

**THE IMPACT OF STUDENT POPULATION DENSITY ON
BOSSO CAMPUS FEDERAL UNIVERSITY OF
TECHNOLOGY, MINNA.**

PRESENTED BY

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DEDICATION

This project is dedicated to my wives Hawawu and Fatima Alhaji Attahiru Majigi and Children Ibrahim, Attahiru, Hajara and Habiba.

ACKNOWLEDGEMENT

I must first of all express my sincere gratitude's to my supervisor Dr. P. S. Akinyeye who find time out of his light scheduled to go through this script

My appreciation and thanks also goes to my head of department Dr. A. A. Aliyu who encouraged me to apply for the course and whose contributed morally and financially toward completion of the course.

I will be offended if I did not mentioned the name of Alhaji M. D. Usman Ag Registrar who gave me his administrative and counseling advise respectively.

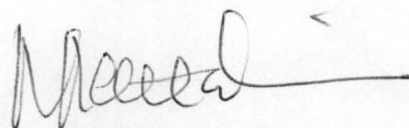
The support I received from following department of the university Healthy services, works, physical planning Geography, Academic office, library and also state Agency such as Urban Development Board, Ministry of environment etc.

Lastly, my head of unit Mr. N. S. Solomon and rest colleagues for their patience and understanding during my absent from office

Finally, university administration for given me fellowship award to read the programme.

DECLARATION

I Alhaji Attahiru Majigi hereby declared that this thesis entitle “Impact of student population density on our environment a case study of Bosso Campus of Federal University of Technology, Minna” is a produce of my own research under the supervision of Dr. P.S. Akinyeye.*

A handwritten signature in black ink, appearing to read 'Majigi', with a long horizontal line extending to the right.

ALHAJI ATTAHIRU MAJIGI

CERTIFICATION

This project is the assessment of the impact of student population density on Bosso Campus, Federal University of Technology, Minna, presented by ALHAJI ATTAHIRU MAJIGI PGD/GEO/SSSE/2003/2004/267 meets the requirement for the award of the postgraduate Diploma in Environmental Management of the Federal University of Technology, Minna and is approved for its contribution to knowledge and Library presentation.

DR. P. S. AKINYEYE 

SUPERVISOR

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DEAN PG SCHOOLS.

ABSTRACT

The issue of population density is a great concern to not only individual alone but any successful Government in Nigeria, that is why Government has now place high priority to environmental problems by setting up organs that take care of the issues.

The impact of population density particularly in Bosso Campus of the University has affected water, energy, accommodation, sanitation and recreational facilities.

Between 1983 to date, the rate of increased in student population has become alarmirate. The existing facilities are at the state of total collapse.

In this situation, there is urgent short needs to address the situation which short term solution is the movement of some schools to permanent site to ease the pressure on existing structures at Bosso campus.

Existing structures at Bosso campus should be improve and maintain.

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CHAPTER ONE

INTRODUCTION

Federal University Of Technology, Minna was one of the four surviving Federal University Of Technology in Nigeria established in 1983 by Alhaji Shehu Shagari region in order to improve our technological development. The university is occupied by students and people of various tribal, religion, educational back ground and belong to different social and economic classes.

From the inception, this university is planned for not more than 5,000 students but presently has population of over 14360 students with 277 teaching staff and 606 non teaching staff (Registrar office)

The ratio of student population at as of 2004 session stood as follow

- Remedial students – 2,568
- 100 level students – 3,592
- 200 level students – 3,284
- 300 level students – 1,969
- 400 level students – 1,340
- 500 level students – 1,162
- post graduates students – 445

Source: From academic office

The effect of student population density on our existing facilities can not be over emphases. As the century begins, natural resources are continue under increasing pressure threatening the heath services to students in term of shortage of man power

When the university was set up in 1983 with initial student enrolment of less than 1,000. the health clinic has initial staff strength of 5 Nurses with other supporting staff like attendants 2 pharmacist staff 2 cleaners 3 labourer 2 but presently the population of students has increased by more than 100 times with less significant increases in clinic staff.

The clinic has the following category of staff presently

Doctors – 4

Nurses – 13

Pharmacist – 1

Pharmacist Technician – 3

Pharmacist Assistant – 1

Laboratory scientist – 1

Laboratory Assistant – 1

Public Health officer – 1

Clinic Attendants – 5

Record officer – 3

Administrative officer – 1

Dental Technologist – 1

Labourers - 4

Drivers – 6

Source:- Medical record of the clinic-

This does not waver well for the statistic of the university. The increase in student population has put more pressure and less production on the existing medical, Nursing and other associated staff of the clinic

The constant and non availabilities of essential drugs in the clinic are due to increasing students population density which result in to total collapse

According to recent news letter releases from the office of medical director dated 7th September 2004 with reference number UHS/4, because of continuous pressure on exiting medical facilities with less improvement in staff ratio, it has become very necessary to re –schedule the services at the clinic in other to avoid total collapse of the present facilities.

It is a known fact that, according to the world health organisation Article 214 of 1980, the Nurses ratio per population is 10 ratio 1. then 100 ratio 1 Doctor this is not practice able here.

The supplied of fresh water is finite, but demand is soaring as population growth and used rises .

