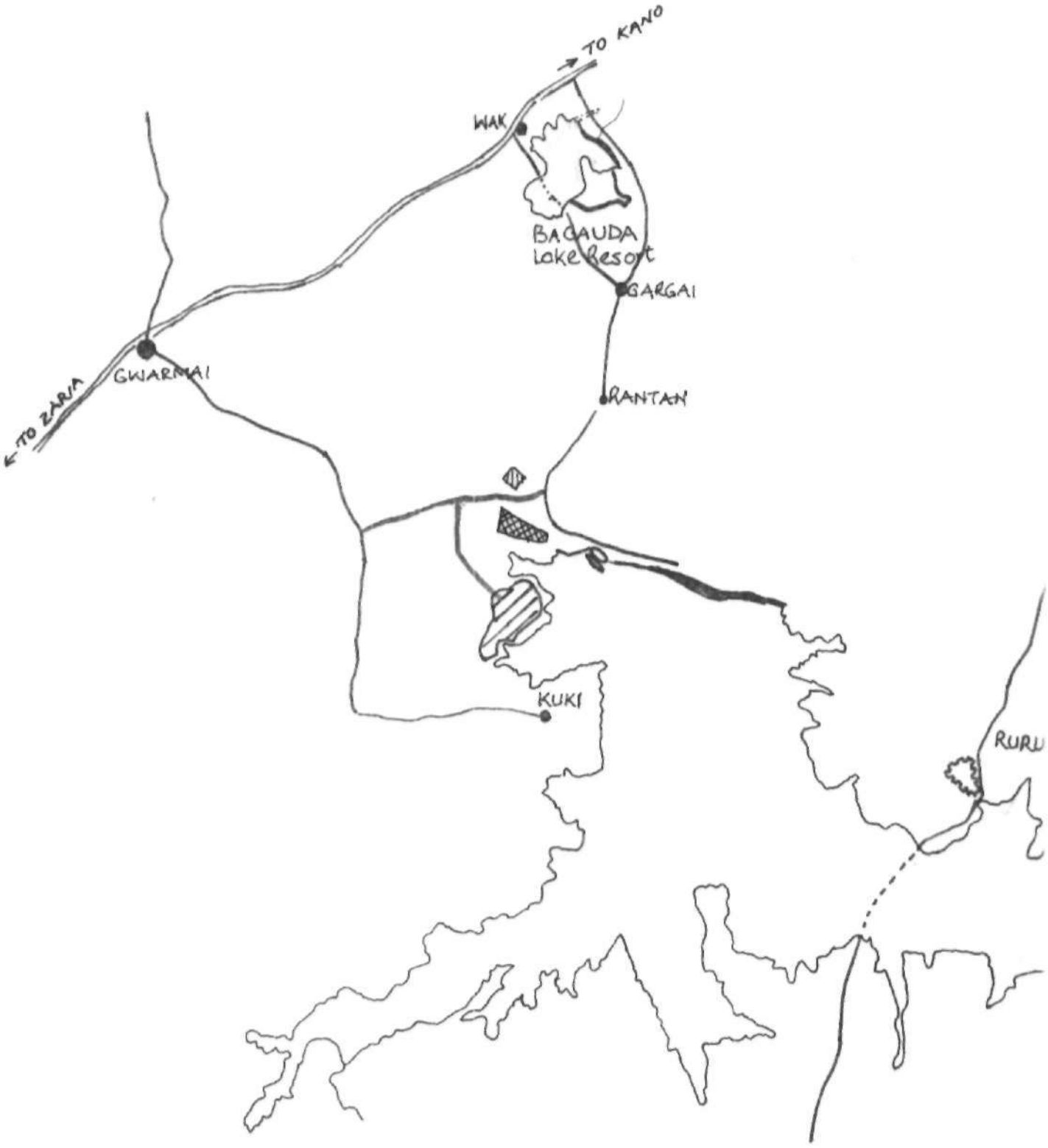

WAK
TO KANO
BAGAUDA
Lake Resort
GARGAI
RANO
TO ZARIA
GWARMAI
RANTAN
Water Research Institute
TIGA DAMSITE
Residential area
DAM
PROPOSED
RESORT
KUKI
RURUM

routes, the site is also planked by the Zaria Road junction to Kuki Village road (to the south) and the new road which links Zaria road to Bagauda Lake resort and to Rurum Village Via Tiga Dam area. The final road (proposed) which leads into the proposed resort area can readily be connected to these existing routes - in which case there will be no through traffic across. the resort area.

(g) BUILDING LINES, ADJOINING OWNERS, RESTRICTIONS

(i) BUILDING LINES:

There is no building line on the site (except as may be determined later from the master plan point of view).. However the maximum 'tide' level is at 527.30 metres (or 1730 feet). This is the maximum safe level which the reservoir (water) reaches - the water level cannot exceed this height since the spillway is at this level. Any excess water will be drained through this spillway. The reservoir fills to this level only during and/or just after the rainy season (in the months of June-September) and the level thereafter begins to recede due to loss of water through evaporation (occuring on a surface area of 17,800 hectres) and irrigation which at the moment has not reached full capacity but estimated to cover 48,600 hectres. It is estimated by the designers that the maximum volume of water that



EXISTING ROADS

PROPOSED ROAD LINK TO SITE

BY LINKING THE TWO EXISTING ROADS AS SHOWN ABOVE, AND BY CONNECTING THE SITE TO THIS LINK ROAD, A FULL ADVANTAGE IS GAINED FROM THE TWO ROADS. FURTHERMORE THE POSSIBILITY OF VEHICLES USING THE ROADS OF THE PROPOSED RESORT AS THROUGH WAYS IS AVOIDED.

can be lost through these possible means will cause the reservoir to recede to a minimum level which is 20 metres or 60 feet from the full supply level. This periodical change in water level will affect the location of water front and water based activities eg mooring for boats and possible flooding of buildings or beaches located beyond the full supply level.

(ii) Adjoining owners and site boundaries

There are no adjoining owners as such, who might persue legal courses (upon any event) against the client or builders or contractors to this project except as may be possible within the master plan point of view (eg - especially in the private bungalows area).

The site boundaries are physically defined as follows:

(a) To the south (near Kuki village) - the site is bounded by river Tsirkiya which flows into the reservoir.

(b) To the North (near Tiga workers settlement) - the site is bounded by the existing boundary to the settlement (which is a gridwire fence).

(c) To the east: the site is bounded by the reservoir

(d) To the West: the site will be bounded by a proposed belt of forest reserve.

The reasons and basis for settings these physical boundaries which give an area that is well over what is required for the resort are:-

(i) Physical boundariers are more easily recognised

(ii) The extra space will enhence ecological set up

that already exists - since this extra space may allow for the creation of forest conservation areas.
(iii) The extra space will hinder any intrusive development (planned or unplanned) by the authorities or individuals who might try to squeeze themselves closer to the resort's facilities. The extra space will effectively keep such developments at bay.

(iii) Restructions to Development:

The site is not a conservation area and as of now it is only being used by individual formers (for agricultural purposes) who take advantage of the ampress of the banks of the reservoir for planting (see photograph ....) However it is envisaged that any future development of the areas around the reservoir must be connected with the purpose for which the dam was constructed namely: agriculture, fishing, nature conservation and recreation (leisure). Since the land on which the site is located is not being used as nature preserve (note that the proposed Kegin Kano game reserve is located at the South Eastern tip of the reservoir) or as an official irrigation land or as proposed area for fisheries industry (the proposed area for fisheries is at Kuki Village) - then the only logical use for this piece of land is recreation.

(D) EXISTING AND PREVIOUS SERVICES

For details on this subject, refer to technical section.

(i) Water mains: There is no water supply on the site proper. However there is a water works at Tiga.

(ii) Sewers (foul water and soil):

There are no sewers of any kind. Site drainage is along the natural gradient of the site and direct into reservoir or indirectly through tributary streams and rivers.

(E) IMPORTANT VIEWS (QUALITY OF THE SITE)

The semi-circular loop made by the reservoir around the site - means that there is an extensive (long) water front and a wide angle of view across the reservoir. In fact the longest view across water (along the longest arm of the lake) is possible and unhindered from any point on this site. More over the rocky interface of the earth filled dam and the reservoir's water is also visible from any point on the site - and to the west, north west and south-west of the site, the unhindered view of the open land scattered with trees hither and thither in a picturesque setting characteristic of a flat savannah land offers a beautiful scenery that can be advantageous for the nature parks (gardens) or/and forest reserve.

(F) CLIMATE

The site is located within the predominantly hot and dry climatic region of Nigeria. Within a year, there exists three seasonal variation in the weather.

From the month of April to the month of October we have hot and rainy season with an average rainfall of 80.9mm (recorded in 1971). The highest level of rainfall for the last 10 years was recorded in the month of August - of 1977 and the level recorded was 438.5mm. It is also interesting to note that April (the beginning of the rainy season) and October (the end of the rainy season) are showing smaller amounts of rain.

From the month of November to the month of February we have the Hamattan - a cold, dry and dusty season in which the prevailing wind is blowing from North east. The coldest month is usually January when in 1975 a temperature of 11.1°c was recorded - also the mean temperature for this month for the last ten years was 13°c and it is the lowest. However, the hottest temperature recorded in the last ten years was in the month of April and May (1974 and 1973) which corresponded with the beginning of the rainy season. Also the maximum humidity recorded for the last ten years indicated the month of August -84, showing this to correspond with the period of highest rainfall. The lowest humidity of 18 was recorded in march. (see data).

(G) <u>THE EFFECT OF THE LAKE ON THE SITE</u>:

1. Increased humidity
2. Increased cooling effect when the land is hot
3. Increased warming effect when the land is cold

4. Improved visual qualities of the site.

5. The lake acts as a dust trap or wind filter. The lowering of the land temperature by wind blowing over the lake is due to the fact that water which is denser than air and therefore having greater specific heat, remains cooler than land when the air is hot and vice versa.

3.04 REASONS FOR SELECTING THE SITE:

(i) Since the basis of locating the proposed holiday resort in Tiga (and not elsewhere) is because of the opportunities and benefits that can be attained from the immense size of the reservoir (water) then it is only logical that a site is selected where the longest waterfront is available. However a long straight waterfront could be dull and will unnecessary increase the are of the site, whereas a curved (semi circular in this case) waterfront gives the desired lengthy waterfront but at the same time keeping the area of the site compact (see illustrations page .....).

(ii) The Kano State government (of the late Abdu Bako administration) had committed itself to building a holiday resort although in an "accidental" manner. That administration had a plan to build a "Rock Castle" (presumably a villa) for the visiting queen of England. When the queens visit was cancelled by the then new military government of Murtala Mohammed, the Rock Castle had to be converted into a luxury hotel (presumably to be a basis for a holiday resort)

which is so far nothing but a landmark in a wilderness with no facilities for recreation and attraction. The price* of a room per night or even that of a meal is so prohibitive that even a middle class person has to "prepare" before visiting here. However the most important thing is that the hotel is located on a very compact site - infact on top of a rock which acts as part of the dam structure. This rock, the one adjacent to it and the valley in between the two are so steep and narrow as to permit expansion (the only space suitable for expansion is behind the dam structure which will not be suitable due to the fact that the dam will be blocking the view across the water and also that it will be too risky to build behind the dams structure. Faced with this problem idea is that this luxury hotel can be complimented with some few leisure facilities such that boat owners can row or speed between the two sites - in short this may mean giving boat owners a "heaven" to go to. Two possible sites where found (including the selected site which however had added advantages).

(iii) The selected site has an advantage of unlimited wide angle and longest views across the water (see 3.03 (E)).

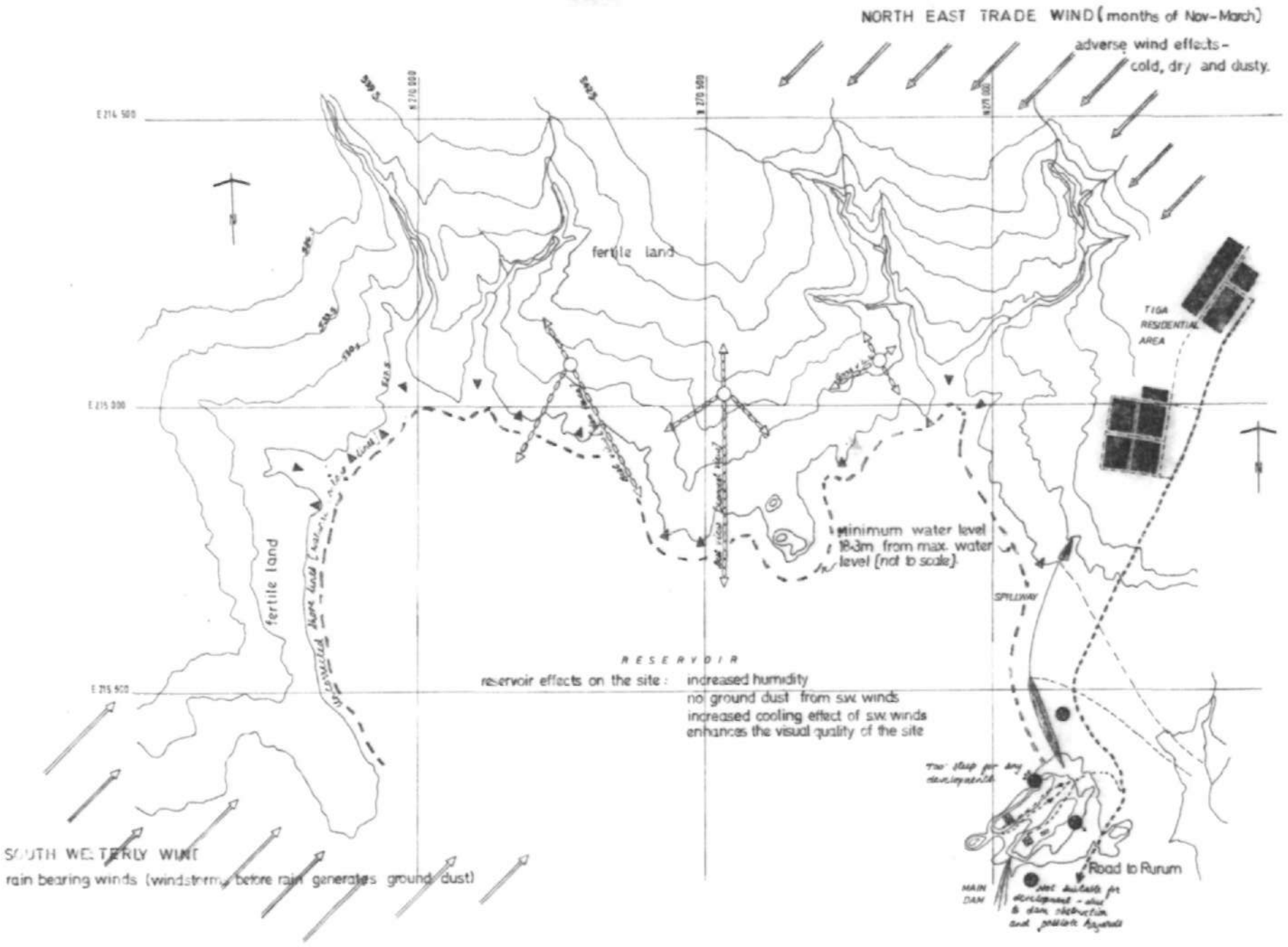
*Foot note: There are ₦200 per night rooms, a rich friend of mine paid ₦9.50k for my lunch.

