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EVALUATION OF THE LANDSCAPING OF THE STUDENTS HOSTELS AT THE
GIDAN KWANO CAMPUS OF THE FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA

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Abstract

Landscape is fundamentally the land as shaped by the climatic conditions and which results in the distribution of existing flora and fauna. It is also the environment inhabited by man and other living creatures. This study is aimed at examining the current landscape design erosion of the institution with a view of creating an environment that is more conducive for academic learning and recreation. The objectives of this study are to examine the existing landscape environment in the institution; identify areas vulnerable to both human and physical constraints in the campus as a result of inadequate landscaping of the students' hostels section of the campus; propose a landscape design for the institution and lastly prepare an implementation proposal for the landscaping of the institution. The data for the study were obtained from both primary and secondary sources. The result of the study showed that the study area is devoid of essential landscaping facilities such as organized open spaces, public seat outs, benches, organized pedestrian walk ways, organized drains and culverts for water passage, dearth of organized parking areas for vehicles. Based on the observed environmental and landscape problems in the study area, appropriate recommendations were therefore proffered to resolve the problems through a proto type lands cape design proposal.

Keywords: Landscape, Environment, Landscape planning, Landscape design and landscape development.

Introduction

Landscape is the combination of two words: land and scape. The word land consists of earth surface and its entire characteristics such as sea, lakes, rivers, mountains and valleys. Scape on the other hand means a combined view or pictorial representation of all the earth's surface features. Hancock (1980) defined landscaping as aiming at new development in its surrounding and to provide a desirable new development. Landscaping involves an accurate and appropriate provision of landscape elements such as planting of trees, grasses and ground cover water. Landscape design can, therefore, be considered as the art and science of shaping man's natural environment to suite his needs as well as restructuring man – made environment in order to bring it into closer harmony with nature

(Igbozuirike,1986). Akanbi (2002), views landscape as the world around us and one tends to have a sense of loss or boredom if the immediate surrounding is devoid of landscape elements. According to Dayo (2004), landscape is fundamentally the land as shaped by the climatic conditions and which results in the distribution of existing flora and fauna. It is the expression of ecological, technological and cultural influences and it may involve design or non design as generated by the influences (Motloch, 2001) and it is the use of plants and outdoor materials to fulfill aesthetic and functional purposes (Acquaah, 2004). It is also the environment inhabited by man and other living creatures. In essence, Dayo (2004) concludes that landscape is a reflection of the dynamic natural and social systems that exist within the environment.

Landscaping can, therefore, be seen as the art or science of arranging land together with spaces and objects thereon for safe, efficient and aesthetically appealing to man. Landscape planning is concerned with the environment as a series of habitats for different species of both man and plants. According to Dayo (ibid), any changes introduced to the habitats need to be assessed with regard to the manner such alteration will affect the entire living plants and animals community. The objective of landscape planning therefore is to ensure that landscape changes will continue to provide habitat conditions that are capable to support and accommodate the various life forms. The history of landscaping can be traced to the era of notable pioneer industrialists and town and regional planners who demonstrated the ideas of creating conducive, safe, aesthetic and befitting environment in residential, public, institutional and other land uses through the provision of aesthetically pleasing and well landscaped environment. It is one of the effective tools for improving and sustaining the quality of life in both urban and rural areas of a country. The Federal University of Technology, Minna, is an internationally recognized tertiary institution in Niger State Nigeria, established in 1985. The view presented from the entrance of the students' hostels in Gidan Kwano campus, through the main road into the main campus indicates that the place is devoid of eye catching and aesthetically appealing landscape elements. A university is an internationally recognized edifice that requires an aesthetically pleasing and attractive designed landscape that befits the institute as an academic centre of excellence. A sizeable proportion of the open space around the students' hostels is left open and seemed unplanned and it is therefore vulnerable to natural disasters such as soil erosion, which can pose danger to the entire university community and the host community, Gidan Kwano in general. The students' area is devoid of

defined parking spaces for vehicles, the streets are untarred and marshy during rains. The road leading to the hostel lacks road alignment and side drain for water runoff. There are also problems of dearth of landscape facilities such as sit outs, gang huts, water fountains and others that can add beauty to an organized environment. Appropriate landscape measures must, therefore, be put in place to avert the likely natural disaster posed for the area as a result of poor landscaping of the entire environment.

Aim and Objectives

The study is aimed at examining the current landscape design and evolves a landscape design proposal for the beautification and control of erosion of the institution with a view of creating an environment that is more conducive for academic learning and recreation. The objectives of this study are to

- i. Examine the existing landscape environment and areas liable to both human and natural disaster due to inadequate landscaping in the students' hostels area of the institution
- ii. Examine the relevance of landscaping in urban development in the study area
- iii. Advance a prototype landscape design proposal for the institution to resolve landscape planning defects identified in the study area
- iv. Prepare an implementation proposal for the landscape design of the institution.