By 2025 when world population is projected to be over 8 billion people countries containing three billion people will face fresh water shortage. Nigeria is not excluded and this include university Bosso Campus. The water tank capacity of 15,000 Gallons was constructed for the Campus when the student and staff people was bearable level. The water consumption rate was over stretched as a result of density. The daily constant supplied from the water board which stood at 3,000 litres can not be maintained and presently experiences water shortage on daily basis.

With the dredging of additional 5 bore hole. The university administration can not still solve the problem of water shortage. This has also lead to water born diseases due to scarcity and the dependent on contaminated water at their disposal.

Other aspect of population density effect in Bosso Campus include pollution. Pollution has contributed a lot toward environmental degradation or problem. The limited dust bin provided by university and private organisation are in adequate

1.2 STATEMENT OF RESEARCH PROBLEMS

If the population growth that lead to population density particularly in Bosso Campus continues to increase without control, it will definitely lead to following environmental consequences e.g

1. the total collapse of exiting health facilities. Initially the university heath services was established to cater for the less 1000 student in 1983 with staff strength (medical) of 6, has now only 13 Nursing staff (with an increase of only 7 between 1983 – 2004 (21 years) while number of students has increased from less than 1000 to more than 14000 students excluding teaching staff of 277 and non teaching staff of 606.

The problems of increased of students population caused to the clinic are numerous because most of the heath facilities are presently being over utilized. According to the university administration policy on staff welfare each staff is eligible to register only four of his children at the clinic but the opposite is the results, staff registered more than four children which made clinic staff more in effective as a result of population growth and density.

As a result of increase in number of students in the Campus, essential drugs are not available, affordable and very scarce. The resultant consequences is that student

suffers complication. The minor health problems that can be handle or manage at the clinic are referred to general hospital or private clinic in the town.

A part from collapse of the existing heath facilities as a result of student population density, there is also pollution, shortage of water fresh in the Campus, shortage of power supplied due to high demand for the energy by student in the Campus and high demand of energy by commercial agent for photo copies machines.

Demand for hostel accommodation is also a very serious problem. A room that it is made for 8 students now accommodated 20 students and even more causing epidemic such as asthmas, pneumonia, flu, bronchitis, and catarrh etc. Therefore there is need for resource management to protect the environment and preserved our existing facilities from total collapse.

1.3.1 AIMS

1. To enable me study the impact of student population Density on Bosso Campus.
2. To translate the knowledge to other people.
3. To determine the consequencey of the student populations on Bosso Campus.

OBJECTIVES

1. To reduced the impact on our existing facilities for sustainable development.
2. to improved the existing services available at Bosso Campus e.g water, energy, housing, heath services etc.
3. to encourage provision of social amenities within the Bosso Campus

4. To manage the complication and consequences are rises as result of population density.

5. To advise to movement Permanent site along Bida road.

1.4 SCOPE OF STUDY

The research work is designed to cover Bosso Campus of Federal University of Technology, Minna. The Campus comprises senate building, student affairs Block, Geography Lab, Library, Computer Centre, Female hostile, health services and staff quarters, works department, animal farm, male hostile, Cafeteria, Engineering Block, School of Agric, School environmental complex, Lecturer theater, Post graduate school, staff school, and school of science lab complex etc. would be carefully and systematical study within frame work allocated

1.5. STUDY AREA:

1.5.1 HISTORICAL BACKGROUND OF STUDY AREA.

The Federal university of Technology, Minna Bosso Campus is Federally owned. It was a building of former Government Teacher's College Minna established by Colonial administration. It was established on 1st February. 1983. the objective for its establishment is to give effect to the Nation drive for much needed self reliance in science, Engineering and especially Technology it is a specialized university of Technology.

At inception, Professor J.O. Ndagi served as foundation vice chancellor after transferring his service from Ahmadu Bello university Zaria in 1983 and served from 1983 to 1990. Professor S. O. Adeyemi became vice chancellor 1990 – 1994, professor I.

H Umar was the Sole Administrator 1994 – 1997, professor S. A. Garba was appointed as acting vice chancellor on 26th June 1997 to 6th August 1997, professor M. A. Daniyan was appointed vice chancellor from 9th August 1997 to 6th August 2002. professor J. O. Adeniyi was appointed acting vice chancellor from 7th August 2002 to 2nd October 2002. The current vice chancellor prof. Hama Turkur 2002 to date.

The foundation Registrar late Dr. B. P Sawa served from 1983 to 1986, Mrs L. S. J Ahmed 1988 – 1993 Alhaji U. A Sadiq effect from October 1998 having acting in that position since 1993. The current Acting Registrar Mallam M. D Usman was appointed on 1st October 2003.

Since its take off from old facilities of former Government Teacher College Minna which now served as the Bosso Campus of the university. It has under gone a complete face lift and wears a new out look befitting a modern university setting. However, the university acquired 10,600 hectare, of land along Minna – Kataeregi Bida road for the main Campus of the university, because expansion was inevitable

On Tuesday, June 2nd 1992, the former president General Ibrahim Babangida commander in chief of Nigeria Armed forces Federal republic of Nigeria performed the soil turning ceremony to mark the commencement of the project on the main Campus site And since then work had started in earnest for the physical development of the main campus which in phase 1 consist of the school of Agricultural and Agriculture Technology, school of environmental Technology, school of Engineering and Engineering Technology university Library, senate building, student village, the staff quarters, Computer Centre as well as the industrial Development center.

