

Impact of university on the physical development of host community

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Abstract

Background/Objectives: Federal university of Technology, Minna developed its main campus in Gidan-Kwano and started operation in 2005. This work examines the impact of university on the host community.

Methods/Statistical analysis: Landsat imageries were used to monitor spatial growth in Gidan-Kwano between year 2005 and 2015. Ground survey data were collected from Federal university of Technology, Minna, Estate Agents, Property developers, Power Holding Company of Nigeria and Ministry of Lands and Housing. ILWIS was used to analyse the satellite imageries while Analyze-it was used for the analysis of the ground survey data.

Findings: Findings revealed that residential land use which stood at 8.87% of the total land use in 2005 has now grown to 25.19% in 2015. There are other infrastructure attracted to the area during period under review. However, the growth has been marked with problems of uncoordinated development and inadequate infrastructure. The ever increasing population of the university will continue to attract physical development and if the growing development is not coordinated by enacting master plan, there will be chaotic and haphazard development.

Improvements/Applications: The study has revealed the spillover effects of locating university. It has also unfolded the pending danger of uncontrolled development. A comprehensive master plan should be developed for the community.

Keywords: Impact, University, Residential, Development.

1. Introduction

[1] Advanced that foreign direct investment has multiple effects on the economy of a host country. Relatedly, investment made in a particular local environment has impacts on the host community. Many researchers in the past and even till now have been focusing on the economic, social and cultural impact of tertiary education institutions to communities [2-5]. Meanwhile little or no attention has been given to the impact of university or tertiary education institutions on the physical development of host communities. It is within this analytical context that this research is conceived. Federal University of Technology Minna created in 1983 started operation in Bosso area of Minna. The growth of the Institution necessitated the development of a new permanent site in 2005 in Gidan-Kwano area of Minna. The main campus which is sited in Gidan-Kwano on 10,650 hectares of land houses majority of the faculties. Since the relocation in 2005, the once agrarian area has witnessed development of modern accommodations. Further to this, the host community has continued to enjoy other public and private physical developments.

In the report by [3] higher education is a major source of jobs in New York State. The number of jobs in higher education has been growing more rapidly than employment in the rest of the economy. During the 2001-2003 recession, higher education employment rose by 5.8 percent in New York while jobs in the rest of the State's economy declined by 2.6 percent. During the 2003-2007 economic expansion, higher education employment in New York grew by 4.8 percent, compared to job growth of 4 percent in the rest of the economy. More recently, higher education employment in New York grew by 2.7 percent between 2007 and 2009. The State's public and private colleges and universities provided 266,110 jobs in 2009 or 3.2 percent of all employment in the State and paid out \$13.2 billion in wages. Higher education institutions contribute to the quality of life in their communities, providing

services such as medical facilities, research centers, libraries, sports, arts, and cultural events. In many parts of the State, these schools account for a significant portion of local economic activity.

The aim of the research conducted by [6] was to determine the type of corporate social responsibilities schemes provided by tertiary institutions vis-a-vis the types of social responsibilities needed by the host communities with associated challenges. This study employed the survey design method. Management staff of the selected three (3) tertiary educational institutions numbering twenty-five (25) was selected via stratified random sampling method while fifty-five (55) prominent community leaders were randomly selected from the three host communities. The mean(x), Standard deviation (SD) and the t-test were the statistical tools used. Findings revealed that tertiary institutions in Delta State of Nigeria are socially responsible to their host communities by providing the following services in this ranked order: education needs; wealth and job creation; physical infrastructural development; creating and promoting cultural awareness and; health intervention. The challenges faced by tertiary educational institutions in discharging their corporate social responsibilities to host communities in Delta South include intercommunity agitations and strives; greedy community leadership, negative attitude of host communities; delay in release of funds by government to tertiary institutions and youth restiveness. The study recommended that tertiary educational institutions should develop more deliberate schemes to meet corporate social responsibility needs of their host communities as well as ensure that adequate enlightenment should be given to host communities on the objectives of corporate social responsibilities schemes.

One of the so many factors that influence the residential or commercial location choices of households or investors is educational institutions. Others may include access to employment, business, cultural or recreational opportunities; affordability; familiarity with one location or type of location, perhaps as a result of growing up there; or emotional attachment to a place or a lifestyle [7]. To what extent has the Federal University of Technology, an education institution influenced the location choices of households and investors in Gidan-Kwano, the host community?