Conceptual Issues and Literature Review

Conceptual Framework

There are many concepts used in landscape planning and design and common among them are the concepts of Colour; form, line, texture; Proportion, transition and unity; and lastly Rhythm and focus

Concept of Colours: The choice of the colour to be used in landscaping is never considered in isolation but forms the basis on how the colours interplay with the other basic elements of the landscape as well as

with the principles of landscaping. Colour is also used in landscaping as a guide to conform to the colours to be used in landscaping so as to match with each other. It follows, therefore, that the proper use of colours can affect the mood and perception of the landscape. In landscaping Red, Orange and Green colours are regarded as cool colours which can excite viewers, while such colours as Blue, Purple and Yellow are cool colours and are likely to relax the viewers. Therefore, for a meditation garden blue and purple colours would be the right choice to relax the mind of the users. When attention is required in a place, a focal point is created with Red, Yellow or Orange element (Brookes, 1992).

Concept of Forms, Texture and Line:

Form is defined generally as the shape or visible appearance of a thing or the way in which the parts of an object are arranged. The buildings, streets, bus stops and other structural elements such as plants of a town are seen as forms. Forms chosen in landscape element may be aesthetic or functional. A wide spread tree may be chosen to provide a shading area, paths and walks leading from one area to another. Form of plant can be used to convey a vertical or horizontal appearance. Tall or thin plants give impression of height and low spreading plants have horizontal form. The element of form cannot be separated from the element of texture. Texture is about how the surface of landscape plant or element is perceived in relation to other landscape plants or elements around it. A variety of texture in landscape, therefore, adds interest and reduces monotony. The element of line refers to the fact that the viewer's eyes movement is unconsciously governed by the way the plant groupings fits and flows together, both on the horizontal and vertical planes. Lines can be used to create patterns in a landscape. Lines formed by plants or other elements can direct the viewer's attention to a focal point. Straight lines suggest uninterrupted movement

while curved paths add interest and break the monotony of a landscape with too many lines.

Concept of Proportion, Transition and Unity: These concepts apply to the overall feel of landscape. Landscape plants and elements should be arranged to conform to these principles. Proportion in essence is the size of the individual component of landscaping plants or groups of component in a landscape is consistent with the landscape as a whole (Ahmad, 2010). However, good proportion is sometimes difficult to achieve in a landscape design. The landscape plants and elements that are too close together should be in proportion to each other and a ratio of 5.3 is considered adequate. The reason for proportion is akin to the basic element of scale. The difference is that while scale is a neutral term, proportion is based on the premise that something is either available in reasonable quantity or excess. Unity and Harmony can be achieved when the viewer sees that all landscape plants and elements in the landscaping complement each other. Placement of landscape plants and elements in a thoughtful manner regarding their form is one method for promoting a unified feel (David, 1978).

Concepts of Rhythm and Focus: This concept refers to the control of a viewer's eye movement. Rhythm according to (Van, 1977; Wahab, 2004) is a pattern of repetition that reduces confusion in a landscape. Rhythm in Urban design therefore is the repetition of elements in the design of buildings and other elements in the built environment. Such elements as shape and size of plots, road alignment, columns, windows, balconies, lobbies, window canopies and others may be employed to achieve repetition in which can be interrupted to achieve rhythm.

Evolution of Landscape at Medieval Era:

The complexity of landscape as a subject cannot be overemphasized. It is practical yet aesthetically demanding. The elements of landscaping include

topographical features such as hills, valleys, rivers and ponds; growing things such as trees, flowers, shrubbery, grasses and flowers; construction elements such as buildings, terraces, roads, bridges, foundations and sanctuary. Geoffrey and Susan (1995) observed that the first consciously perceived landscape by man appear in the cave painting of France and Northern Spain between 30,000 and 10,000 BC. The painting in Lascaux, France, is a section of about 6 ft. by 9 ft. of intuitive drawings made before geometry was known and probably based on sympathetic magic and considered as a whole, the cave paintings are the first and still the most pure of all the intuitive arts of landscape design. The primitive man set his mark in landscape by raising artificial hills or rearranging stones of simple heaped mound emulating a hill was the most universal record of a burial throughout the prehistoric time, made after 2500BC, with over a thousand stones. The stones are regimented, probably for ritual purposes. In the Ancient Egyptian Landscape, Falade and Leke (1998) observed where the art of landscape design from gardening in a definitely, restrictive area and harsh weather was developed. Hot and dry with frequent sand storms relied on irrigation from river Nile. The earliest Egyptian gardens were more regular enclosures that were later replaced by walls with a house or palace within the enclosure planted with shading palm trees and vine pergolas with big water tanks in the garden to water the plants. The ancient Greeks observed that natural landscape should be dominated by deities and minor spirits. In essence, mountains, woods, brooks, and caves were never with religious awe but often with fear and as a result, the landscape development for human use and enjoyment were confined largely to the courtyard dwellings to a few grooves held sacred for religious purposes. The placing of the public buildings and temples was based on topography and the demand for security.