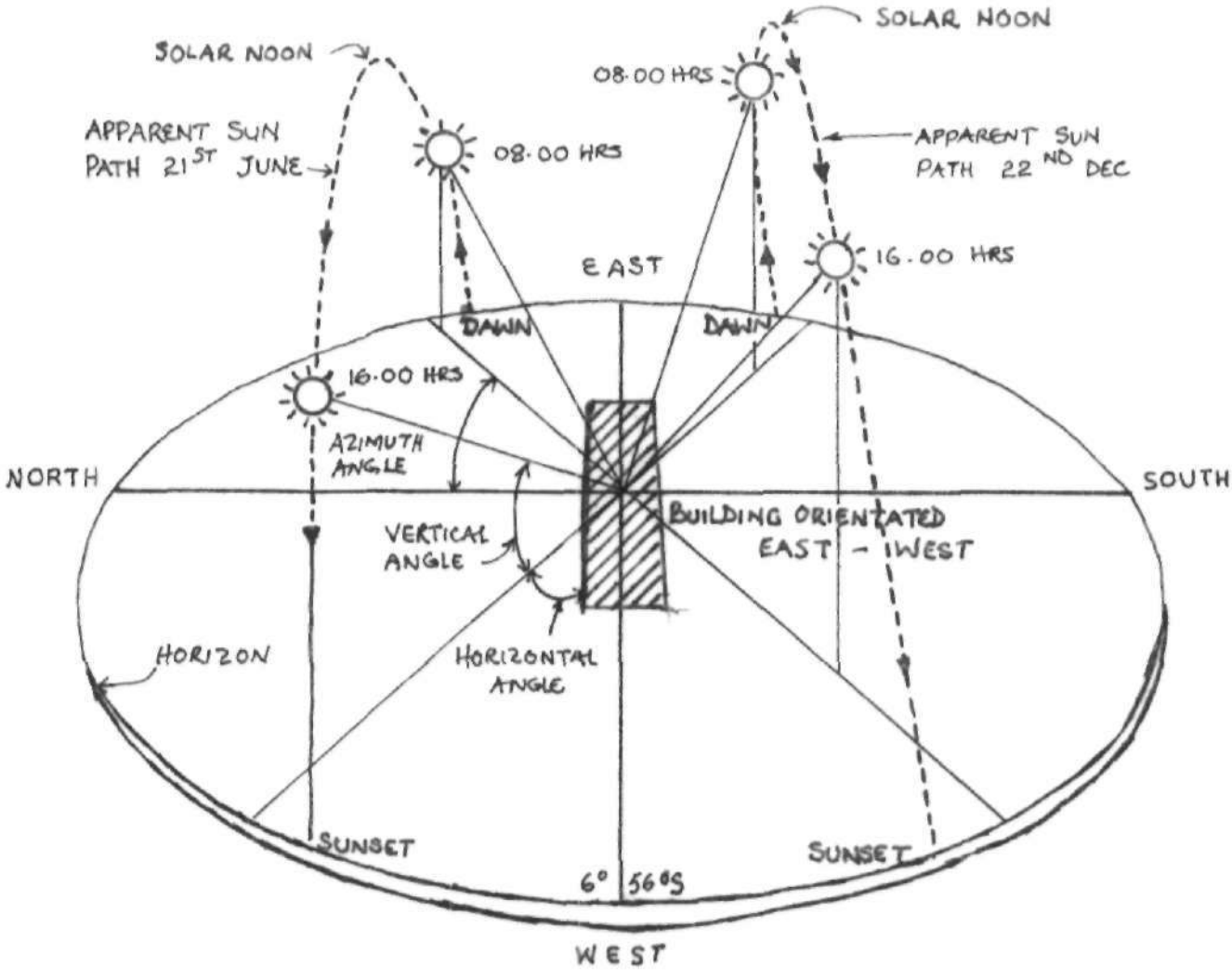
(iv) The Site has better road connections ((existing) - see 3.03 (B).

(v) The village of Kuki can supply the essential labour during and after construction resulting in additional prosperity for the village.

(vi) Physical boundaries (River Tsirkiya, forest reserve, Workers settlement fence and the reservoir) are well defined.

SITE ANALYSIS





APPARENT MOTION OF SUN ON 22nd DEC AND 21ST JUNE ON ALL OTHER DAYS AT CORRESPONDING TIMES THE ALTITUDE OF THE SUN IS GREATER AND SHADING DEVICES USED WILL BE SMALLER.

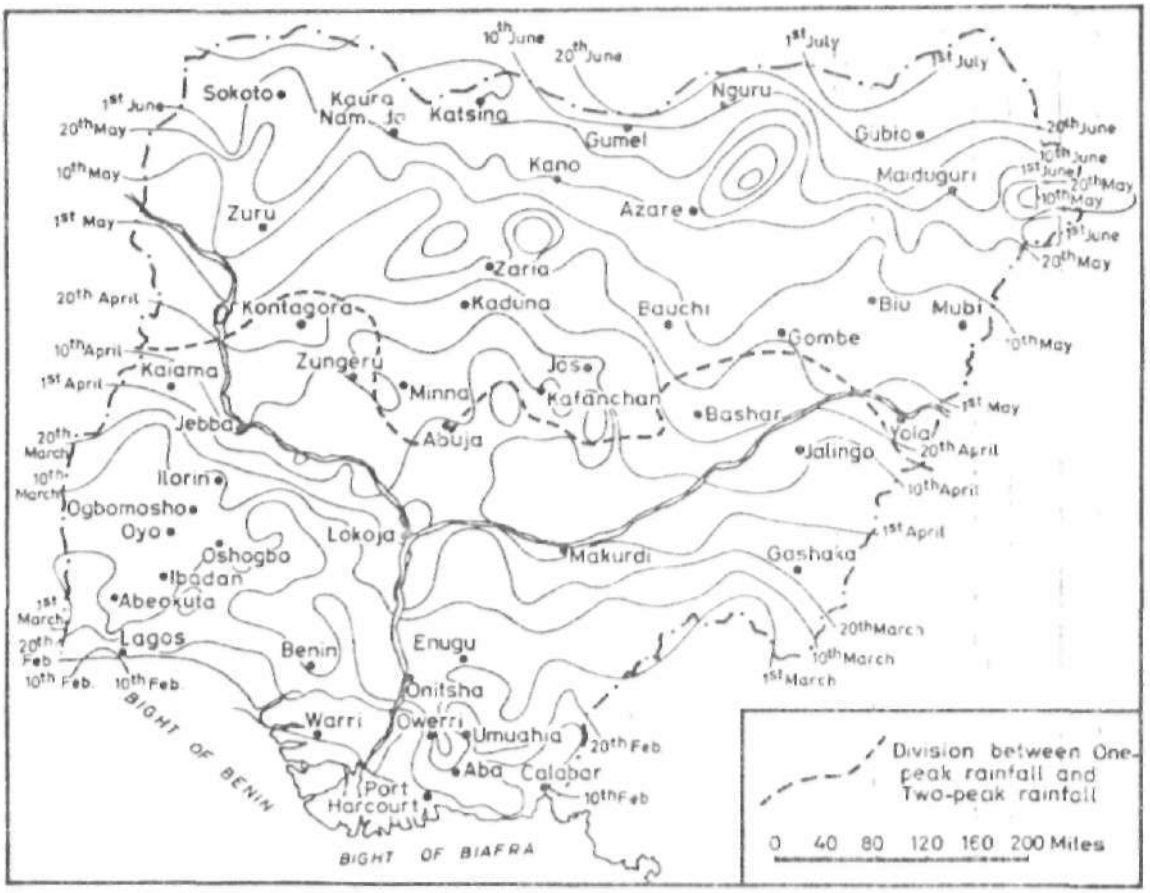


Fig. 1. Dates of the start of the rains.

KANO AIRPORT

Ten Years Meteorological Element of Rainfall in Millimeters: Period - 1968-77.

N	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC.	TOTAL	AVERAGE RAIN mm	INS	DAYS
.0	0 .0	0 . 0	104.7	75.2	147.3	113.5	122.9	45.7	0.0	0.0	0.0	609.3	50.8	2.00	46
.0	0.0	0.0	8.6	20.1	191.3	236.5	284.2	109.2	70.4	0.0	0.0	920.3	76.7	3.02	63
.0	0.0	0.0	0.0	17.0	54.6	314.6	282.8	238.2	0.0	0.0	0.0	970.2	80.9	3.19	60
.0	0.0	0.0	3.3	68.6	24.2	173.9	222.9	200.7	0.0	0.0	0.0	693.6	57.8	2.28	57
.0	0.0	0.0	3.1	105.6	127.9	71.5	235.8	44.7	5.1	0.0	0.0	593.7	49.5	1.95	48
.0	0.0	0.0	0.0	3.1	39.0	164.4	171.8	35.8	0.0	0.0	0.0	414.1	34.5	1.36	44
.0	0.0	0.0	0.0	41.7	42.4	261.5	197.8	111.9	5.5	0.0	0.0	660.8	55.1	2.20	59
.0	0.0	0.0	18.3	39.6	127.6	125.3	224.2	176.1	0.0	0.0	0.0	711.1	59.3	2.34	57
.0	2.3	0.0	0.0	43.8	117.4	131.5	162.2	66.4	58.3	0.0	0.0	581.9	48.5	1.91	50
.0	0.0	0.0	0.0	6.9	198.2	32.5	438.5	106.1	1.7	0.0	0.0	783.9	65.3	2.57	45
.0	2.3	0.0	138.0	421.6	1769.9	1625.2	2343.1	1134.8	141.0	0.0	0.0	6938.9	578.4	228.2	529
.0	0.2	0.0	13.8	42.2	177.0	162.5	234.3	113.5	14.1	0.0	0.0	693.9	57.8	22.8	- -

Compilation by: O Nwosu

Date: 26th January, 1978.

RELATIVE HUMIDITY FOR TEN YEARS:

1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	Total	Mean	Remark
31	28	29	31	26	30	32	32	28	28	295	29	
23	22	24	25	22	25	22	25	26	22	236	24	Humidity
23	22	22	24	23	20	20	22	24	18	218	22	Based on
43	38	25	28	37	27	34	37	34	18	321	32	The Daily
56	46	50	46	51	37	49	55	51	42	483	48	Records of
73	64	54	55	72	54	57	64	67	61	621	62	8 Synoptic
78	80	76	74	72	73	78	77	76	69	753	75	Hours
78	84	83	81	80	80	84	80	78	81	809	81	
72	80	81	79	72	70	80	79	74	72	759	76	
42	73	51	49	53	43	58	50	67	49	535	53	
28	—	36	30	31	29	36	34	37	31	292	32	
27	31	34	33	31	29	32	31	31	28	307	31	
574	568	565	555	570	517	582	586	593	519	5629	565	
48	52	47	46	48	43	49	49	49	43	468	47	

Compiled by O. Nwosu 29/1/79

KANO AIRPORT :DUR-ATION OF SUNSHINE IN HOURS: PERIOD 1968 - 1977

AN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	N OV	DEC	TOTAL	MEANS	REMARK
.1	9.4	8.1	8.2	8.8	8.2	8.4	7.0	8.3	9.4	9.1	9.6	102.6	8.5	
.9	9.0	9.2	7.6	9.0	9.0	8.1	6.7	7.0	8.9	-	10.1	93.5	8.5	
.1	8.0	8.8	6.5	9.1	9.7	7.2	6.5	7.4	8.4	9.4	8.4	98.5	8.2	
.6	8.1	7.7	8.6	9.6	9.3	7.5	6.5	7.3	7.8	8.9	6.6	96.5	8.0	
.0	8.7	8.4	9.0	8.1	8.5	8.9	7.5	8.8	8.0	7.6	7.4	99.9	8.3	
.9	8.6	6.1	7.4	8.2	8.7	7.6	7.0	8.3	8.9	8.8	9.8	97.3	8.1	
.9	8.0	8.5	8.2	7.9	8.5	6.7	5.9	7.8	9.1	8.3	8.3	91.1	7.6	
.1	9.1	7.6	8.6	8.3	10.0	6.5	6.9	6.9	8.8	9.0	7.9	95.7	8.0	
.8	8.9	8.5	7.5	8.3	8.9	8.5	7.4	8.4	7.0	8.9	8.6	99.7	8.3	
.5	6.2	3.8	6.5	8.8	7.1	7.5	6.1	8.5	8.4	9.5	8.3	88.2	7.3	
.9	84.0	76.7	78.1	86.1	87.9	76.9.	67.5	78.7	84.7	79.9	85.0	963.0	80.8	
.8	8.4	7.7	7.8	8.6	8.8	7.7	6.7	7.9	8.5	7.9	8.5	96.3	8 .1	

Compilation by: O. Nwosu.