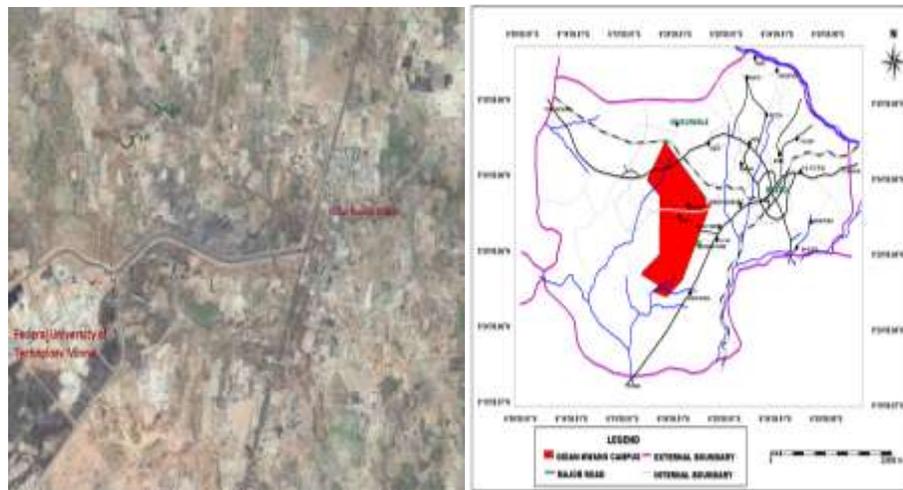
2. The study areas

The Federal University of Technology, Minna was established on February 1st1983 [8]. This specialized university was established in Niger State of Nigeria to concretize the quest for technological development in Nigeria. In the beginning, the University took over the facilities of the former Government Teachers' College Bosso, for use on a permanent basis. This site now serves as the Bosso Campus of the University. The main campus which is sited in Gidan-Kwano 10,650 hectares of land is located along the Minna - Kataeregi - Bida Road started operation in 2005. As at today, the university has Eight (8) schools and four (4) centres. As part of its overall fitness program, the University has among others a floodlit sports arena on both campuses, athletics cinder tracks, badminton indoor courts, basketball courts, volley ball courts, football pitches, a fitness gymnasium and student-run radio station. The Federal University of Technology, Minna is one of the top ten (10) universities in Nigeria and one of the top hundred (100) universities in Africa. The location of Federal University of Technology, Minna is shown in figure 1.

2.1. Gidan-Kwano

Gidan-Kwano is the host community to the Federal University of Technology, Minna. The town is about 12km away from the main town of Minna which is situated along Minna- Bida Road. It lies between latitude 90°27'N to 60°27'E. Original settlers in Gidan-Kwano were farmers. Now, Gidan- kwano houses several students and staff of the Federal University of Technology, Minna. Gidan- Kwano area of Minna, Nigeria had been a predominantly village setting with mud houses and very scanty housing development with agrarian economy. Since the operation of the Federal University of Technology, Gidan-Kwano campus, the village has witnessed astronomical housing development as investors continue to develop off campus accommodation for students with attendant commercial activities. The location of Gidan-Kwano is shown in figure 1.

Figure 1. Google Earth Map and Digitized Map of Federal University of Technology and GidanKwano



3. Methodology

Google earth maps, digitized maps and land use maps of 2005, 2012 and 2015 were obtained and analysed in a remote sensing environment using ILWIS 3.1 to analyse the land use variation over time experienced in the study area. Historic and present pictures were also used to explain the variations. Other sources of information include ministry of lands, National Population commission, PHCN and village heads. The data obtained were analysed descriptively.