The renaissance influence on landscape design came with evidence of enthusiasm for classic forms and details. The success of the Italian renaissance was as a result of the ordered political system of that time based on commerce and the eclipse of ravages of war that characterized the medieval Europe. The wealthy aristocrats turned their attention to the refinement of the environment. During the early 17th century, the taste of landscape was coming back to the classical forms and a modified type of symmetry in England as a result of new environmental problems for the landscape. One of this was to produce outdoor space other than for the wealthy land owners. The social reforms inspired by the American that followed within a few decades made necessary the provision of open spaces where people moving into densely populated areas could rest and relax under natural country surrounding. In China, landscape designs were influenced by the teaching of Buddha that "man is not the universe but merely one of the ten thousand things" and attain satisfaction and ultimate happiness only through close association with and quiet contemplation of nature in its various forms. As a result, successive Chinese landscape had a lot of mysticisms attached to it and the Chinese garden style was transferred and adopted by the Japanese.

Landscape Development in Nigeria:

There are varying evidences of landscape planning in most Nigeria traditional cities. In Sokoto town, there are old massive trees planted along the main streets to provide shade and aesthetic beauty of the streets long before contact with colonial era. In traditional northern cities of Kano, Maiduguri, Katsina, Bauchi, Bida, Jos and Zaria, there are evidences of streets in the central areas with tall trees of long standing to provide shades and aesthetic scenic values in the places (Ahmad, 2010). In the Yoruba region of Nigeria, much attention is attached to the garden as art, which is attested to by the rich artistic

culture existing there. In Yoruba speaking areas, most streets are dotted with tall ever green trees, ornamental trees and shrubs of fragrance blossom for the purpose of providing shade for the public during the hot sun and as well as beautifying the city. In the foreground of most palaces are designed as seat of cultural, public and semi – public functions such as market squares, town halls, museums and parks and gardens. In Benin, Opobo and Calabar areas of Nigeria, there have also been landscapes in various forms portraying their respective environmental settings and culture. Tree planting is one unique culture that cuts across the country. The purpose of such trees ranges from shade provision and city beautification, down to setting of stage for folk tales telling at night or provide canopy for selling and buying of goods. Indeed, anywhere Nigerians pitch tent to establish a settlement, whether urban or rural, trees are usually planted (Akanbi, 2002). The principle of developing the landscape of the Government Residential Areas (GRA) was well documented by Lord Lugard in 1904 as reported by Falade (1994). In it, Lugard suggested that the GRA should be developed as “ a cool fruit and flower garden where one could sit in a shading veranda in the privacy of one’s own home. Extensive public open spaces with recreation grounds and sports fields would be near both office and home and reach by shading pathways”

Importance of Landscaping On the Built Environment

There are areas of relevance of landscaping in the overall built environment as discussed below.

Provision of Food and Fruits for Man: It has been found that almost all mammals live and depend on vegetables as well as relying upon it for much of their food, either directly or indirectly.

Prevention of the Depletion of Ozone Layer: The human environment enhances comfort and facilitates the maximum

enjoyment of life and in Nigeria, as in all tropical climatic zones, the major threat to climatic comfort is heat. Excessive heat coupled with high humidity sap human strength and may affect our thinking. With constant warning from both scientists and ecologists that the ozone layer is being eroded, consequent increase in temperature of our planet, we must appreciate that there is the need to devise solutions to protect ourselves through sustainable landscaping of our environment.

Act as Soil Cover, Erosion Prevention:

The importance of landscaping can be found also in the use of trees, shrubs, grasses to protect the soil from overheating, erosion and moisture control to the shelter space from wind, noise, sunshine and dust. Apart from enclosing and dividing areas in a design, it also gives security, privacy and visual barrier.

Provide Healthy Living Environment for Living:

It has been observed that the current design of our communities has created new health problems and medicine cannot adequately eliminate such from our society. There is the need therefore to pay more attention to how we design our living environments. The healthy living environment in this regard includes not only a clean and heated kitchen, bath or bedroom but also the landscape around us.

Improvement of the Environment via Native Plants and Flowers:

The use of native plants and flowers help in protecting the environment around us. Native plants are hardening because of their adaptation of local climatic conditions. They do not need pesticides, fertilizers or watering and therefore save time and fund for maintenance. The native plants increase our relationships with nature, help educate our neighbours and provide a beautiful and peaceful place for relaxation.

Control of Harsh Climatic Conditions:

Plants use for landscaping control the temperature, air flow and humidity of air. The effects of flowering plants during summer periods in the central areas of the city are quite striking. The overheated air

rises, creating a zone of low air pressure or depression. This depression acts as a vortex to attract air flowing from the edges of a town.