Date: 28th January, 1978

KANO - AIRPORT

MEAN MAXIMUM TEMPERATURE IN °C FOR TEN YEARS (1968 - 1977)

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC	YRLY MEANS
1968	-	-	-	36.2	35.5	32.3	30.9	-	-	36.1	33.9	32.3	33.9
1969	29.8	35.2	39.6	39.3	38.3	34.8	30.8	30.2	31.3	33.5	-	33.0	34.2
1970	31.2	32.4	36.8	39.1	38.6	36.8	31.7	29.8	31.2	33.7	31.6	29.1	33.5
1971	28.4	33.3	38.4	38.7	38.3	36.0	31.4	29.8	31.3	33.6	32.8	29.1	33.4
1972	30.1	33.4	37.4	38.7	37.2	32.9	33.1	31.0	33.7	35.6	31.4	30.6	33.8
1973	31.7	34.7	36.8	39.9	39.5	37.3	32.3	30.8	33.6	36.7	31.9	32.6	34.8
1974	26.8	32.5	36.9	40.0	36.8	36.2	30.4	30.4	31.3	34.9	32.6	28.2	33.1
1975	26.4	32.9	36.7	39.6	37.5	35.0	30.8	30.3	30.8	34.5	34.3	30.2	33.3
1976	29.8	35.2	36.3	38.9	37.3	33.4	31.1	31.0	32.4	33.4	33.2	31.4	33.6
1977	29.8	31.1	33.3	38.4	38.7	35.1	32.3	30.2	32.9	34.8	32.3	28.2	33.1
Means for ten years	29.0	33.4	36.9	38.9	37.8	35.0	31.5	30.4	32.0	34.7	32.5	30.5	33.5

MEAN MINIMUM TEMPERATURE IN °C FOR TEN YEARS (1968 - 1977)

1968	12.2	15.2	19.5	21.1	22.6	22.0	21.3	20.8	20.9	19.4	16.1	14.1	18.8
1969	13.2	16.1	21.5	24.9	25.3	23.1	21.7	20.9	20.4	21.0	-	13.6	22.0
1970	13.9	14.7	19.2	23.3	24.7	23.8	21.4	21.0	21.8	18.1	14.9	11.8	19.1
1971	11.3	14.8	20.4	22.1	23.9	23.6	21.5	20.9	20.9	19.1	15.3	12.9	18.9
1972	12.9	15.7	20.3	24.2	24.3	22.1	22.2	21.2	22.1	21.4	15.1	14.3	19.7
1973	14.8	17.3	19.6	23.7	24.6	24.2	22.2	20.9	21.8	20.8	15.6	14.7	20.0
1974	13.5	15.7	19.5	25.2	23.5	23.5	21.2	21.5	20.7	19.3	15.3	11.9	19.3
1975	11.1	15.5	20.1	24.1	24.1	23.1	21.3	21.1	21.1	19.7	17.6	13.9	19.4
1976	13.0	19.1	20.0	24.1	24.8	22.3	21.3	21.2	21.5	21.9	16.6	14.6	20.0
1977	14.2	15.1	19.9	23.2	25.3	23.3	22.4	21.2	22.2	21.1	16.4	13.9	19.9
Means for ten years	13.0	15.9	20.0	23.6	24.3	23.1	21.7	21.1	21.3	20.2	15.9	13.6	19.5

4.00 APPROACH TO PLANNING

4.01 GOALS

The following are the objective goals which the proposed holiday recreation resort is expected to achieve.

(A) Contact with nature:

To make it possible for an individual or groups of individuals to achieve a visual, physical, psychological and spritual contact with nature

(B) Contact with other Social Groups:

To make it possible for individuals to meet in pairs or in groups to socially interact and more especially for non-indigines to meet and interact socially or commercially with indigines.

(C) Individual or Collective Persuit:

To make it possible for an individual to persue his personal and private goals and desires (enjoy queitness, peacefulness, privacy, rest, contact with nature and recreation) without interfarence or interuptions from any one or thing. Also to provide similar opportunities to common groups.

(D) Shared and remembered experience:

To make it possible for individuals or groups to enjoy or develop or share different experiences that will linger in their memories for a long time.

(E) Prefitable: Being operated on commercial basis the resort must be beneficial not only to its users but also to the local people and those

entrusted with its up keep. Above all it must not be a liability (must be able to pay for itself).

4.02 PROVISION OF FACILITIES

Facilities to be provided in the resort as mentioned in section 2.05, can be grouped into three (according to the goals of the resort):

(A) Recreational facilities

These will include water as well as land based facilities:

(i) Swimming pools

(ii) Boat / Yacht club - with mooring facilities

(iii) Riding School (with polo pitch and stables)

(iv) Tennis courts

(v) Fives court

(vi) Indoor games - squash, footbal, basketball

(vii) Open Air hteatre (films, concerts, plays etc)

(viii) Horticultural gardens.

(B) Catering facilities & accommodation

(i) Economy class hotel

(ii) Restaurent

(iii) Nite Club/Discotheque

(iv) Private houses (to be developped by individuals)

(v) Self catering and non catering chalets.

(C) Utilities (Communual facilities)

(i) Petrol Station

(ii) Bank

(iii) Post

(iv) Police and Security

(v) Shops (including food shops & sonvernir shops)

4.03 CONSIDERATIONS OF BASIS FOR PHYSICAL PLANNING:

Physical planning will be conducted in consideration of the following needs:

(A) Site Considerations:

The topology, mesoclimate and existing infrestruction around the site meant that individual or groups of proposed building(s) must be given a particular type of orientation to take advantage of dramatic views, weather changes and better alternative connections or linkages with the water, land and forest around.

(B) Access and circulation

There is a need to link the resort area with the existing road networks near the site without turning the resort area into a thoughway for vehicles with destinations other than the resort itself. Also there is a need to separate circulations for residents weekend visitors and service vehicles.

(C) Zoning

There is a need to zone facilities according to their:

(i) Function Some areas are for accomodation some for recreation, some for shopping, some for sports, some for rest or relaxation and while some are for social interests. These identified groups of functions must be carefully zoned with utmost consideration of their relationship with each other and with the site environment.

(ii) Character: Some activities (or facilities) are very noisy in character while others are relatively quiet. For convinience to users and non users of these facilities, these activities must be zoned accordingly. Also some activities conflict with each other from safety point of view - eg children playground and traffic.

(iii) Optimum Usage: There is a need to cocate facilities where they will be most useful and make the greatest impact. This should compliment the idea of making the recreation area the focal point of the resort (see 2.05).

(D) Phasing of development:

It will be quiet reasonable to expect that the whole resort will not (as preferred) be completed in one phase and then commissioned for public use (with all construction work completed). This is more so because of the gradual development of the private bungalows and clubs by individuals and different companies. In this case it will be more convinient to plan for outward expansion or phasing (from the centred) as opposed to inward expansion or phasing (towards the centre).

(E) Physical Planning Data:

These will form the basis upon which the design will be conducted.

(i) Design density:

The site is situated in one of the medium density areas of Kano, that is, in an area where there are

not more than ten persons per hectre, fortunately this also corresponds with the usual required medium density of holiday resorts (see chart page .....) To allow for possible variations due to say an increase in population, it will be very suitable to use a design density of 8.5 persons per hectre for the planning/design of this holiday resort. The proposed number of users or guests for this resort should be between 1000 persons to 2000 persons. This is because it is absolutely necessary to limit the population of the resort in order not to cause congestion of the facilities provided in the resort and also observation has shown that resorts of capacities in this region and of similar design densities have been successful.

Number of guests (Proposed):

400 persons - hotel

250 persons - chalets

750 persons - private bungalows

300 persons - clubs of companies.

Therefore total: 1,700 persons

$$\text{New: Intensively used area (of the resort)} = \frac{\text{Proposed No. of Users}}{\text{design density}}$$

$$= \frac{1,700}{8.5}$$

$$= 200 \text{ hectres}$$

The surrounding areas should also be 200 hectres (mainly due to need of open spaces and also due the usual building by law in Nigeria which requires the developed area of the site not to be greater than half the total area of the site).

Therefore:

Intensively used area + Surrounding area = Total area

200 hectres + 200 hectres = 400 hectres

(ii) Water Supply

Water is required to cater for hotel, restaurant (or cooking), washing, swimming pools, gardening cooling and sometimes heating systems (boilers etc). The minimum individual daily consumption of water varies with location. In hot climates such as ours this could reach up to a minimum of 300 litres per person per day - just for domestic type of usage as mentioned above (Ref. 'Recreation and tourism development by Fred Lawson page 57).

Therefore for a population of 1,700, the daily water requirement for the resort

= 300 litres x 1,700 persons

= 410,000 litres

Proposal: While making preparations for the provision of intrastructural facilities (water, electricity, roads and sewage treatment) for the resort area, it will be very reasonable to consider the general requirements in the light of the overall

development of the region. For instance whether the development of the holiday resort could:

(a) Be linked to the overall development of the proximal or adjacent villages and settlements which at the very moment are lacking in the availability of (some if not all) basic infrastric-rual facilities.

(b) take advantage of existing resources that may be available in these settlements.

These considerations are relevant to the statements made on the need for considering the local community (see New trends 2.02, page .....)

In the light of above, it will be reasonable and amenable to propose the following:-

1. Setting up of a new water works (beyond Kuki Village, precisely in Chutar Buki area) at a suitable location where the Tiga reservoir joins Kane River - since any water from this place is likely to be less polluted than water from the reservoir itself which comes from many other tributary rivers and which is furthermore being used for fishing* and recreation.

From this new water works, the resort area and both Chutar Buki and Kuki can be adequately supplied with pipe water.

*There is a plan for the setting up of large scale fishing and fish processing factory at Rurum.

2. Or alternatively the existing supply to Tiga settlement can be expanded and then extended to the resort area.

3. The resort area should have a water storage tank of a capacity of up to 10,000 litres. This is necessary to ensure a constant flow (constant pressure) to balance increased demands during peak utilisation hours or during interuptions that may be caused by unforeseen circumstances. In addition to this individual buildings (ie the hotel, the chalets, the private bungalows etc) will all have their individual storage tanks.

(iii) Sewerage:

(a) Foul Water Sewerage:

To avoid polluting the Tiga reservoir, sewage must not be allowed into the reservoir or the tributary rivers and treams in the area. The most reasonable and likely system of disposal or treatment of the soil and foul water is by soaking the effluent since the volume of waste is not enough to justify the creation of a central sewage treatment plant. This is also unlikely possible to be planned jointly for the surrounding villages since most of the house holds (over 85%) are using the traditional pit latrines. In conclusion, only the usual septic tanks and soakaway pits must be used.

(b) Surface Water

To avoid flooding and pooling of water (especially after raining), in the recreational areas and the residential areas, partially covered drains should be constructed to run adjacent and parallel to the roads. These should then be linked to existing recipients located off the site or linked to areas where the water will be dispersed without danger of flooding etc.

(iv) Electricity

A part from the normal need of electricity for domestic uses, still more electricity will be needed in the resort area for illuminating public buildings, space, walk and drive ways as well as for the running of water pumps etc. The estimated power demand in a holiday resort of this nature is usually upto 500 watts per person per day (Ref. Tourism & Recreation development by Fred Lawson). However, this demand should be higher in resorts with air conditioning and electrical heating. For this holiday resort, we shall be concerned with a demand of 550 watts per person per day. Therefore:

for a population of 1,700, the total power demand per day will be:-

550watts x 1,700 = 935,000watts

or Total = approx 940 kw.

This estimated power, can be supplied by one of the following ways - depending on whichever is more economically feasible and convinient:-

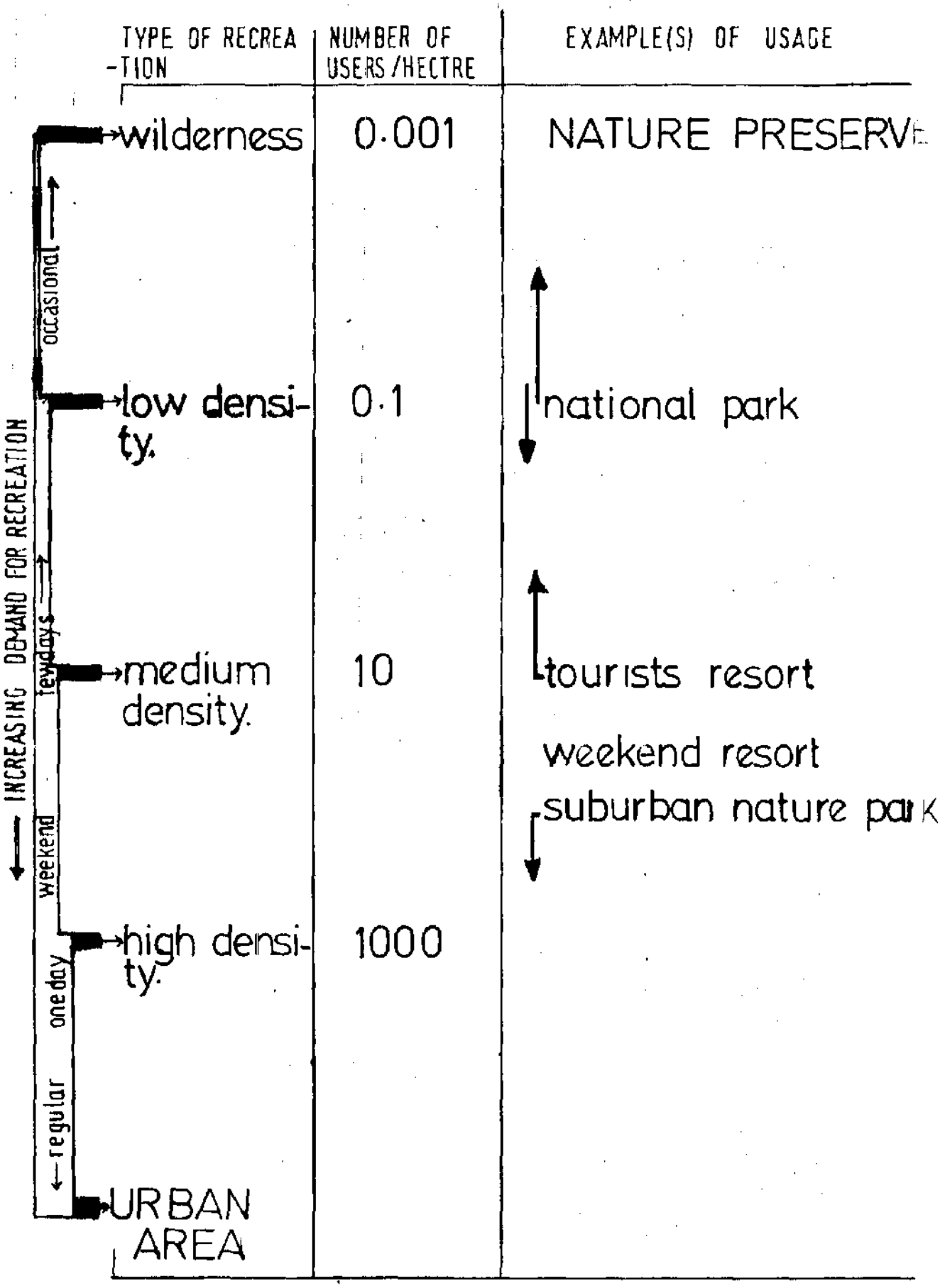
(a) The Tiga hydroelectric plant: planned, although not yet constructed but surely to be constructed. When finished, this hydroelectric plant will generate of power for utilisation in the surrounding settlements in addition to being linked to Kano metropolitan area.