Right from inception, the university had graduated students whose market value was adequate very satisfactory and are in high demand in both government and private industries, servicing the technological needs of the nation. Total student enrolment is now 14,360 with a matching academic staff strength of 277, 606 non teaching staff.

The university has recorded quite a number of academic achievement which includes the design and fabrication of a number of highly valuable in terms of socio-economic importance such as the Solar air heater, motor car crank shaft, Gearing system for crane hoist driver, Rice destining machine, maize Sheller etc.

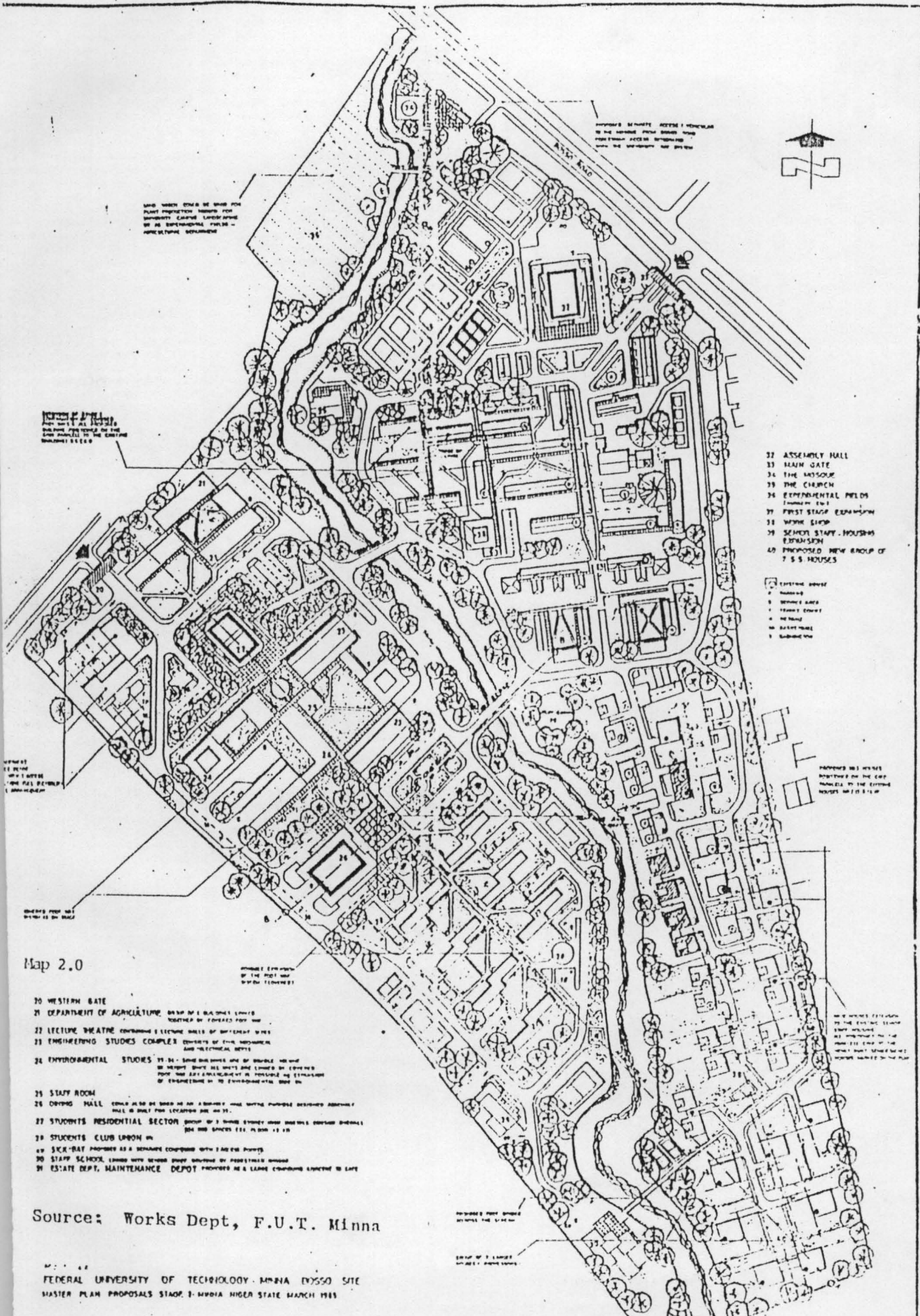
1.5.2 LOCATION OF STUDY AREA

The university campus is located within the Bosso town along maikumkele road the local Government head quarter. It has the land mass of 1,000 hectare and is bond at right by residential houses and public building such as Mypa Nursery school, Ango hotel and a road net work originated from main Bosso Minna double carriage way named Awwal Ibrahim road (or Mechanic road) that connect Okada road.

At the South, it is bond with Maryam Ibrahim Babangida girls science college with road net work originate from main double carriage way to Bosso Locust houses that inter connect Okada road.

On the opposite site, there are commercial building, such as merry building, Kowa clinic and other business centers.

Behind are, mainly residential houses occupied by students and Jikpan residents and Few pity traders.