Others (Provision of Job Opportunities, Incomes and others): The role of landscape design activity in the provision of readily jobs for young men in the areas of horticulture, landscape designs, flower gardening, landscape contracting, consultancy and landscape maintenance cannot be over emphasized in our modern times. Much has been realized in these regards in terms of the provision of jobs and incomes which invariably increase the living standards of the concerned individuals.

Study area

Location: The study area is the Gidan Kwano Campus of the Federal University Minna. The university is located precisely at Kilometre 14, on the way to Bida, a

major urban settlement after the state capital of Minna. The University lies between Latitude 09°26' N and 09° 41' N of the Equator and Longitude 06° 22' E and 06°30' E of the Greenwich Meridian. The campus is about 72 kilometres from Bida town, the Headquarters of the Nupe. It is about 70 kilometres from Zungeru, about 260 kilometres from Kaduna and about 160 kilometres from Abuja, the Federal capital of Nigeria.

The precise site for the study is at the western end of the campus; the area that houses the boys and girls hostels, the commercial complex and the student mosque as indicated in figure 1. To the northern part of the site is virgin bush, and the university staff quarters to the south and to the eastern and western parts of the site are the university sports area and students' affairs complex and virgin bush respectively.

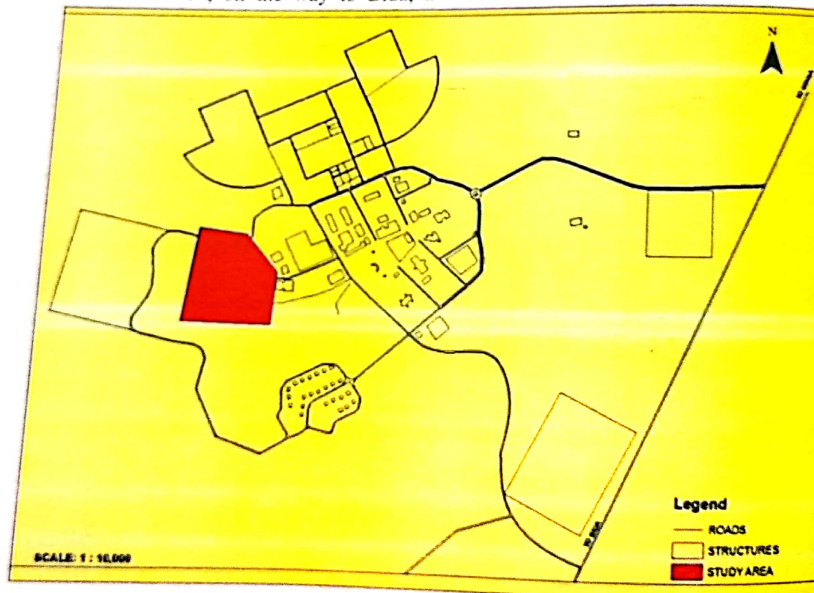


Figure 1: Location of the Study Area within the University campus
Source: Adapted from F.U.T Minna Master Plan, 2012

Historical Evolution of the University:

The Federal University of Technology, Minna, Nigeria came into existence on the 1st of February, 1983, backed by Decree No. 13 in 1986. The university is a specialized institution of technology with a view to give effect to the country's drive for the much needed self reliance in sciences, Engineering and Technology (F.U.T, Master Plan Review, 2012).

The university has two campuses, the Bosso Campus, in Bosso town and the GidanKwano Campus, along Minna – Bida road, GidanKwano Minna. At inception, the university had four (4) schools: School of Agriculture and Agricultural Technology (SAAT), School of Engineering and Engineering Technology (SEET), School of Environmental Technology (SET) and the School of Science and Science Education (SSSE). At the end of the 2009 academic session, two additional schools were added to the existing schools to become six (6) academic schools in the university. The new schools are School of Entrepreneurship and Management Technology (SEMT) and the School of Information and Communication Technology (SICT). The establishment of the extra schools means more space and facilities demand for the new and existing schools in the university.

Apart from the above academic schools there are also many academic centres in the university. These are centres for Remedial and Extra Mural Studies (CPES), Centre for Human Settlements and Urban Development (CHSUD), Global Institute for Bio – Exploration (GIBEX), Centre for Disaster Risks Management (CDRM), Mariam Babangida Centre for Rural Development (MBCRD) and the Centre for Vaccines Research and Development (CVRD). There are two other centres for the administration of the university: Advancement and Development Office (ADO) and the Directorate for Collaborations, Affiliations and Linkages (D - CAL).

Population

Three types of population groups exist in the university. These are the Academic staff, Non Academic Staff and the Students population. The staff strength of the university is 1866, made up of 1497 males and 369 females respectively. The university has a total of 13483 students, made up of 13077 undergraduates and 406 post graduates students respectively during the 2009/2010 academic session as shown in table 1 (F.U.T, Minna Reviewed Master Plan, 2012 – 2022).

