

# ASSESSMENT OF LAND USE CONFLICT IN GWAGWALADA TOWN, FCT-ABUJA.

BY

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## ABSTRACT

*Land use conflict occurs when there are conflicts on a particular land use leading to land misuse. The aim of this study was to identify Land use conflicts in some selected Areas in Gwagwalada town. Primary source of data used for the research include Questionnaire, interview, and field observation, while secondary data gotten from Federal Capital Development Authority (FCDA) on master plan provision of Gwagwalada was used to confirm the conflict status. A stratified systematic sampling technique was employed in administering the questionnaire. The chi-square technique was employed in verifying the assumption. From the research carried out it was found out that land use conflict has occurred in Gwagwalada Town and still on going, while some places within Gwagwalada Town are struck with severe Land use Conflict, others remained fairly stable. Population explosion over the years was found to be the main cause behind the conversion among other reasons. At the end of the research, recommendations were proffered among which include a strict implementation of Gwagwalada regional master plan and enforcing sanctions on land use abusers.*

## INTRODUCTION

When an increasing population creates competitive demand for the use of particular land, negative impacts on other land uses nearby are felt. Within the planned and unplanned sections of the Gwagwalada, there has been conflict in land use which has led to land misuse and consequently land abuse. Degradation of the land becomes eminent. Land use affects the volume and character of traffic on the streets and highway network. Similarly, adding new roads or expanding existing roads has an impact on the way abutting land is used (Kuzmyak, 2012).

Urban growth of towns and cities in Nigeria in recent times has resulted in consequent increase in population and spatial size of the cities. With increase in urban population comes a whole spectrum of activities such as commercial, agriculture, transportation, industrial, recreational, residential, institutional, water etc (Ugwuanyi, 2008). The resultant effect is population pressure on available land, whereby people indulge in different types of land use activities thereby impacting negatively on land resources. In recent years Gwagwalada Area

Council especially Gwagwalada towns have experience rapid population growth, thus changing population size and commercial needs often necessitate demand for land and change in land use plan (Abdullah, 2009).

The establishment of the University, Specialist Hospital and the administrative district where federal government ministries, parastatals and some FCDA departments are located is said to be responsible for the high flux of people into the area. There has been pressure on the available land due to the high population. Consequently conversion of land from one use to another is prone in the area. Gwagwalada is a two-in-one town; it consists of the old, the traditional and the new planned sections.

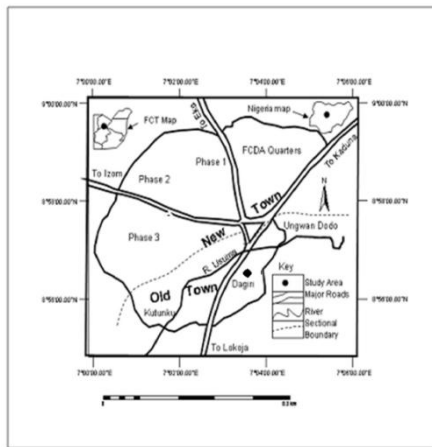


Fig Fig.1 Map Of Gwagwalada TOWN Source: ISHAYA, 2008.

## LITERATURE REVIEW

### *Land Use Conflict:*

Land use conflict occurs when there are conflicts on a particular land use leading to land misuse, such as when an increasing population creates competitive demands for the use of the land, causing a negative impact on other land uses nearby (Oregon, 2007). Government and judicial bodies usually attempt to make land use policies responsive to emerging concerns and developing needs. Conflicts result from situations in which localities attempt to block or ignore those needs or from situations in which the response is challenged as an overextension of the policy power. The complexity of urban problems and the growth of urban areas place constant tension on the land-use process (Abdullahi, 2009). Nor is it just the urban land-use that causes tension between the government and land owners. Decision to set aside underdeveloped or rural land for government use causes controversy as well. An example of this practice is the decision by the federal government in 2002 to set aside Yucca Mountain in Nevada for storing the nation's nuclear waste (Okon, 2015).

Competing land uses (agriculture and human settlements mainly) are contributing to the decline of forest and wood and areas and the rising demand for fuel wood and charcoal is also a major cause of deforestation. Settlements represent the most profound human alteration of the natural environment through a spectrum of

urban land use activities (Ugwuanyi, 2008)). Which include, but are not restricted to transportation, commercial, industrial, residential, institutional, and recreational land uses. Over harvesting agricultural encroachment and unregulated burning are believed to be contributing to the decline of many species in the wild. There are also incidental impacts on land cover from other activities such as forest and lakes damaged by acid rain from fossil fuel combustion, and crops near cities damaged by tropospheric ozone as a result of emissions from automobiles. One of the greatest challenges facing mankind today is land degradation although, the problem is as old as settled agriculture, its extent and impact on human welfare and global environment are now more than before (Tokula and Ejaro, 2012).

Land use conflict can therefore be defined as the conflict on land which arises when an area of land designated or allocated for a particular function is bypassed or now used for multiple uses at the same time such that the initial or intended use becomes neglected or overlooked for other functions. This can arise as a result of population explosion, new policies etc, (Kuzmyak, 1968).

### *Tools for Assessing Land Use Conflict:*

Land management is a central challenge in the sustainable management of earth systems and resources, the increasing concern for the management of natural resources in recent times has been necessitated by the increasing demographic pressures and its associated man-made activities which have led to serious environmental stress and ecological instability. Briassoulis, (2000) observed that land ethic cannot prevent the alteration, management and use of these resources but it does affirm their right to continued existence, at least in spots, their continued existence in a natural state. The use of Remote sensing techniques in recent times is considered as one of the viable means of land use management.