LAND WHICH SHOULD BE KEPT FOR PLANT PRODUCTION SHOULD BE PRESERVED. CAREFUL LAYOUT SHOULD BE MADE FOR THE ENVIRONMENTAL STUDIES DEPARTMENT

PROPOSED SEPARATE ACCESS FROM HIGHWAY TO THE LANDING FROM WHICH THE MAIN ENTRANCE TO THE CAMP SHOULD BE MADE



PROPOSED ACCESS FROM THE CAMP TO THE EASTERN HIGHWAY SHOULD BE KEPT

- 32 ASSEMBLY HALL
- 33 MAIN GATE
- 34 THE AUDITORIUM
- 35 THE CHURCH
- 36 EXPERIMENTAL FIELDS
- 37 FIRST STAGE EXPANSION
- 38 WORK SHOP
- 39 SCIENCE STAFF HOUSES
- 40 PROPOSED NEW GROUP OF T.S.S. HOUSES

- Existing Street
- Roadway
- Service Lane
- Footway
- No Road
- Access Road
- Suburban Area

Map 2.0

- 20 WESTERN GATE
- 21 DEPARTMENT OF AGRICULTURE GROUP OF 4 BUILDINGS LOCATED TOGETHER BY FORECAST FOR 1960
- 22 LECTURE THEATRE CONTAINING 3 LECTURE HALLS OF DIFFERENT SIZES
- 23 ENGINEERING STUDIES COMPLEX GROUP OF FIVE BUILDINGS FOR MECHANICAL, ELECTRICAL, CIVIL
- 24 ENVIRONMENTAL STUDIES TO BE A SEPARATE COMPLEX OF BUILDINGS WHICH SHOULD BE KEPT AS FAR AS POSSIBLE FROM THE CAMP AND SHOULD BE KEPT AS FAR AS POSSIBLE FROM THE CAMP AND SHOULD BE KEPT AS FAR AS POSSIBLE FROM THE CAMP
- 25 STAFF ROOM
- 26 DORMING HALL GROUP OF 4 BUILDINGS WHICH SHOULD BE KEPT AS FAR AS POSSIBLE FROM THE CAMP AND SHOULD BE KEPT AS FAR AS POSSIBLE FROM THE CAMP
- 27 STUDENTS RESIDENTIAL SECTION GROUP OF 3 BUILDINGS WHICH SHOULD BE KEPT AS FAR AS POSSIBLE FROM THE CAMP AND SHOULD BE KEPT AS FAR AS POSSIBLE FROM THE CAMP
- 28 STUDENTS CLUB LOBBY
- 29 SICK-BAY PROVIDED AS A SEPARATE COMPLEX WITH 2 AREAS PROVIDED
- 30 STAFF SCHOOLS GROUP OF 3 BUILDINGS WHICH SHOULD BE KEPT AS FAR AS POSSIBLE FROM THE CAMP AND SHOULD BE KEPT AS FAR AS POSSIBLE FROM THE CAMP
- 31 ESTATE DEPT. MAINTENANCE DEPOT PROVIDED AS A SEPARATE COMPLEX WITH 2 AREAS PROVIDED

Source: Works Dept, F.U.T. Minna

CHAPTER TWO

LITERATURE REVIEW

When population grows rapidly it demand move and work from natural more resources e.g food, water energy, transport accommodation sanitation, health care, recreational facilities etc at the same time and both increasing consumption and pollution by growing human numbers reduced nature productivity. The rapid population growth burns nation candle at both end.

But if human beings exploit natural resources faster than the regenerate, how would nature have the time to renew itself. The chance is ever increasing human demand will exceed the rate of renewal of land, forest and fresh water. Also population increase consumption of non renewable mineral resources rising their prices requiring a search for a substitute, and hastening the day when such key resources as or may need be available at all. At the list, how ever rapid population growth may force scarcity problems on us before we can find substitutes or device new technologies.

The effect of student population density touches virtually all the specific ways that human being interact with environment particularly Bosso Campus of the university.

2.1.1 HEATH CARE FACILITIES

It is known fact that existing health facilities in the clinic are over stretched due to students population density. The health clinic was established in 1983 with one medical officer, four Nurses, one typist two attendants to cater for less than 300 students and staff of not more than 100 for both teaching and non teaching staff as presently 45 staff ratio catering for 14,360 students as of 2004 (source from academic office)

This is to said, based on the statistic of the clinic from the medical record comparable with present students population has put more pressure to existing facilities leading to total collapse and infrastructure decay (medical record 2004).

The drugs purchase to cater for less than 100 students and staff as to be ratio among present 14,360 excluding staff and their family, which is a disaster to the existence of university health services. The syndrome of lack of drug and mere consulting clinic will continue to be sing.

The ratio per population of health personnel and drug should maintained at all time and three percent of nation budget should be allocated to health (WHO 1988).

2.1.2 FRESH WATER AND POULATION PRESSURE

Less than one percent of earth water is available for human consumption. In theory, even this limited amount could support 20 billion people nearly four times the world current world population. In reality however useable water supplied are spread around the world. More than one third of the world people live in area already suffering from chronic water shortage including most of Africa, the East north Asia , and Australia (network 2001).

As the more people are added to world population, the amount of water available per person decrease. Due to population growth alone, water demand is expected to double in more than half of the world countries between 1971 and 2000. most of increase demand is for irrigation and industrials used. About 6095 of the world fresh water goes for irrigation, about 23 % for industry and only 8 % goes for house hold used. In many arid and semi arid area, population growth has rises for demand to a level that can be met only through irrigation.

In the university campus, the situation is still the same with increase in student population density resulting in water shortage and consequences of disease out break, such as typhoid fever, diarrhea, dysentery gastro enteritis etc .