Table 1: Population of the Study Area 2009/2010

Population	Frequency	Percentage
Members of staff	1866	12.2
Students	13283	87.8
Total	15349	100.0

Source: F.U.T Minna Master Plan, 2012

Physical Characteristics of the Study Area

Topography and Drainage: The topography of the university slopes from the North West through the centre to the South west. It has a rise in relief of about 300 meters above the sea level in the North West and slopes to a height of about 150 meters in the South west. The university is

located on a moderately elevated plain of mean height of 230 meters above sea level. The drainage of the university campus takes after the pattern of the relief. The area has a finger – like drainage net work pattern which rises from the North West highland and flows towards the south to

the lower areas of the university. The drainage system consists of seasonal rivers, which flow well during the peak of the rainy season. The main river that drains the area is River Dagga, which is fed by two tributaries River Waminafia and River Gwokodina.

Climate: The University, as in other parts of Niger state, experiences two (2) distinct

Table 2: Average Weather Condition in Minna

Months	Temp(oC)	Precipitation/ Rainfall(mm)	Wet Days (>0.1mm)	Sunlight (Hours/day)	Humidity (%)
January	27.5	2	<1	8.4	24
February	29	7	1	8.6	21
March	31	14	1	8.3	30
April	30	62	5	7.6	44
May	28	120	9	7.7	58
June	27	175	13	7.1	66
July	26	228	17	4.6	72
August	25	269	21	3.6	73
September	25	296	21	5.5	70
October	27	129	12	8.3	62
November	27	7	1	9.2	39
December	27	3	<1	9.0	28

Source: F.U.T, Minna Reviewed Master Plan, 2012 – 2022

The warmest average Maximum/highest temperature is 19°C (66°F) in December. Minna receives on the average 1312mm (51.7 inches) of precipitation yearly, with January and September being the driest and the wettest months respectively. The mean Relative humidity on the average year is 48.9 %; and ranges from 21 % in February to 73% in August on monthly basis. On the average, sunshine ranges between 3.6 to 9.2 hours per day in August and November respectively as indicated in Table 2.

Vegetation: The vegetation of the study area is dominated by stunted shrubs intercepted with trees of average height, mainly of eucalyptus extraction. As a result of the continuous human activities the general vegetation has been greatly altered and now being pushed to the Sahel savannah grass/ shrub land. There are now scattered short trees and shrubs and

climatic seasons, each having its own climatic characteristics of rainy and dry seasons. The dry season begins in November and ends in March. The rainy season is experienced between April and October. Minna has an average temperature of 27.3° C (81°F) with a range of average monthly temperatures of 5.5° C.

grasses, with an obvious possibility of the extinction of the common trees such as dogoyaro from the area. There are numerous Mango trees in the area, which can be utilized as wind breakers.

Soil and Geology: The different types of soils identified in the study area are:

- i). Mapping Unit A (Minna Association): This category of soils is generally deep and brownish in colour and the surface soils are greyish brown and of medium or fine textured. The reaction soil in this group ranges from slightly acidic to slight alkaline.
- ii). Mapping Unit B (Minna Association): This soil type is similar to Unit A soils but gets more water because of its location to receive runoff water from higher areas. The surface texture of this soil type ranges from sandy loam to clay, and the sub surface is mostly sandy loam. The soils are deep and the surface soils are olive in colour and the sub surface is olive

yellow (2.5Y hue), with highchromate.iii). Mapping Unit C (Malaji Association): This type of soil occurs on slightly dissected plains with moderately low interfluves. The soil textures are generally clay loam with yellowish red mottles.iv). Mapping Unit D: The soil types in this category are mainly isolated rock outcrops that are lithotic to paralithic.

Materials and Methods

The primary and secondary data were used for this study. The primary data collection methods include direct personal observation, oral interview and questionnaire interview. The secondary data for the study comprises of data extracted from publications, meant to supplement information from primary sources. Data in this regard include information from the library, internet, the University Reviewed Master Plan 2012,

Table 3: Total Area (m2) of the Study Area

Sections	Designation	Area (hec)	Percent
Students Hostels			
Hostel A	Girls hostel	1.50	7.8
Hostel B	Girls Hostel	0.36	1.8
Hostel C	Boys Hostel	0.30	1.6
Hostel D	Boys hostel	0.30	1.6
Activities Area			
Commercial Complex			
Complex A		0.05	0.3
Complex B		0.02	0.1
Complex C		0.04	0.2
Public Area			
Mosque area		0.06	0.3
Open Space		16.65	86.3
Total		19.30	100.0

Source: Field Survey, 2013.

The physical structures of noticeable relevance in the area are the boys and girls hostels, the commercial complex and the student mosque.

information from Landscape design journals and relevant textbooks on the study.