4. Results and Discussions

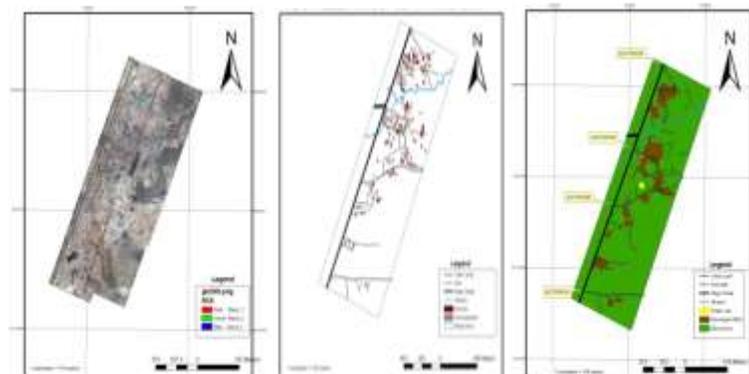
4.1. Gidan-Kwano(Host Community) prior 2005

Gidan-Kwano village prior to the sitting of the permanent site of the Federal University of Technology, Minna was observed to be inside the university site. Acquisition of the mass of land for educational purpose by the Federal government of Nigeria; was facilitated by the Land Use Act of 1978, that states that all land are entrusted into the hand of government. The move taken thereafter was to resettle the indigenous communities, farm stead and villages away from the university site to the present site of the village opposite the university main entrance retaining the same old name of the village known as Gidan-Kwano.

4.2. Assessment of Host Community in 2005

This revealed the existing situation of GidanKwano as at 2005 when the Federal University of Technology, Minna started its operation as shown in Figure 2, the Google earth image, digitized map and the land use map in 2005.

Figure 2. Google Earth Image, Digitized Map and Land Use Map of GidanKwano in 2005



Source: Urban and Regional Planning Department, FUT, Minna

Figure 2 reveals the level of development in 2005. The same year, Federal University of Technology, Minna moved to the permanent site at GidanKwano. The analysis of the digitized image of the land use of the area shows that 90.7% of the total land mass of the area are meant for agricultural purpose, while the area for residential and other uses was 9.3%. The activities of the host community were mainly agrarian, while the population stood at 485 persons with the total number of houses which was less than 100 housing units of habitable standard.

The characteristics of the housing in GidanKwano in GidanKwano in 2005 were mainly mud houses and traditional buildings.

Plate 1. The Mud houses of GidanKwano in 2005.



Taking into account the level of developments in Gidan-Kwano in 2005, the report confirmed that infrastructural development were not available as depicts in Table 1.

Table 1. Nature of Infrastructural development of Gidan-Kwano in 2005

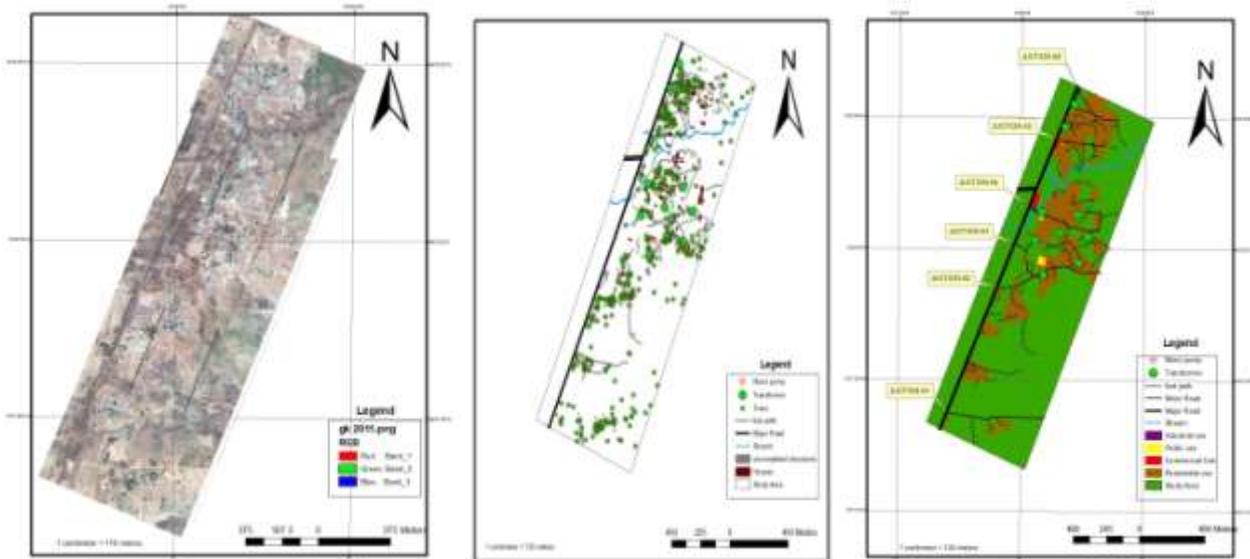
Facility	Remark
Water Supply	1 borehole
Electricity	No transformer and Electric poles
Accessibility	Earth road and narrow
Drainages	The main drainage has no culvert
Health	No health facility
Education	No primary school