According to the statistical report and analysis of diseases related to water scarcity 20 % of medical conditions are due to water (green 1980). In order to argument the situation, the university administrations has to provide more bore hole through the assistance of education tax fund (ETF). And construction of 10,000 gallon over head tank and 1,500 gallon over head tank at various department of the university. This is a part of effort by resident of Bosso Campus of providing drinking water at their own expensive.

2.1.3 WATER POLLUTION.

Not only water in short supplied, but also much of what is available is not safe to drink. Nearly 1 billion people world wide lake access to safe water and 1.6 billion people have not sanitation facilities and so many pollute the water, some developing countries including Ghana Indonesia, and Mexico have step up effort to conserved water supplied and prevent pollution through waste control facilities, water treatment plant, recycling and conservation. Indian has began a project to clean up pollutions the 1,500 rivers miles that provide water to one third of the population (Lukas A.O and Gillis H. M 1981)

Sanitation is one of the environmental qualities issue of most obviously link with population growth. Each person generate waste that contains an average of the 3.2kg of Nitrogen and 0.6 kg of phosphorous annually. In high concentration this substance are major causes of Oxygen deplete in body of water which kill off fish, other animals and plant (David F. G 1972.)

Population growth endanger water quality through other route too concentration of people in other words cities make it difficult to dispose of house hold wastes without polluting local water supplies. In addition demand growing population demand more goods and food and thus in area waste from industrial production, often to be discharged or drained in to river lakes. Faecal waste may pose the more widespread health threat in the developing world at this time, but industrial discharge are more persistent (H. K Heris 1972).

Among the measures to address water pollution are adequate. Sanitation and waste treatment facilities including alternative to water carriage serve as a prevention of pollution at the its source water reduction, tighter government regulation and research on new recycling and treatment technologies companies that have reduced their waste by recycling material or redesigning process and products have found that such effort actually save money.

If the water pollution continue at current rates as much as one fourth of the world fresh water supply could be unsafe for human consumption by the end of 1990's it will not be easy to restore these water supplies to a safe condition sound chemical pollutants can remain in lake and river, for 100 years or longer

Clean up is costly in fact the cost of cleaning up contaminated ground water are so high that in effect its pollution could be considered irreversible 3:4 energy supplies and population density. The effort to keep economic growth a head of population density has forced many developing countries in to consumption of non renewable energy resources e.g in just the five years between 1980 and 1985, the developing world increased its commercial energy consumption by 22 %. Half of the increased was needed

just to maintain the status quo is per capita energy consumption population area by 11 % in the same period The other half reflected real economic growth between 1979 – 1984 commercial energy consumption in developing countries tripled (world energy organization 2001)

Even if now energy efficient technologies become wide spread, it will be difficult to continue expanding energy supplies fast enough to meet the need of developing countries for economic growth, without any further increase in per capita energy consumption, population growth alone would boost world energy consumption from the current 13.5 terawatts to 18 terawatts by 2025. This increase of 4.5 terawatt by 2025. This is comparable to the total commercial energy current consumed by developing world one billion tons of coal per year, or 1.6 billion tons of wood per year

Even if the capita energy use of the developed nation cut their energy uses in half between 1990 – 2025 a highly optimistic assumption a doubling of per capita energy use in developing countries reflecting economic development would increased world energy consumption to nearly 21 terawatts (Albert 1992)

Nearly all the world commercial power is derived from fosse fuels, oil coal, and natural gas currently, the world uses in one year an amount of fossil fuel that took nature roughly one million

3.1.4 ENVIRONMENTAL POLLUTION AND STUDENT POPULATION DENSITY

The environment will be litters by refused dumped by students e.g pure water leathers, paper and provided dustbin is not adequate due to student population. The university environmental sanitation unit is doing a lot of effort to keep our environment

neat and tightly but the effort is been compounded due to increased while there is limited number of sanitation workers to do the job on frequent period.

The global concern about the waste disposal is assuming a new dimension, waste disposal has once again become an acceptance means of waste management especially in united states, Government is encouraging this method as a favoured alternative to further treatment prior to disposal of this waste to our environment the renewed interest in well designed waste disposal operation come about because of the international legislation (1972 amendments act. The 1976 resources conservation and recovery, act and the 1977 clean water act).

Perhaps the strongest motivation for the design of adequate sites for industrial waste is the “hour-story” treatment that the country press has accorded to the indiscriminate dumping of threatening material in to un controlled pits pond lagoon, and land fills. The statistics are alarming to general public a quarter of a million united states industrial plants produce over 35 million metric ton of contaminated waste a year, thousand of dums and barred of waste and toxic materials are added annually to those already storage (costle 1979) 3:6 Accommodation and population density. As the population of students continue to growth without any increase or improvement in accommodation issues. The university has presently over 14,360. students with less than 4,000 bed space, the situation is causing a lot of concern to the university administration by planning for the movement to permanent site along Minna – Kateregi Bida road any moment from now.

Some of the consequence of this are over crowding resulting in to infectious disease such respiratory, pneumonia, asthma, flu, and also toiletry infection due to over use of toilets facilities in the hostel which are very few

The university has four blocks of 2 each for made and female namely, NICON, Sheraton, Q. M. N. & O Blocks respectively. Each room accommodate between 16 – 20, students plus the squatters

CHAPTER THREE

METHODOLOGY

The source of information is based on (2) aspect. Data collection and Data Analysis.