Population and Sample Size: A 5% sample size of the total of 15,349 of the university community population was utilized for the study. Thus an approximate sample size of 800 was used for the study, which comprises of 703 university students and 97 members of staff, randomly selected from the university community population.

Results and Discussion

Existing Situation

Site Area: The total area of the site is 19.3 hectares; representing 12.3% of the total built up area of the University of 156.6 hectares (F.U.T, Master Plan Review, 2012), as shown in Table 3.

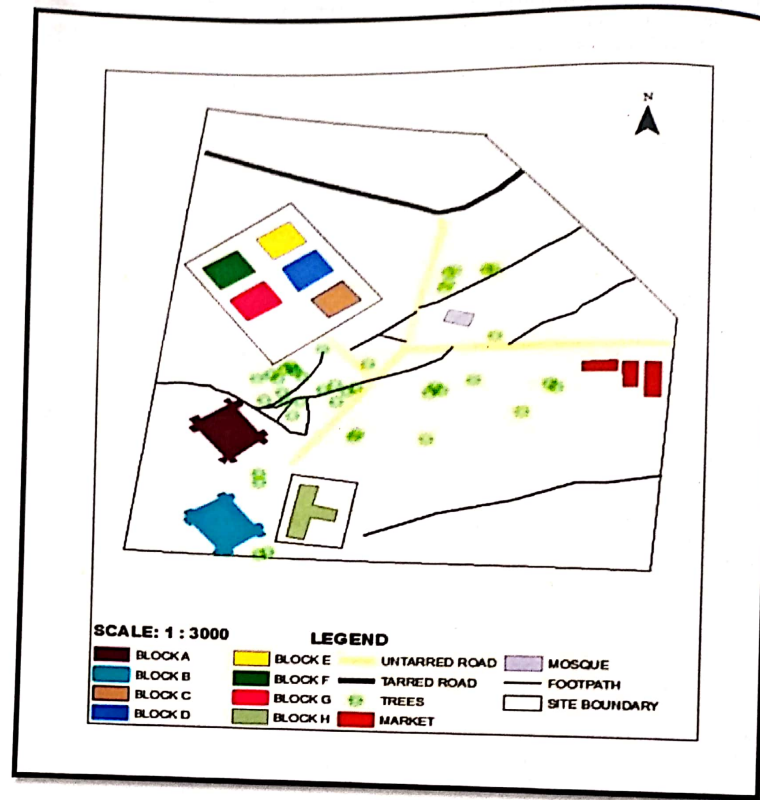


Figure 2: Existing Conditions of the Site
 Source: Field Survey, 2013

Organized Open Space: There is no organized open space around the hostel area. The entire environment is dotted with bushy mango and dogoyaro trees.

Football Field and Sporting Facilities: There are no sporting facilities provided for students in the hostel. There are no

football, long tennis, table tennis and other sporting facilities provided for the students in the hostels. Though there is a football field provided in between the School of Engineering Complex and the University clinic but is far away from the hostels for students' convenience.

Table 4: Existing Situation of Landscaping Facilities in the Study Area

Landscape Elements	Available	Not available	Remarks
Open Space	✓		The open space is unorganized
Football field and sporting facilities		✓	The football field available is far away from the hostel area, and it is for the staff members of the university community.
Botanical Garden		✓	There is no such facility around the hostel area
Sit outs and benches	✓		There few sit facilities under the mango trees close to the hostels
Access roads	✓		There are access roads leading to the hostel but are not tarred
Side walks		✓	There no sidewalks for the pedestrians
Road side drains		✓	Roads side drains are conspicuously absent
Planted Trees/Flowers		✓	Organized planted ornamental trees and flowers are absent
Recreation Park		✓	It does not exist. Students usually relax outside in the front of hostels
Street lights	✓		There are provision of street light
Fountain		✓	No fountain is provided in the area

Source: Field Survey, 2013

Botanical Garden, Seat Outs and Benches: There is no botanical garden facility in the hostel area of the campus. Moreover, there are no sits and benches for students use during relaxation (see plate I and II)-



Plate I and Plate II: Flowering Plants without Sit outs/Benches for relaxation

Source: Field Survey, 2013

Access Roads and Road Side Walks: The study area has two hierarchies of road network: a distributor road that conveys traffic from the main gate via the school farm into the university, of about 12 metres of right of way and untarred access

road that branches off from the distributor road into the hostel area of the university. The four (4) hostel complexes are linked up with unorganized untarred foot paths. The access roads are not provided with road side walks (see plate III and IV).



Plate III and Plate IV: Unorganized pedestrian walk ways to the students' hostels
Source: Field Survey, 2013

Road Side Drains: This is an essential road facility in landscape project as it helps in draining excess runoff water away from the road and thereby prevents the

easy washing away of the soil surface. There is obvious dearth of this facility in the study area.