Source: Department of Urban and Regional Planning, FUT, Minna

4.3. Assessment of Host Community in 2012 and 2015

As at 2012, Gidan-Kwano has witnessed astronomical housing development. Figure 3 shows the Google earth image, digitized map and the land use map in 2012.

Figure 3. Google Earth Image, Digitized Map and Land Use Map of GidanKwano in 2012



Source: Urban and Regional Planning Department, FUT, Minna

Figure 3b. Land Use Map of Gidan-Kwano in 2015

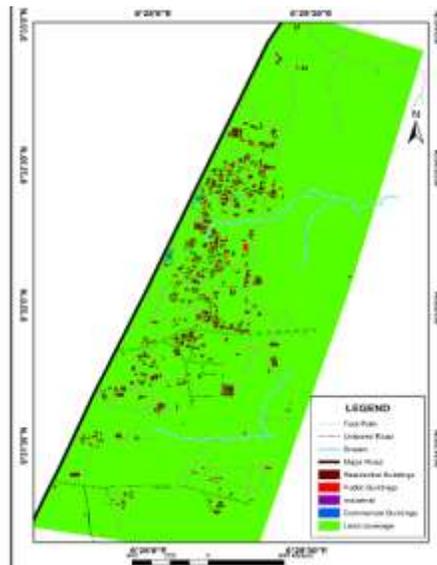


Figure 3 shows the changes that have occurred in the study area after 2005. The figure reveals that in 2012, impacts of the Federal University of Technology, Minna were more pronounced in the area in terms of expansion of residential buildings and infrastructural development. Considering the situation of the university host community in 2012, residential and other buildings increased beyond 22% while the agricultural land uses reduced to 77%. The habitable housing units in 2012 stood at 456 houses, which were characterised by block housing, modern flats including those that investors made available for students and other people in the area. The population of the people in GidanKwano in the year 2012 was 2,329 [9]. As at 2015, residential land use increased to 25.19% with a corresponding reduction in agricultural land use which stood at 74.07%. As at 2015, total number of houses stood at 644, representing 41.2% increase over 2012.

In terms of the Infrastructural development provision at the study area, Table 2 shows the changes and development now available in 2012.

Table 2. Physical development of GidanKwano in 2012/2015

Facility	Remark
Water Supply	3 Mono pump, 7 private borehole
Electricity	6 transformers
Accessibility	Expansion of old roads and creation of new ones
Drainages	Construction of bridges and drainages
Health	1 primary health care center
Education	2 primary schools (private & public)
Commercial/Industrial	3 Sawmills/ departmental stores in the town and along the major road

Source: Department of Urban and Regional Planning, FUT, Minna

Plate 2. Modern houses and Infrastructure in GidanKwano in 2015.



Modern buildings



Transformer and road network



Health care centre and primary school



Sawmill and departmental stores



Overhead Water Tank and Telecommunication Mast

4.4. Level of Growth and Development in Gidan-Kwano; 2005 and 2015

This depicts the variation in growth and development of Gidan-Kwano within ten years interval (2005 – 2015).

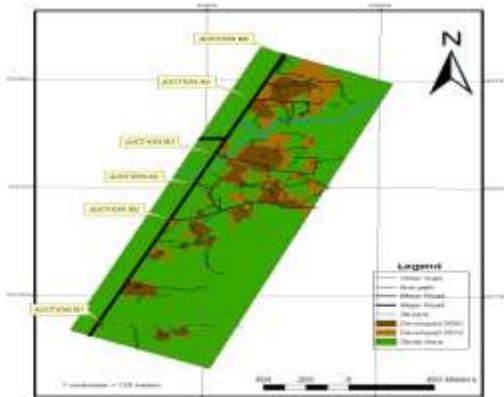
Table 3. Variation in Land Use of GidanKwano between 2005 and 2015