Data collection:- This includes daily trust of 7th July, 2004 Targe “Government to tackle ecological problems with the released of 5 billion Naira for the purposes Net work programme (Electronic media According to Hon Asita chairman house committee on environment during Tuesday live phone in programme on 10th July 2004. there is proposal by the National Assembly to harmonized all the existing environmental laws in Nigeria

Observation:- This was carried out through visit and inspection to various refuse dumping site within the campus and the state of refuse collection vehicle of the university. The inspection cover visit to all hostel, residential houses, unit schools, department, lecture halls cafeteria, Drainage system, road net work, laboratories, animal farm, etc

Literary:- Various previous projects, journals, magazine, dictionary etc

Data analysis:- This include statistics from Academic office, medical record of the heath services

Data obtained from academic office Remedial students – 2,568

100 level students – 3,592

200 level students – 3,284

300 level students – 1,969

400 level students – 1,340

500 level students – 1,162

Post Graduate students – 445

- Medical record statistics

Malaria fever = 70 % = 2004

Typhoid fever = 20 % = 2004

Diarrheas & vomiting = 5 % = 2004

Sexually transmitted disease = 2 % = 2004

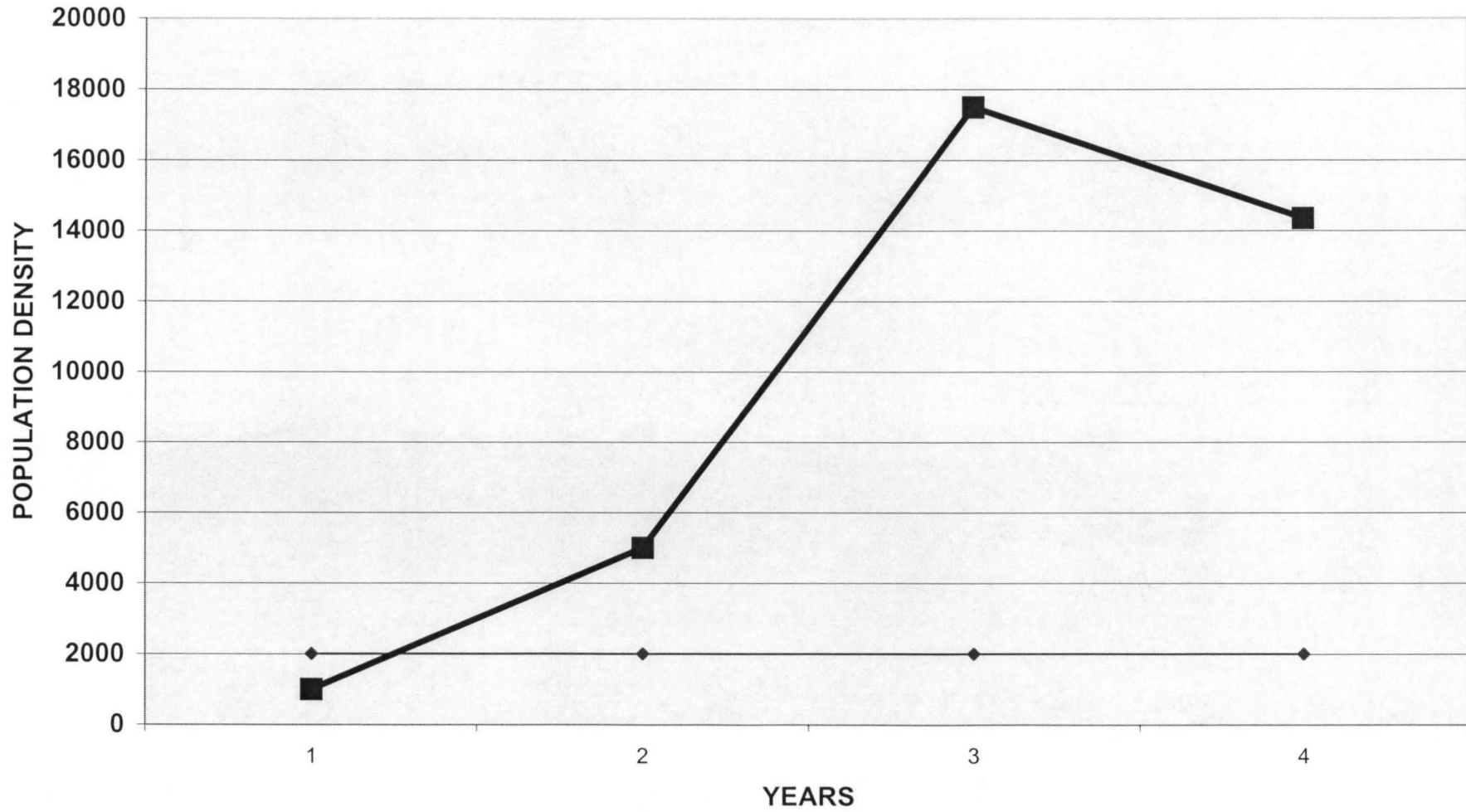
Others = 3 % = 2004

TABLE 3.1.