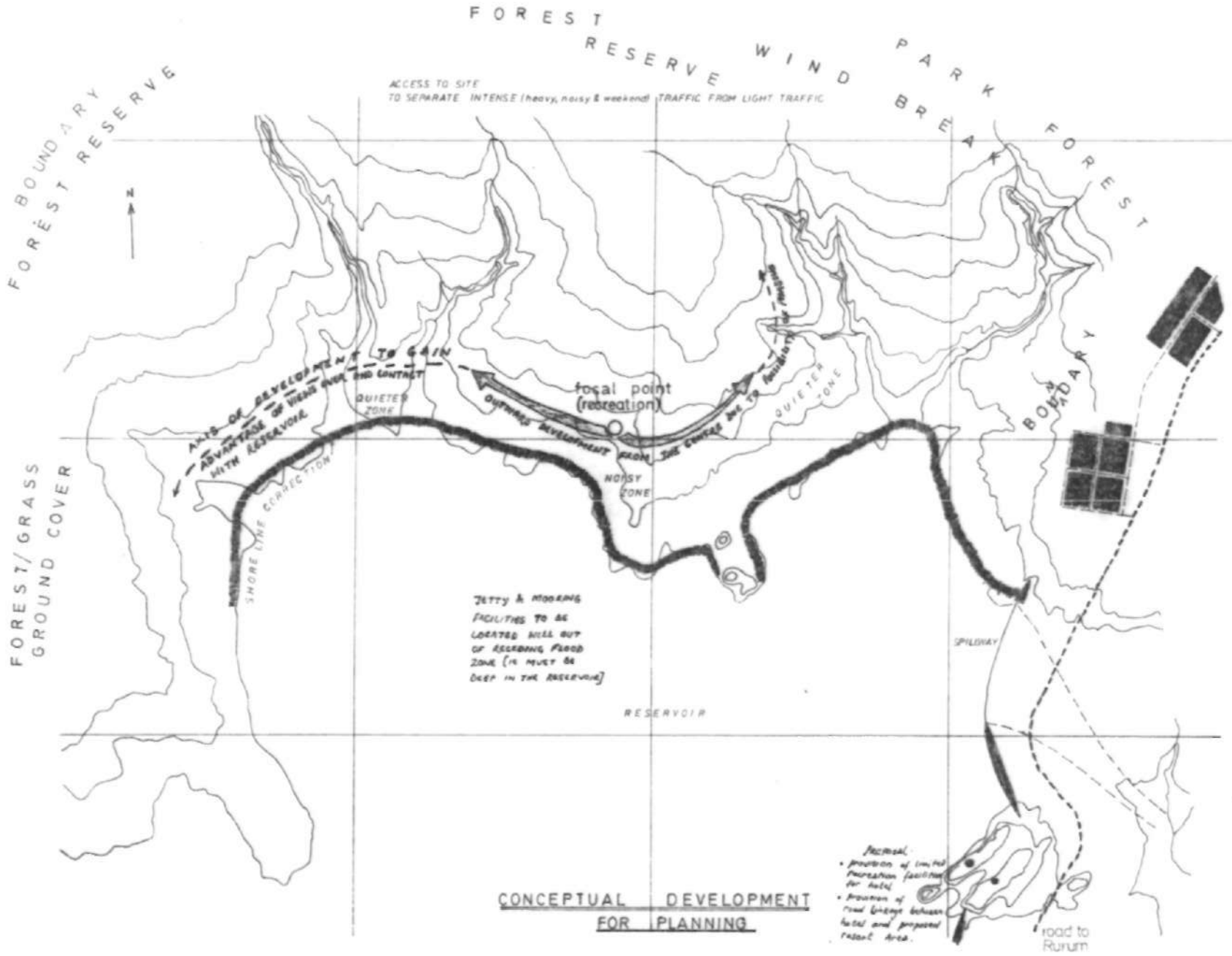
(b) The National (or NEPA) grid: Possibility of this must be checked with NEPA.

(c) Diesel Generators: These could be air cooled and of large generating capacities. In anycase, they should be standardized and located where fuel could be easily supplied (ie good access) and where their noises will not be a nuisance.

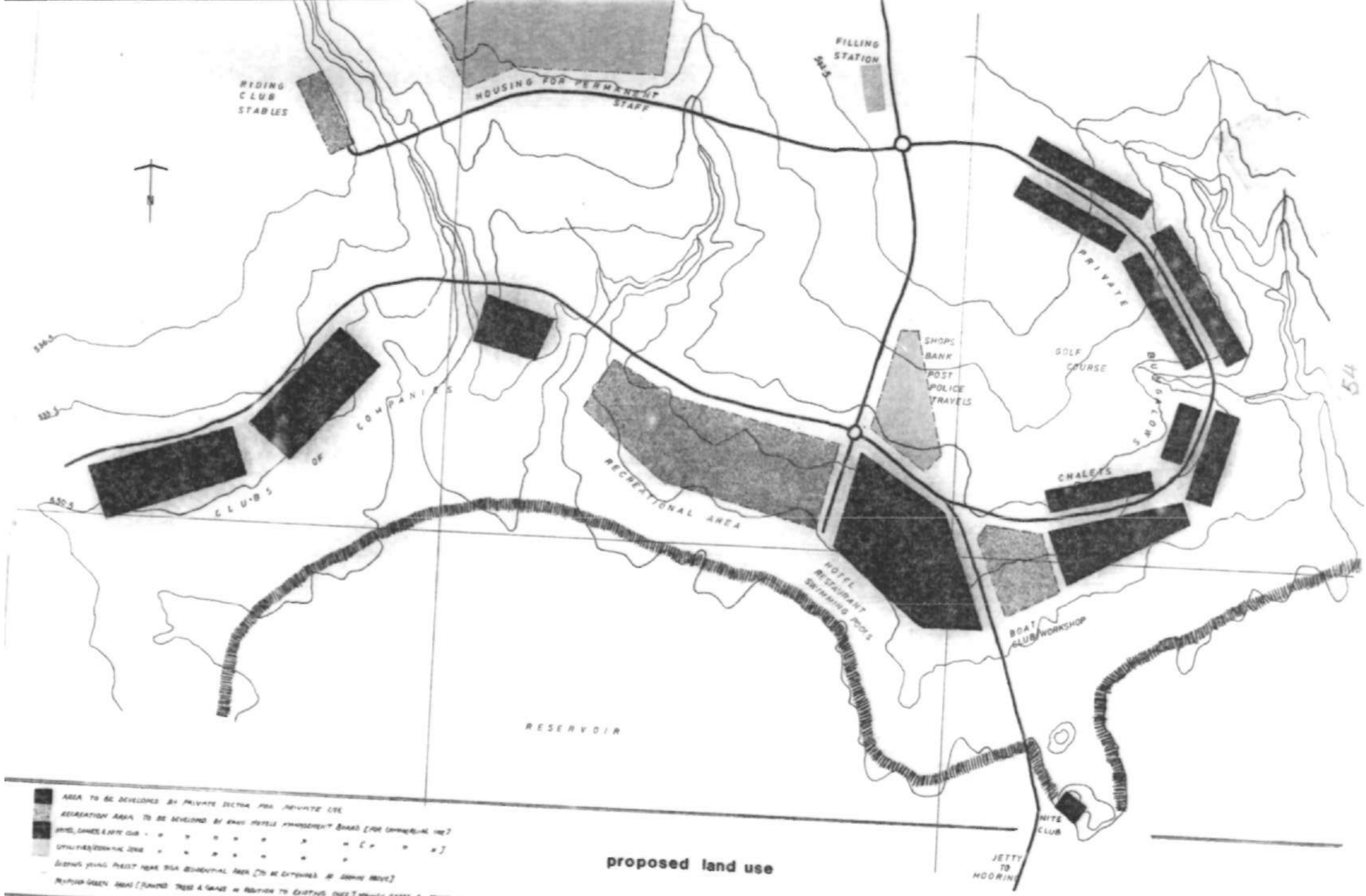
At this point it is important to point out that all distribution cables should be buried underground (or a long a terrain) where they are easily accessible for maintainance or replacement. This is necessary, to avoid the unsightly views of long poles with sagging cables.

DATA


TYPE OF RECREA -TION
NUMBER OF USERS/HECTRE
EXAMPLE(S) OF USAGE
wilderness
0·001
NATURE PRESERVE
low density.
0·1
national park
medium density.
10
tourists resort
weekend resort
suburban nature park
high density.
1000
URBAN AREA
INCREASING DEMAND FOR RECREATION
occasional
tewdays
weekend
one day
regular



CONCEPTUAL DEVELOPMENT FOR PLANNING



proposed land use

54

5.00 LANDSCAPING CONSIDERATIONS

5.01 The Aims of landscaping of the resort is to achieve the following goals:

(a) Provision of shelter to users, buildings and equipment.

(b) Provision of protection to users, buildings and equipment against environmental forces - rain, sun, wind, dust, glare, heat, noise etc.

(c) Creation of comfortable atmosphere for users through the above provisions as well as through planning for their convinience.

(d) Provision of scenes with "beautiful" visual qualities.

5.02 Proposals

To achieve the above goals which are vital to the success of the resort, the following guide lines for design will be followed.

(a) Plants and sculptural roof forms will be used to shelter roads, car parks, walkways and games (eg table tennis etc). The quality of trees and roof structures will enhence the visual qualities of the area.

(b) Grasses and shrubs will be used to cover the ground to protect the soil from all possible forms of erosion (wind erosion especially) and to give the grounds an evergreen effect. For this to be possible, the grass and other plants (flowers etc) must be irrigated (watered for the most part of the year). The water to do this is abundantly available

from the reservoir. The method of irrigation should be reliable and with reduced operational costs. An automatic sprinkler irrigation system with burried pipes and sprinkler heads protruding just few inches above the ground surface will be adequate for large grounds. Though expensive to install, alot more saving is made when in operation as it does not require many people to operate it and it can irrigate large areas in only few minutes. The adequate water pressure required for the operation of the system is achieved by the installation of water pump - which will however be located where its usual noise will not be of any nuisance.

(c) 'All-weather' benches, chairs and tables will be located under shades provided by the trees in the recreation, botanical/horticultural gardens and beach areas which are to be provided in the resort. All these facilities are to encourage outdoor leisure.

(d) As earlier discussed, vehicular traffic will be separated from padestrian traffic for the sake of convinience and safety. Walkways leading to particular places (as opposed to "strell" walkways) should be direct other wise they will not be used since padestrians have a habit of taking the shortest and most direct route to their destination. All roads walkways and open public spaces will be lighted using sodium lights (amber in colour) for safety and security reasons. The lamps can be mounted on poles or on tress

er both, depending on the circumstance.

Planning data for roads and foot paths.

TYPE	DIRECTION	WIDTH	SKETCH
1. DISTRIBUTOR ROAD	DOUBLE CARRIAGE WITH ISLAND	7m	
2. DISTRIBUTOR ROAD	DOUBLE CARRIAGE NO ISLAND	6m	
3. SERVICE ROAD	SINGLE CARRIAGE NO ISLAND	3m	
4. DIRECT ACCESS PATH	PAVED	1.2m	
5. STROLL FOOT PATH	COMPACTED BUT UNPAVED	1.2m	

NB All roads will be Asphalt finished.

(e) Forest reserves along the boundary of the resort will be densely planted with evergreen species which grow well in the locality. Neem trees otherwise known biologically as - have been widely successfully used for protection of the land from expesWre, desert encroachment (in sub-saharan regions of Kano) and as wind breaks. Furthermore, the species is drought resistant as well as evergreen. Hewever, along the shore line, the planting will be less dense (in order not to obstruct views over the lake. Palm trees and other shrubs characteristic of the tropical scenery will be planted.

6.00 RECREATIONAL CENTRE

6.01 SCOPE

The recreational centre - which is the focal point of the resort provides the main attractions of the resort which are vital to the success of the resort. Altogether it covers a total area of hectres. The wide range of facilities for sports and recreation that are available in this centre (as listed under 4.02 on page) makes it possible for the centre to be used as a kind of sports training centre for athletes prior to an important national or international games.

6.02 PLANNING CONSIDERATIONS:

(a) Circulation will strictly be pedestrian within the centre - with foot paths being direct, paved and shaded with trees. Car parking space will be provided adjacent to the roads along the sides of the centre were roads exists.

(b) Landscaping considerations as mentioned in 5.00 page).

(c) Pitches, play fields will be orientated such that glare due to sun does not affect any of the participants. Since, the sun rises in the east and sets in the west, the best orientation for the games would be along the North to South axis (slight inclination of 20° towards the each or west is possible).

(d) Dimensions of equipment and play fields are as indicated on page ..... of A.J. metric.

RESERVOIR
BEACH
CAMP
Training field
Foot ball
Hockey
TRACK
Children playground
TROPICAL GARDEN
TROPICAL GARDEN

7.00 CHILDREN'S PLAY GROUND:

7.01 THE PSYCHOLOGY OF PLAY IN CHILDREN:

The psycological development of children can generally be grouped into five phases and each of these phases has a great relevance in the behaviour of children during play. This is in accordance with researches conducted by Jean Piaget of the Reussean Institute:

(1) Sensorimoter Phase:

When the child is learning to co-ordinate his body reflexes. Here, the child is always engaged in repetitive movements which enable him to experience sensations caused by his gentle and limited movements. In terms of age, we find that new born babies and babies of upto 2 years of age fall into this phase thus suggesting an ever increasing sophistication in the child's movements (crowling to walking).

The child here does not understand and cannot be expected to be logical in his behaviour.

(2) Pre-conceptual phase:

The child belonging to this phase cannot still behave logical and will still be wrapped up in himself and consequently will not be capable of participating in group plays at the earlier stage of this phase (18 - 24 months). However, at the later stage of the phase 2½ years to 4 years, the child will develop tendencies of participating in group plays. The most dominant form of play in this phase takes the form of of fantasy.