Land Use	Area coverage /percentage 2005		Area coverage /percentage 2012	Area coverage /percentage2015
Residential	182,256sqm	8.87%	461,608sqm	22.47% 518,517sqm 25.19%
Agricultural	1,868,839sqm	90.96%	1,582,455sqm	77.02% 1,524,805sqm 74.07%
Commercial	Nil	Nil	5,520sqm	0.27% 5,538sqm 0.27%
Public/Semi public	3,444sqm	0.17%	4,403sqm	0.17% 4,590sqm 0.22%
Circulatory	1,671sqm	0.08%	3,822sqm	0.19% 3,957sqm 0.19%
Industrial	Nil	Nil	553sqm	0.03% 958sqm 0.047%

Source: Jangado, 2013;
field work,2015

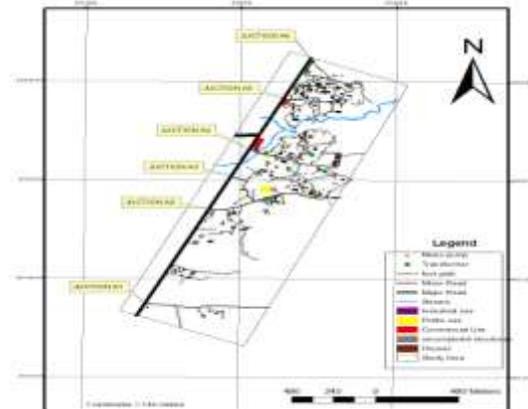
The variation of land uses as shown in Table 3 reveals the changes experienced in the area, which is reflected in all the uses. Comparing the results of the analysis in 2005, 2012 and 2015, area coverage of residential land use increased from 8.87% to 22.47% in 2012 and to 25.19% in 2015. Agricultural land use reduced from 90.96% to 77.02% in 2012 and further reduced to 74.07% in 2015. Commercial land use increased from 0% to 0.27%, public/semi public increased to 0.22% in 2015. Circulatory use increased to 0.19% from 0.08% while industrial land use recorded an increase of 0.04%. By implication, residential land use has been greatly influenced by the movement of Federal University of Technology, Minna to the present location since 2005. Other land uses in the same like manner shared from the growth and development as a result of the movement of the university. Figure 4 shows the changes in land uses of the area between 2005 and 2012 respectively. Figure 5 shows the detailed digitized physical developments in the area as at 2012.

Figure 4. Variation in Land uses of the area between 2005 and 2012



Source: Urban and Regional Planning Department, FUT, Minna

Figure 5. Digitized physical developments in GidanKwano as at 2012



Source: Urban and Regional Planning Department, FUT, Minna

4.5. The Impacts of Federal University of Technology, Minna on the Physical Development of GidanKwano

The results of the analysis and findings show that developments have occurred as a result of the movement of the university to its permanent site since 2005 and these are enumerated below;

- i. Physical expansion of the village.
 - ii. Increase in population of the residents.
 - iii. Construction of more residential and habitable housing units for students and staff.
 - iv. Provision of infrastructural facilities to support the growing population.
 - v. Increase in investments on landed properties.
 - vi. Corporate social responsibility of the university in the provision of bore hole and overhead water tank to the host community as well as employment of various categories of the indigenes (the skilled, semi skilled and the unskilled).
 - vii. Opportunity for indigenous farmers to sell their farm produce to students and staff of Federal University of Technology, Minna there improving their economic development.
 - viii. Co-existence and social integration of the people despite differences in ethnicity and language
- Despite the above positive impacts of the university on the host community, there are noticeable negative impacts which include;
- i. Ecological foot print on the host community - Gradual loss of green areas to man made improvements
 - ii. Increase in urban heat
 - iii. Threat and insecurity as a result of lack of police post and security personnel.
 - iv. Non enforcement of planning laws and regulations resulting in haphazard development of the area.

5. Conclusion

The paper has revealed the impact of university on the physical developments of the host community. It is expected that as the university grows in terms of programmes and admission, it will exert influence on the host community in terms of Real Estate and infrastructural development. It is however recommended that there is need for a planning policy for the study area to prevent haphazard developments and slum formation.

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