LEVEL	2001	2002	2003	2004
REM	1,890	2,028	2,065	2,568
100	2,650	2,890	3,184	3,592
200	1,700	1,810	1,906	3,284
300	1,720	1,750	1,820	1,969
400	1,250	1,270	1,300	1,340
500	1,370	1,400	1,152	1,162
PGD ST	401	405	420	445

Academic Office (2004)

STUDENTS' POPULATION DENSITY



◆ YEARS ■ POPULATION

CHAPTER FOUR

DISCUSSION OF RESULTS

4.1. WATER SHORTAGE AND POLLUTION

Bosso dam serve as the main sources of water for domestic and industrial (Laboratories) use, student population density have make the water level to be low beyond the level it can be able to serve 3 hostel of the 4 hostels blocks I. As the dry season approaches and due to breaking down or collapse of Bosso dam, there is consequences of water scarcity within the Bosso Campus. Water shortage is now an endemic situation in Bosso Campus during dry season a part from five bore hole and over head tanks provider by the university this is due to increase in population density.

Not only water is in short supplied much of what is available is not safe and wholesome in hostel blocks have been identified not to have sanitary waste facilities, sanitation is one of the environmental qualities issue most obviously link with population density, this have make it different to disposed house hold waste without polluting local water supplied as in case of Bosso dam. House hold waste in sanitary dispose of on water ways on leaking pipe and nearby wall are local source of water pollution and contamination as one can easily observed in Bosso Campus high density area.

Bosso Campus have the greatest house of laboratories and the residential houses among all the settlement of Bosso area. The discharge of laboratories chemical, solid and refuse waste in to the drainage system carried this pollutants into the dam which provided water to entire community.

The pollutant when carried to the water works, the filtration is usually very difficult due to short supplied of chemical by the government. Government inability to

cater for need of population have allowed this trend to continue. The wasteful act of water by the student and staff for other non essential services also account for water shortage

4.2 OVER CROWDING AND AIR POLLUTION

Bosso Campus of the Federal university of technology, Minna as only one health services with the student population of 14,360. malaria viral infection of unknown origin leading to acute respiratory track infection. Tuberculosis, Scabies, Typhoid fever are the most endemic disease spread across the Campus.

The air that most habitant of Bosso Campus breath is hazard to their health, one can easily seen the emission of laboratory chemicals especially chemistry lab in to the atmosphere, this are pollution been identified to contribute to such healthy problem. E.g respiratory and lungs diseases monitory and evaluation analysis from medical record unit of the university health services. Other observation in this regard are out break of meningitis due to overcrowding and increase the usage of air conditions refrigerator, machines in our work shop, chemical use in laboratory contribute a lot to this problems resulting in to environmental consequences.

4.3 POPULATION DENSITY AND ATMOSPHERE.

Various expanding human activities including burning of fire wood, and oil and discharge of carbon dioxide gases by our vehicles and machines constituent the pollution of our environment. Other are the use of refrigerator, air condition release a growing amounting of polluting gases into the atmosphere. There is evidence that such pollutants are causing grave environmental damage.

Human being breathe in oxygen and bring out carbon dioxide as a waste products,

because of population density of students there will be high concentration of these gases in to our environment resulting into warming and climate change. The two power generating plant installed within the Bosso Campus also generated pollutant gases into the atmosphere.

Never the less it is clear that human activities are chiefly responsible for the build up green house gases into atmosphere. Three gases carbon dioxide chlorofluorocarbon and methane are thought to cause 95 % of global warming.

4.4. HEATH CLINIC AND DISEASE OUT BREAK.

As earlier mentioned, the Bosso Campus of university with over 14,360 students excluding staff and relations as only one heath clinic with 4 medical Doctors, 13 Nurses, one public heath officer, two laboratory technicians, 4 attendant etc.

How did you expect good quality heath care to its people because of this ratio. It is known fact that clinic usually experience drugs shortage and out break syndrome because of number of people visiting the clinic have over shadow drugs purchase due to population density there is tendency of disease out break due to over used of existing facilities. The clinic also work with approved budget limitation ie drugs will only be purchase when fund is available and may be once or twice in a year creating vacuum for drugs shortage and diseases complication

4.5 ENVIRONMENTAL SANITATION AND POLLUTION

There is increase in the environmental pollutant due to student population density by over use of refuge collections facilities and littering of pure water leather by student.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Bosso Campus is a visible evidence of population pressure on environment, the area is growing at an unprecedented rate, and the pace is accelerating. About 80 % of its population growth comes from new admission and 20 % from migration, the rapid growth of the Campus has damaged the environment in several ways.

1. It has been observed in the campus that these dwellers consume more water, energy, and generate more waste than any area in Bosso local government. This account for large dump of refuse within the area
2. The densely populated area of Bosso produced massive and concentrated amount of air and water pollution.
3. The populated dense Campus impact on existing health facilities (i.e university health services) thereby causing acute shortage or out of stock of drugs at any time
4. The effect of populated density has affected recreation facilities within the campus e.g sport facilities
5. The accommodation consequences resulted out break of respiratory diseases and disorder
6. The populated densed campus constituent to climate change due to excessive discharge of carbon dioxide into atmosphere as a result of human activities.

Finally, the reader must appreciate the fact that increasingly destroying natural resources to meet current needs or to make a profit is short sighted and potentially

disastrous for future generation, the need to satisfy current need is necessary but with caution in preserving nature's productive capacity for the future. In fact, continued economic development requires continued productivity, adequate and safe water supplied, efficient energy used, and preservation of natural resources.

The University has not put in motion the mechanism of population stabilization and control, if this terrain continued; there is much disaster in future.