(3) Intuitive Phase (4 years to up to 8 years)
The children in this phase rely on their intuition towards the development of concepts. It is characteristic of such children to be asking questions all the time - "Daddy what is this?" or Mummy why does the sun hide in the night? etc. They virtually ask question on anything they happen to ever hear from adults or on events or things they see. However, although intuition leads to logic or conceptualisation, these children have no logic as yet.

(4) Concrete Operational Phase (8 to 12 years)
The child becomes more curious than ever. Begins to form logic and understand concepts. Becomes more capable in group plays and develops interests in complicated games (eg games with rules).

(5) Formal Operations Phase (Adolescence)
The childs' mental and physical development has progressed to a point where he can formulate his own theories and test them according to reality in a more logical manner. Such children can be left on their own to undertake some simpler forms of adult activities.

7.02 WHY PLAY

Play is an essential aspect of child development which is useful to them as a vehicle for learning, leisure - something to pass their time with. It is easy to imagine what sort of nuisances and troubles children will engage

themselves in if we don't provide them with avenues to dissipate their energies. Furthermore if we don't provide children with proper playing grounds, they will certainly play in the streets and other unsafe grounds and probably engage themselves in acts of vandalism.

7.03 Relationship of Development (age) to Play Capabilities: From 7.01 it is evident that children at different phases of development (mental and physical) will have different play requirements in accordance with their physical and mental development. In as much the same way we don't expect adults to play with toys, we should also not expect older children approaching adolescence to engage in plays that are typical of babies and vice versa.
Generally, the level of sophistication of play engaged in by children is synonymous to the child's age group For instance, children of nursery school age will require open spaces with mounds of sand etc and changes in level within their physical capabilities to explore and experience during their flights of fantacie:

In practical terms, play ground intended for nursery school age children (ie children between 2 - 5 years of age), should be able to function not only as a meeting place for the children but also for the mothers who are actually required to be there to supervise and

look after their children who need protection not only from unsafe play and play toys but also from bullying elder children. The usual play items for such age group includes the following:-

(1) Sand for digging and castle dbuilding

(2) Hard surface for moving toys

(3) Shallow water for toy boats (puddle pool)

(4) Stepping and climbing logs or mounds miniature

(5) Miniature slides

(6) Small ball game area (soft - grass)

(7) Simple crawl tunnels

In the case of primary school age children (5 to 11 year olds) the level of mental and physical development is higher and hence their capabilities. Their type of play ranges from crude immitation of adult behaviou to adventureous games and plays including battles on toy or imaginery horse, climbing of buildings, trees, etc, and plays related to what they see in television or real life - like cowboys and Indians, good guy (police) versus bad guys (thieves), wedding plays and hospital or docter games.

In practice the play area intended for this age group is best divided or separated into areas for:

(a) Adventure play

(b) Quiet play area (artistic activities, quiet games and play acting).

(c) Equipped play ground

(d) Formal games area (for games with rules).

7.04 PLANNING FOR SAFETY:

Safety in playgrounds is a subject that cannot be over emphasized. Accidents and other danger can come about due to faulty play equipment, dangerous edges and kerbs near sand pits, and sharp edges of stepping legs etc. Other accidents are due to a child being hit or knocked over by a swing when the child is too near or when the child is pushed over an edge or top of something during a quarrel with another child etc. The designer of a play ground must avoid making possible these sorts of accidents through separation of the game areas according to their sophistication, avoiding of tight spaces between play equipments, use of guard rails to prevent children walking into the ranges of swings, prevention of overcrowding at any one particular spot or equipment, provision fo hard surfaces only where they are deemed to be necessary, avoiding the introduction of sharp or pointed edges or equipments or near free play areas and more important the children must only be allowed to play on their own under the watchful eyes of an adult(s) who would only interfare when some danger or trouble is sensed. To this end, a shelter with benches for mothers and a hut for a caretaker with provisions for first aid will be a welcomed measure.

7.05 FACILITIES TO BE PROVIDED IN THE PROPOSED PLAYGROUND:

1. Sliding ramp (s)
2. Climbing legs (vertical legs & horizontal legs)
3. Paddle pool
4. Beach sand
5. See - saws
6. Hop - scotches
7. Play hut
8. Crowling tunnels
9. Stepping stones/Logs
10. Climbing nets
11. Swings
12. Rocking Horses/boats
13. Merry go rounds
14. Grass games area
15. Benches for parents/children
16. Caretakers hut

8.00 THE NIGHT CLUB

8.01 The Project

The project is for the design of a Night Club which incorperates a restaurant and a discotheque within the proposed holiday resort.

8.02 The Client

The client will of course be the same client for the holiday resort as mentioned in 1.02

8.03 *The Generating Idea (concept)*

It is a matter of philosophy as to what is more important in Architectural design between form and function. There is a class of Architects who believe that the form which a building takes should be given more prierity than the function the building is sewing when it comes to a choice between any design factors that are related to form and function in Architectural design of the building. They believe that Architecture is a art and the final product (the building) should be seen as a work of art and judged accordingly. Therefore it would seem absurd to relagate design factors related to form in favour of factors related to function as this would disturb or destroy the artistic image of the building.

The other class of Architects believe in quiete the opposite philosophy. They simply believe that a building should serve its purpose first before any decorative features are introduce. Thus a building plan must work efficiently and the various spaces volumes must

be adequate, sufficient and must relate to each other very well and efficiently according to the users requirements (in function of the space) be they acoustical or micro-climatic. Thus it will be unthinkable for the Architect as a designer (not artist) to be trying to make his design (plan) fit into a certain rigid form for the sake of creating an artistic image at the expense of purpose (or function.

I believe, to engage in such arguments is to miss the point. Is it not possible to achieve the qualities of form and function at the sametime? Is this not the challenge of Architecture and the test of the Architect's (designer's) creative capabilities? And has technology not provided us with the tools and materials to reconcile the differences and conflicting demands of the two towards achieving an optimum if not a perfect building - without having to relegate one in favour of the other?

If Architects have accepted (and they seem to have) their roles as designers - solvers of problems and creators of imaginative images then they should face the challenge because it is a real challenge which is very fundamental to Architecture. The way they practically approach and dealt with this challenge will be an indicator of the level of their creativity;

because form and function go hand in hand in Architecture and should not be separated.

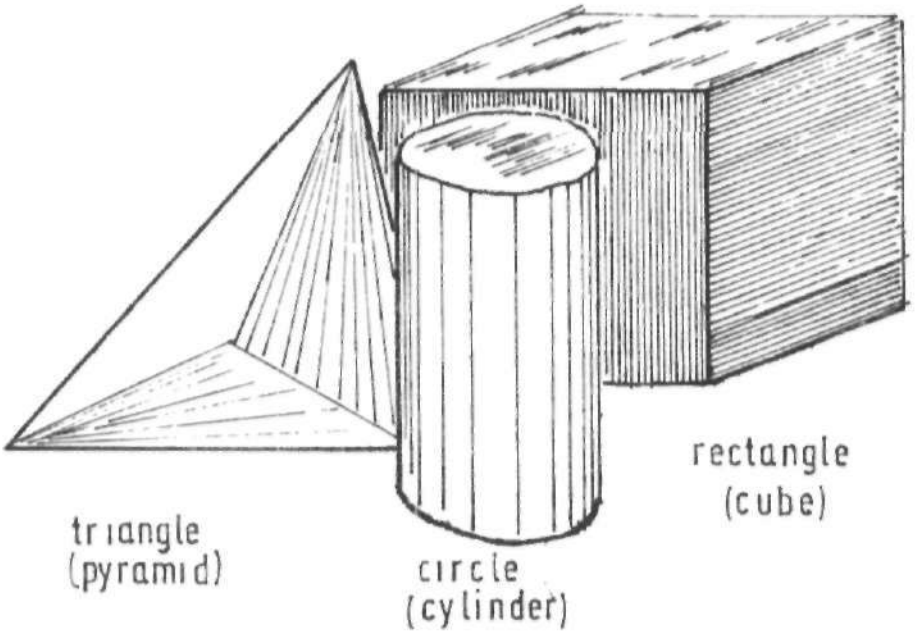
As for technology, we find in it ready solutions to our problems even though we must not forget that some solutions could create their own problems and also that some solutions could be costly. Technology has made everything virtually possible but only if costs permit, perhaps the most serious challenge to the Architectural tradition and Architectural Devellopment is economics - I mean costs.

Mr. M.I. Pei, A chinese - American Architect has in my opinion taken up the challenge and has successfully came up with (so far) two very good monumentally symbolic buildings in U.S.A. (a museum and Kennedy memorial library). In both buildings he used geometrical forms such as a square, a triangle, a circle and a sphere. Conservatively one would dismiss mixing of forms like this in one building design as having no harmony in itself or/and of being over articularted. But these buildings have been accepted as very functional and highly creative and having monmental qualities. I mention Mr. Pei becaus, I have an idea of trying geometrical forms in the design of the night club. His building are of course monmental in size and more complicated in scope than the nite club I am designing. But then my approach will be simple and different. It is something I have never done and something I want to try.

CONCEPT

diagram – nite club

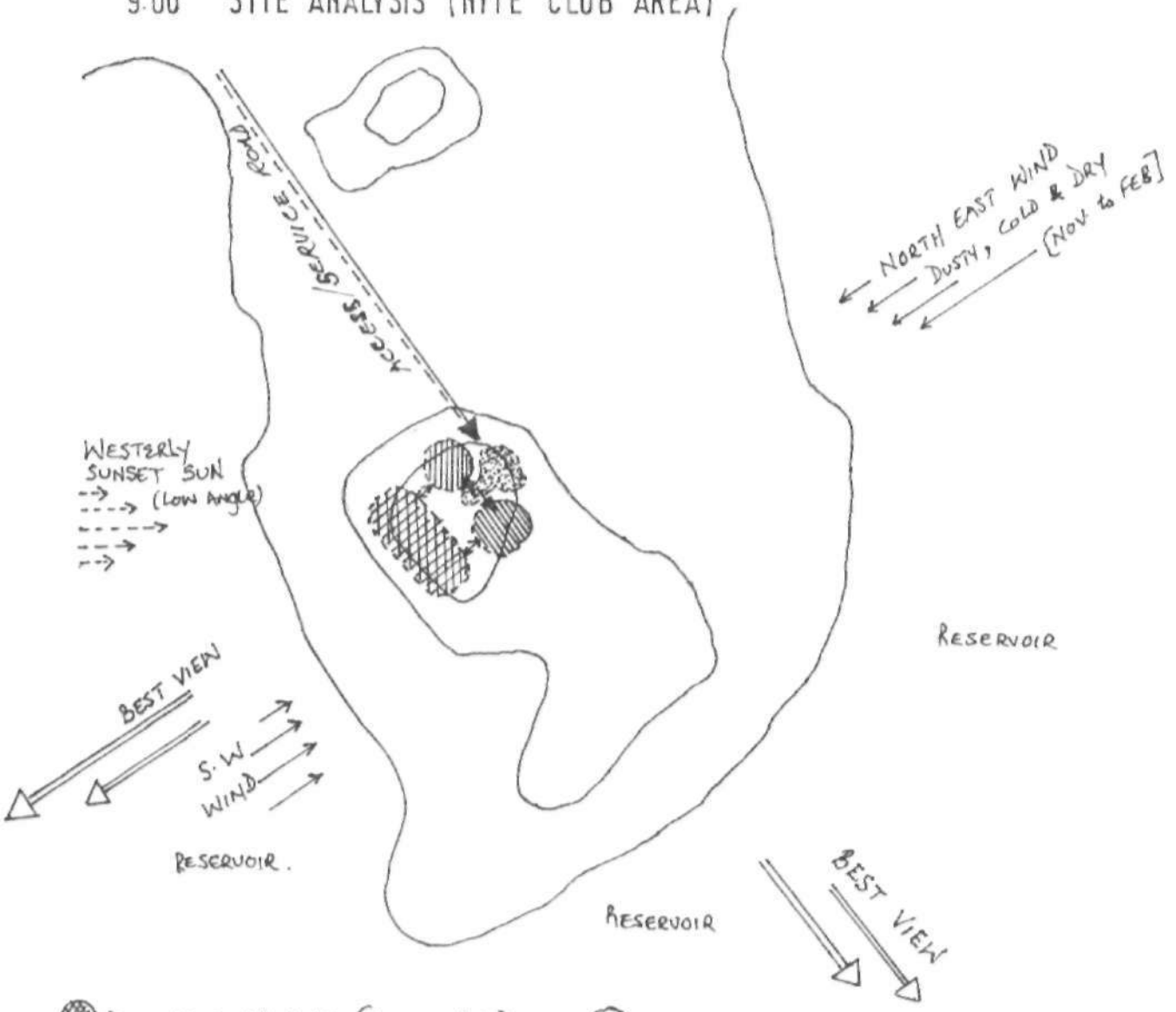
A 'GEOMETRY OF SPACE' DEFINED BY 'GEOMETRIC' FORM (S)



8.04 TRENDS IN NITE CLUB DESIGN

The general trend is towards avoiding uniformity and its consequential dull effects. In high class restaurants premium is placed not only on the quality of food and drink, but also on service. And even in those restaurants that are under the same management, individuality of each of the restaurent has been maintained rather than forcing uniformity. However there are attempts by proprietors to indulge in nostalgia. This self indulgence illustrates only their selective memory - which of course is a bad criterion with bad business consequences. In the discotheques there is a new preoccupation with sound and lighting gimmicks. It seems light and sound are now what makes dancing as exciting a sport it is. If a discotheque is to succeed it must have these gimmickery and in addition it must have the latest and correct type of music.

9.00 SITE ANALYSIS (NITE CLUB AREA)



DINING & WINING (RESTAURANT).

KITCHEN

SERVICES AREA

DISCO / BAR

① DINING AND WINING AREA :- TAKES ADVANTAGE OF (A) BEST VIEW
(B) COOL BREEZE FROM LA
(C) WESTERLY SUNSET SU
[OVER TERRACE].

② DISCO / BAR AREA :- TAKES ADVANTAGE OF (A) BEST VIEW OVER LAKE
(B) BEST VIEW OVER GARD
(C) COOL BREEZE FROM LA

③ KITCHEN :- TAKES ADVANTAGE OF (A) MORE DIFFUSED NORTH LI
(B) REDUCED HEAT INTAKE
THROUGH WALL FABRIC
TO ORIENTATION.

④ SERVICES AREA :- TAKES ADVANTAGE OF (A) CENTRAL LOCATION
(B) DIRECT ACCESS.