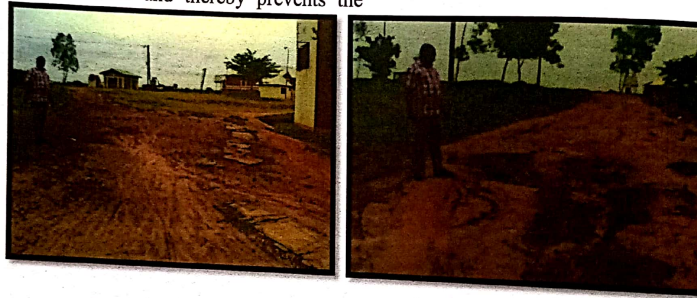


Plate V: Lack of road side drainage network
Source: Field Survey, 2013

Plate VI: Menace of soil erosion due to lack of drainage facility
Source: Field Survey, 2013

Planted Trees, Flowers and Recreational Park: There are few mango and dogoyaro trees around the hostels, with hedges around the foot paths. 'All work without play, it is said makes Jack a dull boy'. There is the need for a recreation park to be provided in the students' unit of the study area for use by the students and the university community. There is no such facility on campus at the moment. After much academic exercise,

there is the crucial need to have a place for relaxation by all.

Design Proposals and Analysis

As regards the observed problems associated with the landscaping of the entire environment in the university, a landscape design proposal is presented to correct the problems as indicated in figure 7.

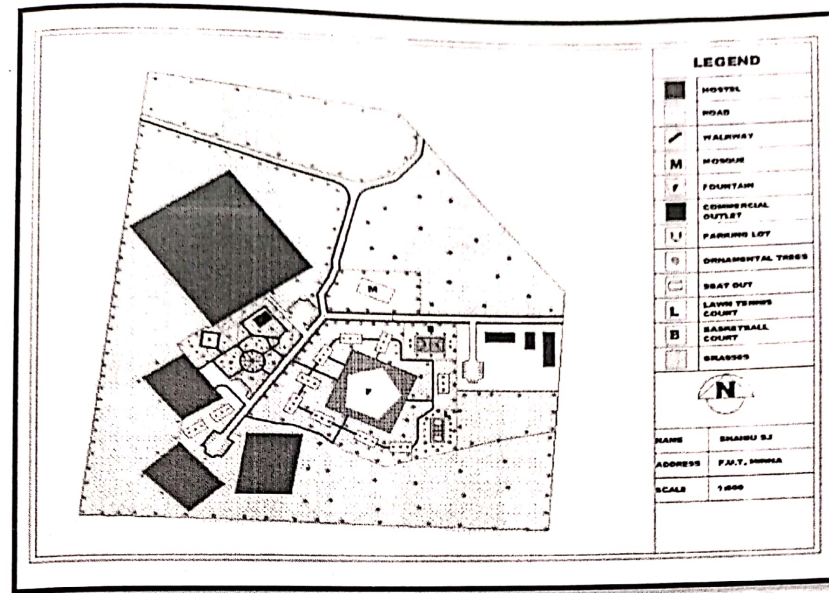


Figure 3: Landscape Design Proposal of the Students' Hostels
 Source: Authors' Analysis, 2013

In the process of putting forward a befitting design proposal for the students' hostels of the university, consideration was given to the climatic and topographic conditions prevalent in the study area. This is one of the conditions considered for the selection of landscape plants and elements to be provided. The grasses, shrubs and plants recommended are typical of the tropical climate. The direction of the prevailing wind and sun are also considered in bringing together the landscape materials. For purposes of resolving the landscape problems associated with the study area, as identified above, the following proposals are put forward.

a. There should be routine planting of trees along the main access roads to the students' hostels to act as wind and

noise breakers and provide privacy required around the hostels.

- b. The organized open spaces and green areas to be adequately maintained to act as air purification function for the continuous air pollution from carbon dioxide from moving vehicles.
- c. A recreation area with functional facilities such as table tennis, basketball court, sit outs with beautified shrubs and ornamental trees should be provided around the hostels for students use and the general public.
- d. It is also proposed that side drains be provided in all the access roads to the hostels so as to resolve problems of stagnant water that is seen on the roads after rains. Pedestrian walk ways should also be provided for side by side with the vehicular access roads.

- e. All access roads are to be provided with street lights for illumination during night time and to add beauty to the environment generally.
- f. All access roads are to be provided with hedges and trees of different species.
- g. It is also recommended for adequate car parking facilities to be provided at

the central parking area and such other places so designated for the purpose.