5.2 RECOMMENDATION

5.2.1 POLICY PRIORITY

Environmental and population issues need to be placed at the top of the priority programme of the university. Policy maker, national assembly needs to ensure that necessary laws, regulations, funds and motivated personnel are in place to address these issues. As we know, effective implementation requires sustained political commitment and management support.

5.2.2 BUILDING KNOWLEDGE

The Federal University of Technology Minna in collaboration with Niger State Government must acquire information on current and potential environmental problems – on such topics as local and state carrying capacity, a range of population projections, water energy consumption, healthcare utilization, food consumption and the impact of government policies on all these matters.

5.2.3 PUBLIC SUPPORT

Public and key professionals such as planners, economists, geographers and health workers need to understand the implications of current environmental and population trends and to develop a consensus on appropriate actions without the backing it is

difficult to support for political leaders to support long term strategies that may entailed higher cost and changes in patterns of consumption. The mass media, community leaders, school and out of schools programmes can help build public understanding and support.

5.2.4 PROGRAMME IMPLIMENTATION

A wide range of programmes addressing environmental and population problems is urgently needed. Major environmental actions include preserving water supplies, energy, sanitation, reducing pollution by curbing laboratories emission and promoting better sanitation.

In addition the university administration needs to forge partnership with key group.

- Business Laboratories emission pollution could be greatly reduce by use of to date technologies and recycling treatment and proper disposal of waste.
- Communal Group Ultimately, solution to environmental and pollution problems depend on myriad individual actions. At the campus level small groups can do much to preserve their environment and environmental programmes and should have access to education, paid work and credit facilities.

5.2.5 NON GOVERNMENTAL ORGANIZATION

Private agencies have been at the fore front of the environmental movement advocating policy changes, educating the public, initiating various community projects, organizing coalition, conducting research and sharing information. Their expertise and dynamism must be sought by the state government.

The most effective action to address environmental issue is to expand and improve environmental awareness programmes in the public health unit of University Health Services to reach all. This is to make environmental awareness programme available to all who want it and supporting non governmental organization.

5.2.6. CONCLUSION

As earlier discussed, the impact of student population density on our Bosso Campus has negative consequence such as water, inadequate health services, acute accommodation, energy supply leading to constant power failure poor sanitation environment e.t.c.

The concern of University administration toward addressing this issue is a welcome development. This includes transferring of sanitation unit from Works Department to University Health Services.

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DEPARTMENT OF GEOGRAPHY
SCHOOL OF SCIENCE AND SCIENCE EDUCATION
POST - GRADUATE DIPLOMA IN ENV. MGT. PROGRAMME

QUESTIONNAIRE ON IMPACT OF STUDENT POPULATION DENSITY ON OUR
ENVIRONMENT - A CASE STUDY OF BOSSO CAMPUS OF FED. UNIVERSITY
OF TECH MINNA

1. OCCUPATION: Staff () Student ()
2. SEX: Male () Female ()
3. MARRITAL STATUS: Single () Married ()
4. SCHOOL:..... DEPARTMENT:..... LEVEL:
5. CLASS SIZE:.....
6. BLOCK OF RESIDENT:..... ROOM:.....
7. NUMBER IN ROOM:..... NORMAL SIZE:.....
8. YOU HAVE LIVE HERE
 - (a) Less than 1 year.....
 - (b) 1-3 years.....
 - (c) 3-6 years.....
9. IS YOUR ROOM CONGESTED? Yes () No ()
10. IS YOUR ROOM HAVING GOOD VENTILATION? Yes () No ()
11. WHAT IS THE CONDITIONS OF TOILET FACILITIES? Adequate ()
Not sufficient () Bad ().
12. IS THERE ANY REFUSE DUMPING NEAR YOUR HOSTEL? Yes ()
No ().
13. HOW DID YOU DUMP YOUR REFUSE? Dust Bin () Littering ()
Scatter () Site ().

14. WHAT IS THE SOURCES OF YOUR WATER SUPPLY?
 - (a) Borehole.....
 - (b) Well.....
 - (c) Pipe Bone.....
 - (d) Drainage water flow.....
15. WHAT OF POWER SUPPLY, IS IT CONSTANT? Yes () No ()
16. HOW DID YOU COOK YOUR FOOD IN THE HOSTEL?
 - (a) Use of firewood.....
 - (b) Gas cooker.....
 - (c) Electric
17. IS THE GENERATOR WORKING AFTER NEPA FAILURE? Yes ()
No ()
18. IF YES FROM WHICH TIME..... TO.....
19. HOW IS THE SANITATION CONDITION OF HOSTELS?
 - (a) Good () Bad () Poor () Fair () .
20. ARE YOU AWARE OF ANY SANITATION LAW? Yes () No ()
21. HOW EFFECTIVE IS THE LAW HERE?
Very effective () Fair () Not effective () .
22. HOW WILL YOU EVALUATE UNIVERSITY MANAGEMENT IN HANDLING
WASTE COLLECTION AND MANAGEMENT? High () Moderate ()
Fair () Poor ()
23. ANY HEALTH FACILITIES EXISTED HERE? Yes () No () .
24. IS THERE QUALIFY DOCTORS AND NURSES Yes () No ()
25. ARE THEY PROVIDING EFFICIENT SERVICES? Yes () No ()
26. DID YOU GET YOUR DRUGS WHEN PRESCRIBE? Yes () No () .