10.00 PROJECT MANIFESTO

10.01 A statement of aims/objective to act as guidance in achieving a balance design.

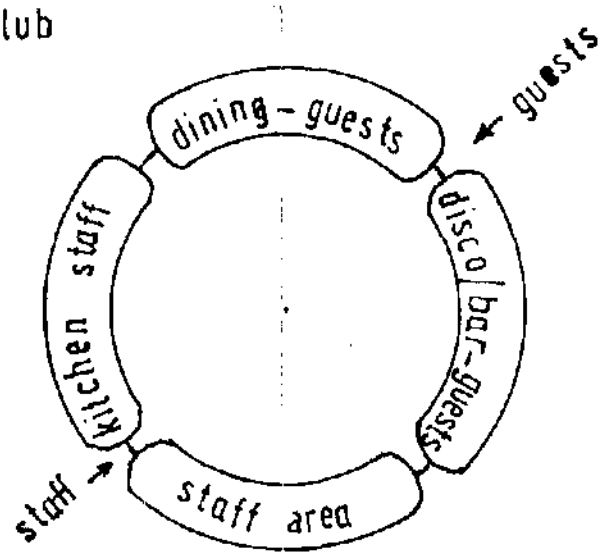
1. The Nite Club should be INVITING
2. FIXED - Not intended for future expansion or alteration
3. Modern - In appearance and use
4. Not excessively FORMAL with waiter Service
5. MEDIUM TECHNOLOGY (a balance between simplicity and excessive dependance upon technology. The construction should be related to cost
6. HORIZONTAL - Not very high , in anycase no more than two floors.
7. CONTRASTING - Contrasts well with buildings around it - the building should stand out.
8. FUNCTIONAL BUILDING
9. RELAXING ATMOSPHERE
10. INEXPENSIVE - Moderate in Costs.

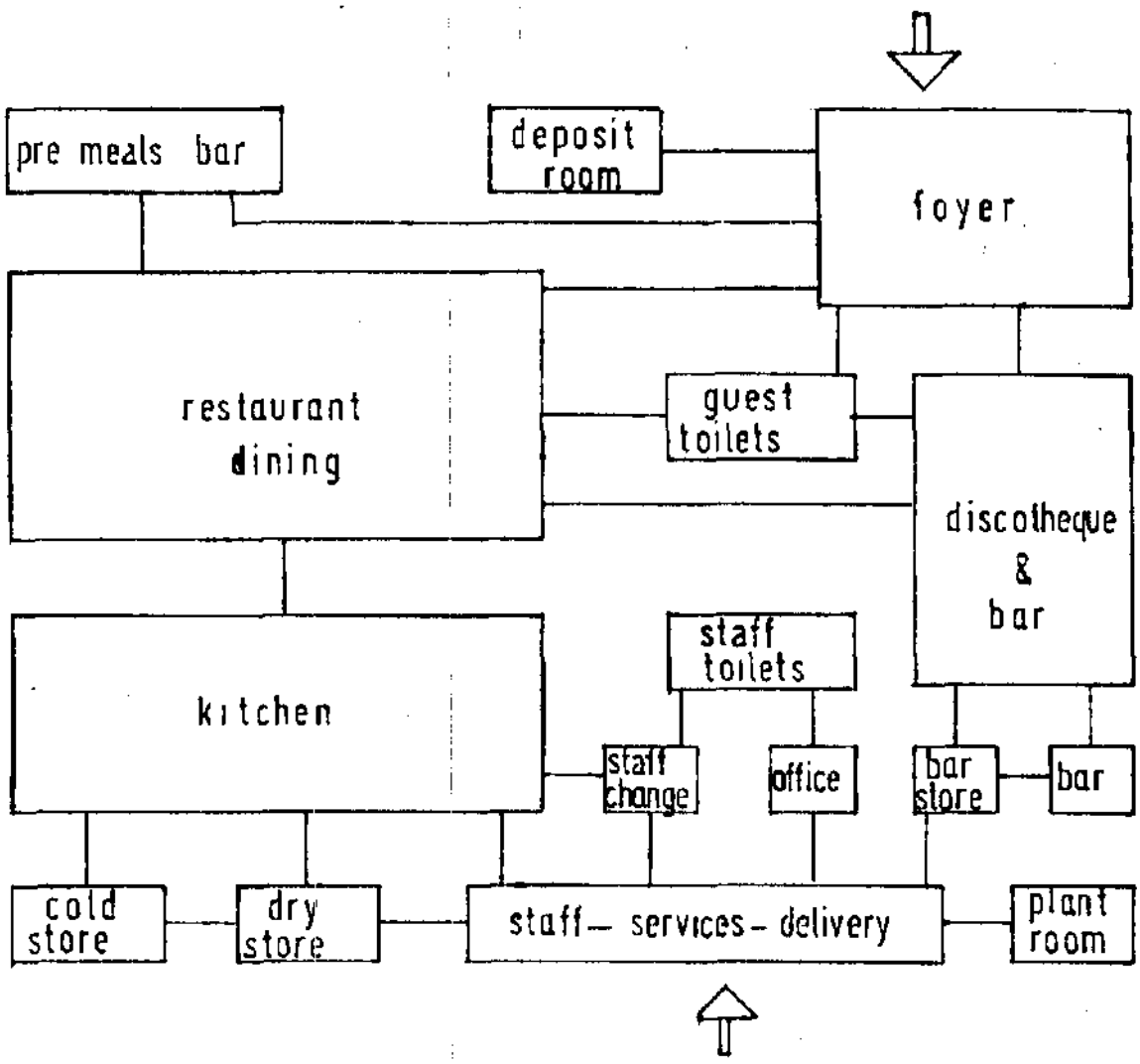
11.00 THE DESIGN

11.01 SCHEDULE OF ACCOMMODATION

1.	DINING AREA	12 GUESTS - 1.2 Sqm/Person....	220 Sqm
2.	KITCHEN (EXCLUDING STORES).....	60	"
3.	DRY STORE	30	"
4.	COLD STORE	20	"
5.	STAFF CHANGING (MALE & FEMALE)	35	"
6.	STAFF W.Cs (MALE & FEMALE)	12	"
7.	OFFICE	12	"
8.	PREMEALS BAR / LOUNGE	45	"
9.	GAMES ROOM	45	"
10.	DISCO / BAR (EXCLUDING DANCE FLOOR)	220	"
11.	GUESTS (CUSTOMERS) W.Cs (MALE & FEMALE)	32	"
12.	BAR STORE	12	"
13.	PLANT ROOM	24	"

11.02 SPACE RELATIONSHIP DIAGRAM
nite club





12.00 THE BRIEF

12.01 ACCESS AND DELIVERIES

Access for food deliveries and refuse collection is to be through the service Road. Delivery time for food and drinks will in the morning before 12.00 noon in anycase. The staff entry into the building and deliveries entrance must be separated from the guests entrance.

Access for the guests (public) to be from FOOT WALK. Parking for the guests will be the car park adjacent to the site. Deliveries will be 6 times in a week. (33 deliveries for drinks and 3 deliveries for food stuff).

12.02 RESTAURANT POLICY

The general character of restaurant will be slightly formal and High Class. The restaurant dining area to be able to accommodate up to 120 guests. The life of the restaurant concept should be to at least last ten years. The idea of internal atmosphere will be to encourage guests to stay longer and therefore spend more. The meals offered on the menu should be moderately sophisticated. Restaurant will open for lunch and dinner (12 - 3p.m., 6p.m. - 12p.m.) and disco / bar (8p.m. - 5a.m.)

12.03 SERVICE ARRANGEMENTS

The type of service (befitting the character of the restaurant) will be waiter and waitress service.

12.03 SERVICE ARRANGEMENTS

The type of service (befitting the character of the restaurant) will be waiter and waitress service. At peak demand periods there will be a number of ten waiters/waitresses, that is, one waiter/waitress per every twelve guests. There will be separate service entrance and exit between the kitchen and the dining area. Method of payment is through the waiter/waitress. The cash collecting point will be in coffee/drinks bar.

12.04 ACTIVITIES DATA / USER REQUIREMENTS

A. Kitchen Storage The required amount of space for storage will take into account, the method of shelving and stacking, circulation, rate of delivery (see restaurant policy) and types of meals likely to be served. The storage will be separated as:-

(i) Dry Store

Damp and excessive humidity must be avoided as can cause damage to dehydrated commodities and also encourage fungal growth. Should also be free from entry of dust, smoke, vermin and steam from cooking section. Natural lighting is not necessary. Artificial lighting should be adequate ..... 200 lux. Fitting should be designed and arranged for easy cleaning, demountability and maintenance. Purposely designed metal shelving is more desirable.

(ii) Cold Store

Perishable foods to be kept in chilled stores while frozen foods should be kept in deep freezers. The size of spaces concerned should take into account rate of delivery etc.

This store should be well insulated, the exterior walls must be air tight. However all storage areas should be accessible from outside the building for delivery vans.

B. Food Preparation Areas

These should be easily accessible (through a direct link) from the food storage areas and also directly linked to the cooking section. The preparation area should be separated as follows.

(i) Vegetable Preparation Section.

Facilities to be provided are for salad preparation, potato peeling, vegetable shredding and dicing. Potato peeler should be positioned so that the peeled potatoes are discharged into the sink for washing. All sinks should be connected with both hot and cold water taps (at 60°C).

Smaller dicing shredding machines should be table-top mounted.

(ii) Meat and Fish Preparation.

Will be best located near the cold store. There should be separate sinks for fish washing and for meat washing in order to prevent the contamination of one by the other.

Meat slicing and mincing machines should be table-top mounted (near cold store for continous flow). Cabinets or storage space for knives, cheppers, chopping boards etc. should be provided.

(iii) Pastry Preparation.

This should be a self contained unit for the preparation of sweets and bakery items. Should be located near the pastry even of the cooking section. There will be sufficient working surface area with one sink with hot and cold water supply, an 11 litre mixing machine (table mounted). hand operated pastry roller, weighing scale and storage bins and cabinets for flour, dishes moulds etc.

C. Cooking Section.

Should be directly accessible and linked to servery and the preparation areas, choice of and number of cooking equipment will be adequate to serve the restaurant policy, number of guests and variety of meals prepared.

D. Servery.

Will be linked to cooking section and to dining area as well as the dispense bar and the wash up. The servery will have separate entrance and exit from and into the dining area. There will be cabinets or other storage facilities for cutlery and condiments.

E. Wash-up Area

This will be self contained but will be linked with the servery, cooking section and will also be linked to the refuse disposal area. Fitting will include

table for sorting out table-ware prior to scraping, mobile refuse bins, crockery racks, double sink and a small spray type dish washing machine.

F. Dispense Bar (Bar Service for Dining Area)

This area will be directly linked to servery. It will have coffee and tea making facilities, cash register, refrigerator for soft and alcoholic drinks and will have a separate storage for wines etc.

G. Wine / Drinks Stores

Will be directly accessible from outside the building through the delivery entrance. Stored drinks will be kept at cool temperature. There will be organised storing system.

H. Staff Areas and Facilities.

These will be accessible from the kitchen and from outside through a staff entrance. Separate female staff and male staff changes as well as W.Cs will be provided. The W.Cs will be proximal to the changing rooms. There will also be a staff common room which could also be used for staff meals.

I. Public Areas

(i) Public Cloakroom

This will be located near the public entrance, and the public W.Cs will have an attendant and provisions for hanging coats, hats, and umbrella.

(ii) Public W.Cs

Will be close to entrance foyer and separated into Ladies and Gents. These will also be easily accessible from the other public areas.

(iii) Waiting Loung / and Pre-meals Bar

To be provided to form the waiting area. This general waiting area will be easily accessible from the other public areas, dining area, discotheque and public entrance. The pre-meals bar will be serviced from a store which in turn is serviced through a delivery entrance common to the kitchen stores. Interiors will reflect high classness of restaurant. The general waiting area should accommodate up to thirty people.

(iv) Dining Area

This will have the following:- High class and relaxing atmosphere, an external terrace, seats for 120 guests with sufficient aisle spaces for circulation to terraces and other tables, using trollies.

(v) Discotheque and Bar Service

To cater for 50 guests. Should be accessible from other public areas - waiting lounge, entrance foyer, cloaks and public conveniences. Will be able to open even after the closure of restaurant (see 5.02 restaurant policy for opening times). The bar will be serviced through the delivery entrance common to other storage areas.

MATERIALS CONSIDERATION

INTERIOR ELEMENTS

13.00 FLOORS

13.01 Dining Area

(a) Aesthetic Requirements.

The dining area floor will be beautiful and will compliment other finishes in texture and appearance. It will have luxurious appearance all in accordance. with the idea of creating a high class ritzy atmosphere.

(b) Functional Requirements.

Acoustics

The floor finish will be resilient and soft (comfortable). These qualities will check impact noises due to footsteps and will form part of the general sound absorbing area which is needed to control speech noises etc. in order to avoid echoes.

Maintenance

The floor finish will be easy to clean. And as it is likely to be stained by oils etc. it will be easy to replace in section (these that have been stained).

(c) Possible Materials Inlude carpets, corks.

(d) Specification

Carpet of red colour to provide a 'red carpet reatment'. The carpet will be of wool to go along with the high class appearance.

1 3.02 Dosco / Bar Area

(a) Aesthetic Requirements

This area will have an aesthically similar floor to that of the dining area discussed above.

(b) Functional Requirements

Acoustic

As this is an area in which there is a large amount of noise from both people and music. It is desired that the floor finish forms part of the sound controlling (absorption) elements. Furthermore, the part of the general floor that will be used for dancing will be resilient against impact noise, will be adequately anti-slip and wear resistent.

Maintenance

The floor finish will be capable of being easily replaced in part or as a whole and will be easy to clean.

Possible Materials

Include carpets, cork, rubber and chipboard. Rubber especially foam backed rubber is adequate as far as functional qualities are concerned but it will not create the desired high class qualities. Chipboard is not as good as carpet or cork in acoustic qualities, as well as in the desired looks.

Specifications.

The dancing floor area will have cork tiles and the non-dancing (i.e. sitting) area will have violet, woollen and tiled carpets which can be replaced in parts in case of damage.

13.03 Kitchen Floor

Aesthetic considerations:-

not as important as functional considerations.

Functional considerations

Acoustics

The kitchen is a very busy and noisy area. There is a considerable need to control by absorption of this noise and there is also a need for insulating the kitchen floor to avoid noise transmission through the structure. There is a need for the floor to be resilient to reduce noise level in the kitchen by eliminating impact noises.