Proposed Planting Materials: With regards to soft landscaping the following materials are proposed for the students' hostel

Table 5: Proposed Planting Materials

Trees/Palms						
Names	Botanical name	Purpose	Area of use (Design)	Height (m)	Spacing	Tree Type
Satellite Trees	Cameroonianficus	Provide shade, reduce effects of sun's heat	Parking areas, relaxation places. 2m away from pedestrian walkways	15+	4m	Deciduous
Masquerade trees	Osaka tree	To show direction, give panoramic view	Parking areas, relaxation places. 2m away from pedestrian walkways	18m+	4m	Evergreen coniferous
Blue gum trees	Eucalyptus	For screening, reduces the intensity of wind, wind breaker	Use close to building structures, along the fence	15m +	6m	Evergreen deciduous
N neem trees	Dongoyaro	Provides shade, screening agent, wind breaker	Parking areas, relaxation places. 2m away from pedestrian walkways	20m+	6m	Evergreen deciduous
Royal Palm		Provides beauty to environment	Along road side	5m+	4m	Evergreen
Hedges						
Ixorastrieta		For beauty of the environment, act as barrier and stop unapproved crossing	Along the road side and walkways	2 - 5m	0.3m	Evergreen and Strives well in dry season
Yellow bush	DurataRupins	For demarcation, to hide unsightly areas	Along the verge between property line and walkways	2+	0.3m	Shield leaves in dry season
Grasses						
Baharma grasses	Cynodondactylon	To absorb direct radiation, to reduce glare, great virtual perception	In the open field, open spaces		Spreading	
Carpet grasses		To control erosion, soil cover	Ditto		Spreading	

Source: Authors' Analysis, 2013

Proposed Structural Landscaping: The structural landscape proposal is to provide

an order in the development of landscaping components and the spatial organization of

the site for the achievement of a pleasant and harmonious environment. The components include street planting, structural planting, street lightening, access roads, pavement of walkways, provision of litter bins at strategic points, seat outs/benches, parking spaces, drainages, fountain and sign posts.

Proposed Land use Plan: A detailed study of the study area shows the following percentages of land use of the area. Open Space has the highest percentage of 49.7% and commercial land uses has 4.2% respectively as indicated in table 6.

Table 6: Land use Budget of the Landscape Students Hostel

Land use	Area (hect)	%
Residential	2.5	13.2
Commercial	.8	4.2
Circulation	2.1	12.3
Public	1.4	5.2
Organized Open Space	2.9	15.4
Open Space	9.6	49.7
Total	19.3	100.0

Source: Author's Analysis, 2013



Figure 4: Land use Plan of the Landscape Design
Source: Authors' Analysis, 2013

Design Implementation:

For effective implementation of the landscape design, considerations are given to its fiscal and administrative requirements. The suggested sources of fund for the execution of the project are

- i). Government budgetary allocation to the institution
- ii). Loans and assistance from Agricultural Development Bank
- iii). Inputs from the United Nations Aids
- iv). Education Trust Funds

Moreover, the responsibilities of the implementation agencies should be clearly stated. The University Landscape

Implementation Committee should be charged with the responsibility of implementing the recommendations in the study. Efforts should be made to use the best available materials that are easy to maintain.

Phasing of Implementation

In physical development, it is difficult to effectively achieve the execution of any project without adequate project phasing. As a result, the implementation of this landscape design proposal is scheduled to be in three phases, covering a period of three years, from 2013 to 2016 as outlined in Table 7.

Table 7: Implementation Phases of the Landscape Design Proposals

Phase I (2013 – 2014)	Phase II (2014 – 2015)	Phase III (2015 -2016)
Construction of roads and walkways	Planting of trees, shrubs and grasses	Construction of recreation facilities
Installation of street lights	General beautification of the site	Monitoring

Source: Authors' Analysis, 2013

Recommendations and Conclusion

Recommendations:

- i. Enabling legislation should be enacted for public institutions in the country to landscape their surroundings in order to bring about good quality and aesthetic environment.
- ii. Adequate awareness should be created for the public and institutions on the relevance of an aesthetically pleasing environment through landscaping.
- iii. Routine awareness campaign to the students on the need for an aesthetically pleasing and functional environment devoid of wastes and littered refuse should be carried by the management through the students affairs department in conjunction with the students union government of the university.
- iv. In that regard efforts should be made by the university management to provide

- waste paper baskets in hostels, refuse drum and carts at designated spots around the campus for waste disposal vans to final disposal sites.
- v. Landscape Maintenance Students Vanguard should be launched for the effective monitoring of landscape vandals in the hostels and elsewhere on the campus.
- vi. The introduction of good management strategies that involve adequate financing and maintenance, security and monitoring for landscape projects should be incorporated in the curricula of institutions.
- vii. The management of the institution should make adequate fund available for the regular maintenance of her landscaped facilities in the hostels of the institution, through the setting up of a committee of men of proven integrity

and sound educational background in the built environment disciplines.

Conclusion

A well landscaped environment, in no doubt, has many benefits derivable from it. It is observed, however, that there are many constraints associated with the landscaping of the students' hostels of the university campus and as such the environment is left unkempt and therefore not aesthetically attractive to the eyes and individuals around. A careful observation and implementations of the recommendations in this study will go a long way in resolving the observed problems associated with the landscaping around the students' hostels on the campus of the university.

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