Water and Chemical Resistance qualities are highly rated in a kitchen due to the kind of activities and materials that are handled in the kitchen. This means that the kitchen floor will be water and chemical resistant. Materials with these qualities are hard and have sound reflecting surfaces. This contradicts with the need to have a soft (sound absorbing surface) and resilient floor finish.

Maintenance

There is a need to clean and wash the kitchen floor and this is a frequent activity.

Possible Materials

Rubber (foam backed), linoleum, ceramic tiles.
Due to the conflicting requirements mentioned above, the best solution will be to have a hard but water and chemical resistent floor finish then use other kitchen surfaces for acoustic purpose.

Specification.

The kitchen floor will be of ceramic tiles.

13.04 FOYER

Aesthetic Considerations

This will have a decorative appearance and a comfortable atmosphere. To be Attractive and Inviting.

Functional Considerations.

Acoustics This area is linked to all the other public areas directly - waiting lounge, bar, dining, and toilets. It has a large volume also. Therefore there is a risk of echoes. Therefore this area will have soft finishes (sound absorbent).

Anti-Wear

This is a public circulation area to and from other parts of the building. Therefore the floor should have good anti-wear and resilience rating.

Possible Materials

Cork, carpet, wood mosaic, marble and terrazo.

Specification by Choice Matrix

MATERIALS	APPEARANCE X 5	ANTI_WEAR X 4	ACOUSTICS X 3	TOTAL
1. CARPET	20	15	25	60
2. MARBLE	25	25	15	65
3. CORK	10	15	25	50
4. WOOD MOSAIC	15	20	20	55
5. TERRAZO	5	25	15	45

∴ Marble (patterned) will be provided as the flooring finish in the entrance foyer.

14.00 WALLS

14.01 DINING AREA

Aesthetic Considerations

Atmosphere within a restaurant (or dining area) is achieved by design since it helps to reflect the character of the restaurant in general. Interior design is one of the many aspects of design which are involved in creating a desired atmosphere. Thus the materials of interior design should be selected with the desired atmosphere in mind. This restaurant will be a high class restaurant having decorative, luxurious finishes.

Functional Considerations.

Acoustics

The dining area is a large volume area - Therefore there will be sound absorbing surfaces. Heavy curtains will be used over glass-window areas. The walls between the kitchen (noisy area) and the dining area will have adequate insulation.

Maintenance.

There is a need for a material that can be replaced in parts or sections since there is a risk of staining and it should be capable of being cleaned.

Possible Materials. Wall carpet, Wall Cork.

Specification.

Wall carpet will be used in conjunction with heavy curtains (over glass-window areas).

14.02 Disco / Bar

Aesthetic Requirements. As in the case of the dining area.

Functional Requirements.

Acoustics

Musical noise to be controlled internally by absorption, transmission through wall fabric to other parts of the building to be controlled by insulation. Curtains will be used over glass areas.

Maintenance

Material used will be easy to clean and replaced when damaged.

Possible Materials.

Cork, carpet, timber panel (with acoustic backing).

Specification

The disco / bar walls will have afrormosia panels over air space and with absorbent backing. This is chosen to achieve the same purpose as with either carpet or wall corks and also to achieve something different.

14.03 Kitchen Walls

Aesthetic Considerations

These should not dominate the reasons behind the choice of the kitchen wall finishes. Aesthetic consideration will come after a material has been chosen for its functional efficiency.

Functional Requirements

Acoustics

Kitchen is a noisy area, there is a requirement of noise absorbent finish.

Water Resistance

A lot of moisture is generated and in addition kitchen walls are vulnerable to splashing with oils, greases, water, acids and scouring agents and to heating due to proximity to cookers and other source of heat (these are more likely to occur in the lower parts of the walls). For these reasons and that of hygiene, porous surfaces are not suitable for kitchen walls even though there is also the need to use them for sound absorption.

Possible Materials

(i) Glazed tiles with acid resisting joints.

(ii) Glossy or rubber based paints on dense and smooth surface.

These are however hard, noise reflecting surfaces and create a problem of noise absorption.

Micropore is one material suitable for this job. It is a good sound absorbent and its microscopic pores are too small to absorb water vapour.

Specifications.

Glazed ceramic tiles at splash level and micropore above the splash level. As there is a need to avoid glaring surfaces the specified ceramic tiles will have light blue colour.

14.04 Office Walls.

Aesthetic Requirements. Walls will be decorative.

Functional Requirement. Walls will be absorbent (sound). Easy to clean or replace.

Possible Materials. Cork, carpet, wall paper, timber panel.

Specification. Brown and patterned cork finish.

14.05 Entrance Foyer.

Aesthetic Requirements. This area will be inviting and attractive in a manner befitting a high class entrance foyer.

Functional Requirements.

Acoustics. Wall finish will be of sound absorbent material.

Maintenance. Easy to clean and replace.

Possible Materials. Timber panel (with absorbent backing) and wall cork.

Specification. Timber panel (with absorbent backing) The selected timber is Afrormosia.

15.00 CEILINGS

15.01 Aesthetic Requirements

All ceilings in public areas - Dining area, bar, lounge, foyer will have aesthetic appeal and will compliment and be in harmony with the floor and wall finishes.

15.02 Functional Requirements.

The ceilings (all) will be sound absorbing and will be part of the acoustic measures in every area.
All ceilings will be suspended to house services ducts in the ceiling void.
Ceiling in kitchen must be resistant to vapour penetration.

15.03 Possible Materials.

Plaster board, Micropore.

15.04 Specifications.

(i) Dining area, lounge, foyer; will have suspended plaster board ceilings.

(ii) Kitchen; will have suspended micropore ceiling.

(iii) Disco / bar ; will have suspended acoustic ceilings.

SERVICES CONSIDERATIONS

16.00 HEATING AND VENTILATION

16.01 JUSTIFICATION

Natural ventilation is inadequate for kitchens where over 100 meals will be cooked per day. Therefore mechanical system is necessary.

16.02 PURPOSE

To remove steam, oil droplets, heat, fumes and smells. To supply fresh air and to control distribution of the fresh air.

16.03 PROVISIONS

The exhaust air extracted from the kitchen will be kept separate from that which will be recirculated to staff, dining areas, disco / bar, lounge and pre-meals bar for air conditioning. Similarly, the extracted air from the toilets will not be recirculated. The kitchen and the E.Cs will each have a separate extract system. A service duct for this purpose will be provided.

(b) Air funnels will be provided over cooking appliances such as deep fat fryers to ensure that steam, oil droplets etc. are extracted and removed in the area they are produced thus minimising chances of condensation and staining taking place.

(c) An imbalance between the foul air extraction and the fresh air supply will be maintained to prevent

the flow of steam and smell into the dining area from the kitchen. Thus between 10% and 20% more air must be extracted from the kitchen than the inlet system provides and this imbalance will be maintained under all operating conditions.

16.04 EXTRACTION SYSTEM

Points considered in selection:-

(i) Will be accessible for maintenance.

(ii) Will be free of the danger of over loading, corrosion, accumulation of grease and dirt.

(iii) Will have acceptable noise and vibrations.

(iv) Will have replaceable parts which should be available.

16.05 TEMPERATURE AND COMFORT IN KITCHEN

(i) Temperature control in the kitchen involves mainly ventilation - removal of heat generated by cooking appliances, dish washing machines, people, refrigerators etc.

(ii) Kitchen environment is hot (25°C or more) causes perspiration, evaporation - this uncomfortable situation is worsened by high humidity which restricts the evaporation of perspiration.

(iii) In hot season, excessive heat gain is likely to occur and thereby add to the already worse condition. Hot season heat gains could be minimised by orientating the kitchen area to the north of the entire building complex or / and by using adequate construction to achieve a minimum 'U' value.

16.06 DESIGN STANDARDS

AREA	TEMP°C	AIR CHANGE /HR
1. COOKING AREA	-	20 - 60 where heat output is large in relation to kitchen the higher rate of air change is necessary.
2. VEGETABLE PREPARATION	15°C ± 1°	2 - 3 local supplimentary heating may be necessary.
3. MEAT & FISH PREPARATION	15°C ± 1°	4 - 6
4. SERVERY	15°C ± 1°	5 - 10
5. WASHING-UP	15°C ± 1°	6
6. STAFF ROOM OFFICE	18°C ± 1°	1.5 - 2 for rooms wit separate natural ventilation and 4-6 for mechanically ventilated room (internal)
7. DINING AREA	18°C ± 1°	1.5 - 2

17.00 COLD AND HOT WATER

17.01 The following points will be connected to water supply cold or hot supply or both.

POINT	COLD WATER	HOT WATER
(1) Vegetable Preparation sink		55°C
(2) Other food Preparation sink	connected direct to service pipe	
(3) Water boiler/ cafe set		
(4) Drinking water point		
(5) Boiling pans		
(6) Rinsing/Sterilising sink		82° boosted from 55°
(7) Dish washing machine		
(8) Steaming ovens		
(9) Potato peeler		
(10) Waste disposal unit		
(11) Wash-up sinks		
(12) Pan wash		55°C
(13) Cleaners sink		
(14) All lavatory basins		
(15) Water closets		
(16) Tap & hose for refuse system		

17.02 The extent of water usage determines pipe sizes - large quantities of water (hot and cold) are used and this necessitates the use of large pipe sizes.

17.03 Water required per meal 7 litres (1½ gals) to 18 litres (4gals). Peak demands for cold water likely to produce flow rates of up to 7 litres per hour for each main meal prepared.

17.04 Water supply authorities require a full days supply of water to be stored in the premises. To minimise cost of pipe work the cold storage cistern and calorifier (or water heater) should be sited close to the kitchen.

18.00 DRAINAGE & SANITATION

18.01 STAFF & PUBLIC CONVENIENCES (W.Cs)

Will be planned and grouped in one zone to achieve reduction in costs of pipes, maintenance and toreduce complication. Waste (soil) pipes will be connected to Independent Septic tank.

18.02 There will be separation of male & female W.Cs in both staff and public (guests) W.Cs.
The female public W.Cs will have two water closets and three hand basins. The male public convenience will have two water closets, three Urinals and three hand basins. The female staff conveniences will have one water closets, two hand basin while the male staff conveniences will have one water closet, one hand basin and two Urinals.

18.03 Refuse Disposal

The system of refuse disposal will be by refuse bins. Therefore there will be a waste bins area which will be linked to the kitchen and the wash up area. This area will be self contained and will have a tap and hose for cleaning purposes. The area will be accessible from outside for refuse collection by refuse van.

18.04 Foul Water Drainage.

Foul water from kitchen sinks, wash up room etc. will be drained by connection to Independent soak away pit.

19.00 ELECTRICAL INSTALLATIONS

19.01 PURPOSE

For lighting, ventilation of the building and also for supplying the kitchen equipments. Preliminary estimate of electrical consumption in a restaurant as this (500 meals / day) is 1.4kw/hr

19.02 PROVISIONS

As kitchen equipment will be powered by electricity, the building will have a three phase installation.

(a) There will be a mains switch to isolate all equipment (except refrigerators and cold store - which need to be working continously) This is necessary in case of emergency use and the need to switch board will be located near the entrance to the kitchen.

(b) Individual Isolation Controls will be mounted on a common moisture preof panel which in turn will be mounted on the kitchen wall (where effects of heat and moisture can be avoided).

(c) Wiring will be in ducts (when carried above the ceiling) and in conduits when carried within walls, underneath the floor slab.

In the case of wiring to the Control panels, the cables will be sunk in the floor to rise up into the Control panels of the individual equipments.

(d) Switches, socket outlets and lighting points will be located away from hot surfaces and where wetting by steam can occur.

ENVIRONMENTAL CONSIDERATIONS

20.00 LIGHTING

20.01 ARTIFICIAL LIGHTING

(a) Adequate level of lighting will be provided in all working environments - especially at the surfaces of the work benches. This is necessary for workers comfort, for reducing contrast and risk of accidents, for reasons of hygiene (i.e. ensuring cleanliness of food, better preparation of food and general cleanliness of kitchen and other areas of restaurant.

(b) Design Standards - lighting level (minimum service illumination - from I.E.S. Code)

AREA	M.S.I	Lighting Glare Index
(1) General Kitchen Area	200 lux	22
(2) Cooking Section	400 "	
(3) Food Preparation	400 "	
(4) Washing-up Area	400 "	
(5) Serving Counters	400 "	
(6) Stores	200 "	

(c) There will be adequate levels of background lighting to eliminate shadow areas around equipment.

(d) Background lighting in the dining and Disco/bar will be related to the mood and tempo of the atmosphere - which will be subdued and very private. Therefore these areas will be dimly lit. Consquently the background lighting will be 50 lux.

(e) Dining tables will have an increased illumination of 200 lux by means of having individual lamps per group of tables. The Disco/bar will be treated in the same way. However the dance space will have colourful disco/ lights - above the disco space.

20.02 DAY LIGHTING

(a) There will be rooflighting of the kitchen area. A daylight factor of 4% will be provided. This represents 200 lux - assuming a standard overcast sky of 5000 lux. However natural lighting will be supplemented with artificial lighting (to achieve adequate levels of lighting in deep areas).

(b) Day lighting is an integral part of lighting design. Important for psycological reasons. However the variations of intensity that occur with natural lighting calls for supplementation with artificial lighting. Therefore the deeper parts of the dining area and bar will be supplemented with artificial lighting.

20.03 GLARE

Bright surfaces, exposed lights, light reflecting surfaces and direct sunlight within the field of vision will be avoided. East facing windows are likely to cause glare and areas of uneven distribution of light due to direct sunlight in the morning. A similar situation will occur with south facing windows during afternoon. North light is more diffused (evenly distributed)

being composed of the sky component and the reflected component.

Over hangs will be provided over windows.

Canopy over the entrance and trees will be used to shade south facing walls.

21.00 ACOUSTICS

21.01 SOURCES OF NOISE

(a) Considerable noise is generated in kitchen by machinery, water, steam, impact noises and reasonance of metallic surface and workers. In the dining area, noise is generated by clatter of utensils (spoons etc.), speech. The louder the clatter, the more loudly people will try to talk.

(b) Noise level within the unit is aggrevated by reverberation within the room. This is more true in the case of rooms of large volumes and having hard reflective surfaces.

21.02 DESIGN STANDARDS:-

Acceptable Noise Levels

(a)	In dining Area	60 dB
(b)	In kitchen	65 dB
(c)	In waiting lunge	60 dB

NB Decibel level for normal speech is 65 dB.

Reverberation time

Reverberation time in Dining area:- 0.75 - 1 sec.

" " Disco/Bar :-

" " Waiting Lounge 0.75 - 1 sec.

" " Kitchen

21.03 MEASURES AGAINST ACOUSTIC PROBLEMS

(a) Traffic Noise

Building planning will be applied to insulate quiet areas

(i.e. dining area, bar, lounge) from traffic noise. Toilets, cloaks, etc. will be used as noise screen.

(b) Any common wall between kitchen (noisy area) and dining or bar will have sufficient insulation against transmission through the wall fabric. Similarly any wall between the discotheque and the quiet area will be insulated.

The wash-up area will be insulated and contained from the rest of the kitchen area. Air ducts will be insulated.

(c) Absorption

Absorbent materials will be used in noisy and large areas to achieve the appropriate reverberation time. Resilient materials will be used on dancing floors, circulation areas to control impact noises (see materials report).

22.00 THERMAL PERFORMANCE

The building will be well insulated

'U' Values

Roofs - 0.6 w/m^2 ^oC

External Walls 0.4 w/m^2 ^oC

The ratio of window to wall area will be 50% (windows) to 50% (walls) for the external walls. This will be in accordance with the idea of providing ample view from these areas.

PROJECT BAGAUDA DAM NO: 2

	PROJECT DATA	METRIC		IMPERIAL	
1	AVERAGE ANNUAL RAINFALL	1000	MM	40	IN
2	CATCHMENT AREA	207	KM^2	80	SQ. MLS
3	AVERAGE ANNUAL RUN OFF	39.3	M^3 MIL	31,900	AC.FT
4	TYPE OF DAM	ZONED EARTHFILL			
5	CREST LENGTH	2,134	M	7000	FT
6	CREST ELEVATION	492.56	M.O.D	1616	FT. O.D
7	FULL SUPPLY LEVEL	490.12	M.O.D	1608	FT. O.D
8	DEAD STORAGE LEVEL	480.97	M.O.D	1578	FT. O.D
9	TOP WIDTH	4.57	M	15	FT
10	MAXIMUM HEIGHT	20.73	M	68	FT
11	MAXIMUM BASE WIDTH	88.40	M	290	FT
12	TOTAL STORAGE CAPACITY	22.14	M^3 MIL	18,000	AC.FT
13	DEAD STORAGE CAPACITY	1.23	M^3 MIL	1,000	AC.FT
14	ACTIVE STORAGE CAPACITY	20.91	M^3 MIL	17,000	AC.FT
15	SURFACE AREA	376	HA	930	AC
16	TOTAL VOLUME OF FILL	686,500	M^3	900,000	CU.YD
17	SPILLWAY LONG UNCONTROLLED	45.72	M	150	FT
	LEVEL	490.12	M.O.D	1,608	FT. OD
	TYPE				
	EMERGENCY				
18	OUTLET WORKS:				

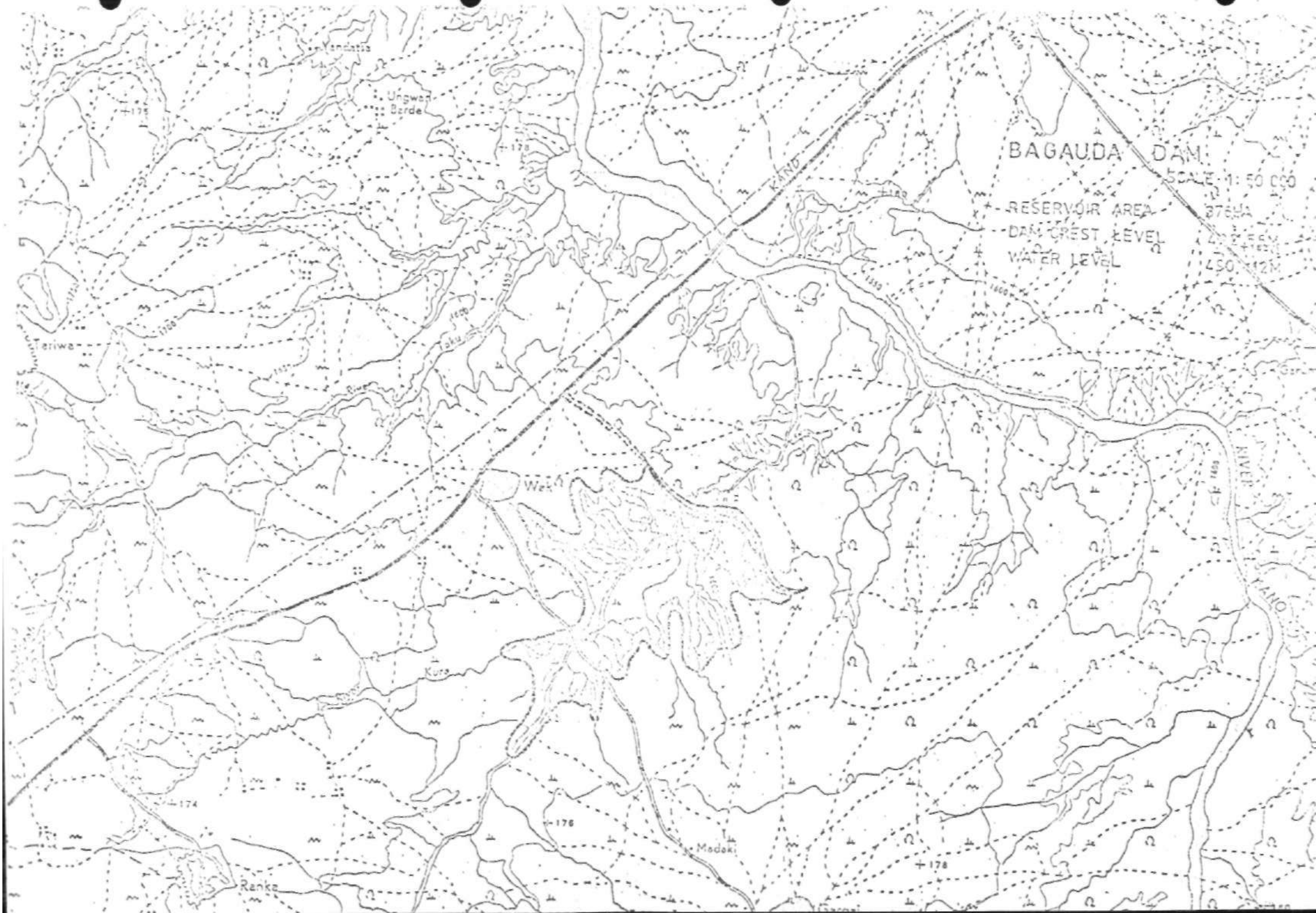
BENEFITS: IRRIGATION OF APPROX. 1500 AC. TOWN WATER SUPPLY TO 25 MIL GALLONS PER DAY, FISHERIES

SECONDARY BENEFITS: RECREATION AND WILDLIFE CONSERVATION

ESTIMATED TOTAL COST: ₦ 400,000

CONSTRUCTION PERIOD: 1969 - 1970

INVESTIGATION, DESIGN & CONSTRUCTION BY
M.O.W. & S.
~~WATER RESOURCES & ENGINEERING CONSTRUCTION ADD'N~~
KANO STATE


BAGAUDA DAM
SCALE 1: 50 000
RESERVOIR AREA
DAM CREST LEVEL
WATER LEVEL
Yandaka
Ungwan Barde
Teriwa
Wela
Kura
Madaki
Renka
KANO
RIVER

PROJECT TIGA DAM NO: 5

	PROJECT DATA	METRIC		IMPERIAL	
1	AVERAGE ANNUAL RAINFALL	1,016	MM	40	IN
2	CATCHMENT AREA	6641	KM^2	2564	SQ. MLS
3	AVERAGE ANNUAL RUN OFF	1,059	M^3 MIL	861,000	AC. FT
4	TYPE OF DAM	ZONED EARTHFILL			
5	CREST LENGTH	5791	M	19,000	FT
6	CREST ELEVATION	530.96	M.O.D	1,742	FT. O.D
7	FULL SUPPLY LEVEL	527.30	M.O.D	1,730	FT. O.D
8	DEAD STORAGE LEVEL	505.58	M.O.D	1662	FT. O.D
9	TOP WIDTH	7.62	M	25	FT.
10	MAXIMUM HEIGHT	47.24	M	155	FT
11	MAXIMUM BASE WIDTH	274.32	M	900	FT
12	TOTAL STORAGE CAPACITY	1,969.00	M^3 MIL	1,600,000	AC. FT
13	DEAD STORAGE CAPACITY	123.00	M^3 MIL	100,000	AC. FT
14	ACTIVE STORAGE CAPACITY	1,846.00	M^3 MIL	1,500,000	AC. FT
15	SURFACE AREA	17,800	HA	44,000	AC
16	TOTAL VOLUME OF FILL	10,600,000	M^3	12,000,000	CU. YD
17	SPILLWAY LONG UNCONTROLLED	457	M	1,500	FT
	LEVEL	527.30	M.O.D	1,730	FT. OD
	TYPE				
	EMERGENCY ELEVATION 1736' LONG 3000'				
18	OUTLET WORKS: MAIN INTAKE WITH No 12 FT DIAMETER STEEL CONDUITS ENCASED IN CONCRETE WITH GUARD AND CONTROL VALVES. TWO No 36 DIAMETER STEEL CONDUITS WITH DOWN STREAM CONTROLS AS SECONDARY PENSTOCKS.				

BENEFITS : IRRIGATION OF APROX 120 000 AC (48 600 HA), FISHERIES

SECONDARY BENEFITS: RECREATION AND WILDLIFE CONSERVATION

ESTIMATED TOTAL COST :

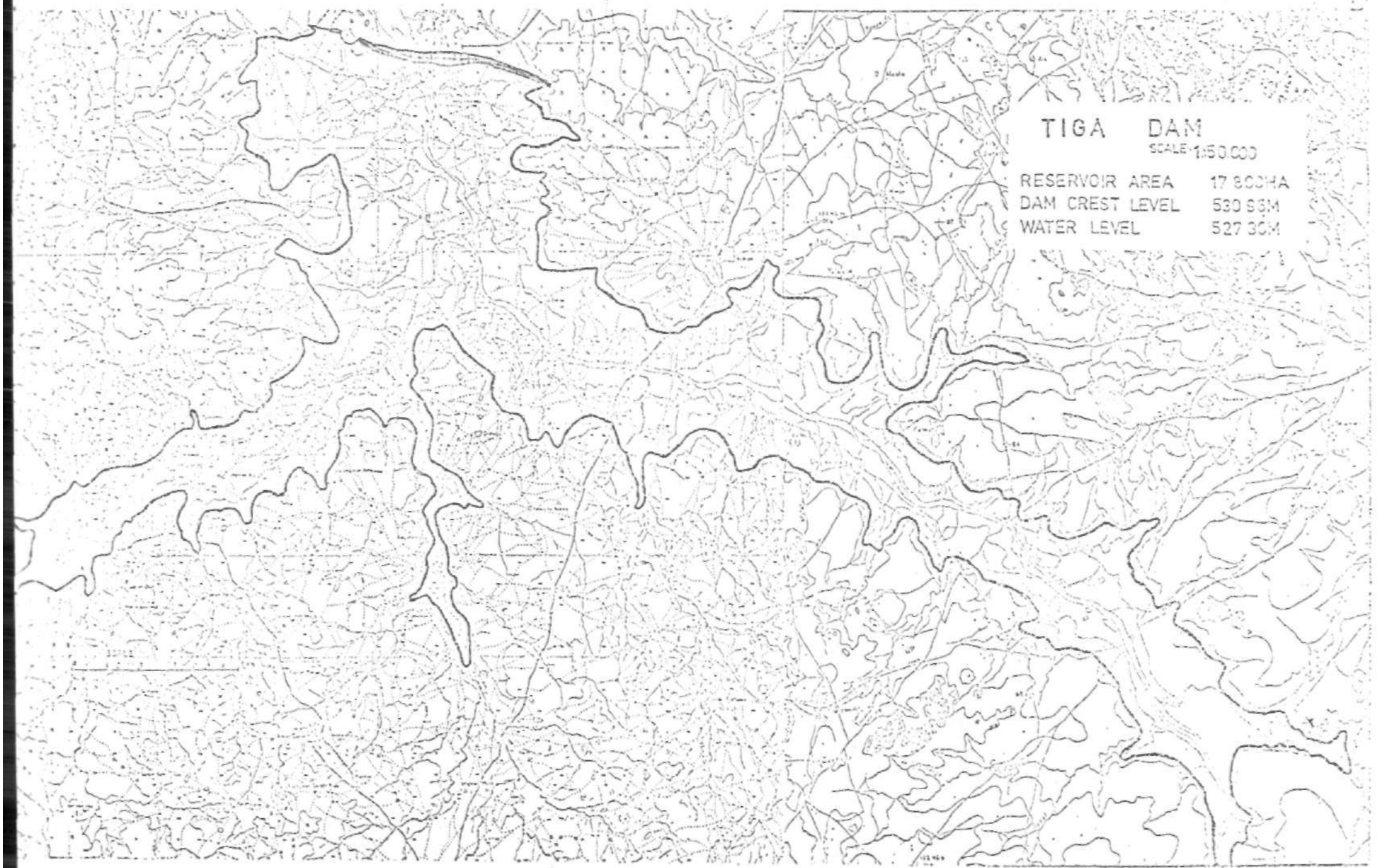
CONSTRUCTION PERIOD :

AVERAGE DEPTH = 34 FT.

INVESTIGATION, DESIGN & CONSTRUCTION BY

WATER RESOURCES & ENGINEERING CONSTRUCTION AGENCY

KANO STATE


TIGA DAM
SCALE 1:50,000
RESERVOIR AREA 17 800HA
DAM CREST LEVEL 530 50M
WATER LEVEL 527 30M

B I B L I O G R A P H Y

1. Design for play - Richard Dattner
2. Recreation and tourism development - Trod Lawson
3. Principles of catering design - " "
4. Restaurant Planning and design - " "
5. Motels, Hotels and Condominiums - " "
6. Handbook of Urban Landscape - Cliff Tandy (Editor)
7. A.J. Metric Handbook
8. INTRODUCTION to Building Climatology - Antony Sealey
9. Manual of Tropical Housing and Building - Koenigsberger,
   Ingersoll,
   Mayhew,
   Szokolay.