The management of land use activities in any geographical region rest on how to arrive at the proper use of the land without the land being degraded. The methods of land-change science

include: remote sensing, geospatial analysis and modeling, (Abdu, 2008), together with the interdisciplinary assortment of natural and social scientific methods needed to investigate the cause and consequences of land use conversion across a spatial scale.

**a. Remote Sensing**

Remote sensing is an essential tool of land change science because it facilitates observations across larger extents of Earth’s surface than is possible by ground based observations. This is accomplished by use of Cameras, Multi-spectra canners, RADAR and LIDAR sensors mounted on air and space-borne platforms yielding aerial photographs, satellite imagery, RADAR and LIDAR datasets. Data available from remote sensing vary from the very high resolution datasets produced irregularly over extents no longer than a single state or province (by aerial photography, imaging, LIDAR and by high resolution satellite sensors such as IKONOS and Quick bird), to regional datasets produced at regular intervals from satellites (e.g. Lansat, SPOT), to the lower resolution (>250m) datasets now produced across the Earth on a daily basis (Abdu, 2008).

**b. Geospatial Analysis**

Maps and measurements of land cover can be derived directly from remotely sensed data by inferring land use from land cover page. Urban = barren, agriculture = herbaceous vegetation). Conventional land use land over maps are categorically, dividing land into categories of land use land cover (thematic mapping; land classification), while recent techniques allow the mapping of land use land cover or other properties of land as continuous variables or as fractional cover of the land by different land use land cover categories, such s tree canopy, herbaceous vegetation, and barren (continues field mapping). Both types of land use land cover datasets may be compared.

**c. Modeling**

Spatially explicit models of the social and environmental causes and consequences of land use land cover is made possible by GIS, field survey and other computer based techniques which can define and test relationships between environmental and social variables using a combination of existing data (census data, soil maps, land use land cover maps), observations on

Land use Conflict	Frequency	Percentage (%)
Residential/commercial	38	38.0
Residential/industrial	12	12.0
Agricultural/Residential	40	40.0
Agricultural/commercial	10	10.0
Green area/residential	4	4.0
Others	6	6.0
Total	100	100.0

the ground (ecological measurements, household surveys and interviews with land managers) and data from remote sensing. These spatial models of land use land cover drivers and their impacts can be used to establish cause and effects in land use land cover observed in the past and are also extremely useful tools for land managers and policy makers, offering forecasts of future land use changes and their effects. Models of land use land cover dependence on political, economic, environmental and other changes can then be used to explore the impacts of policy decisions and other factors using scenario analysis and other computer modeling techniques, guiding policy makers and land managers toward sustainable land management decisions (Abdu, 2008).

**METHODOLOGY**

The sources of data include primary and secondary sources. Primary data used include data on forms of land use Conflict, extent of land use Conflict and factors responsible for the land use conflict in Gwagwalada town. Secondary data for this research work include field survey and already existing records from Federal Capital Development Authority (FCDA) of the study area.

The methods of data collection employed include, Reconnaissance survey, field observation, interview and questionnaire

administration. Yamane (1967) technique for determining sample size was adopted to determine the sample size for this study. A sample size of 100 was adopted; the reason for the sample size was based on the population size of the study area. The sampling procedure used in administering the questionnaire was stratified systematic sampling technique. An inferential statistic which makes use of the chi-square was employed in verifying the assumption.

**RESULTS AND DISCUSSION**

**LAND USE CONFLICT IN GWAGWALADA TOWN**

This sub-section presents the various forms of land use conflict which is found in the area, with the various plates associated with each conflict sites

Table1: Land use conflict in the study area.

Land use Conflict	Frequency	Percentage (%)
Residential/commercial	38	38.0
Residential/industrial	12	12.0
Agricultural/Residential	40	40.0
Agricultural/commercial	10	10.0
Green area/residential	4	4.0
Others	6	6.0
Total	100	100.0

Source: field survey, 2016

Table1 shows that 38% of the study area are struck with a land use conflict between residential and commercial, 12% of the area faces a land use conflict between residential and industrial land use, 40% of the area experiences a land use conflict between Agricultural land use and residential land use, 2% of the land use conflict exists between agricultural land use and commercial, 4% of the land use conflict occur between Green area and residential while 6% occur among other land uses.

The analysis shows that a greater form of land use conflict in the study area exists between Residential land use and commercial, and also between agricultural land use and residential as observed during reconnaissance survey and field interview in the planned and unplanned areas of Gwagwalada town. Along the UATH, Green area conflict heavily with residential land use owing to the increase in population of the years with consequence of exerting pressure on available resources in the town. In some part of Gwagwalada town, conflict exist between residential and industrial land use as the need to embark on mass production of goods and services to meet with the demand of the ever increasing population of Gwagwalada town.

**Residential/ Commercial land use conflict in Gwagwalada town:**

Residential/ Commercial land use conflict occur in the some part of the study area, such as plot 4 Balami street phase2, plot 2 One-way street market road, plot 5 Redemption avenue Gwagwalada, where a conflict in land use is seen to exist between residential and commercial land use. This is common in the planned areas of Gwagwalada town where the master plan provision allocated land for residential functions. The main factors responsible for residential/commercial land use conflict are due to population explosion, lack of adequate space to extend commercial areas, distant from designated commercial area3s such as the market and shopping centres. Around the University of Abuja, most residential houses within Takem Street along Balami Estate road have been converted to commercial uses such as shops, business centres, cyber cafés, restaurants in order to serve students and staff of the university. Flats at the back of the streets are still used for residences.





**Plate 1:** Residential/Commercial Land use Conflict, plot 12 Takem Street Balami Estate Phase II Area, Gwagwalada Town.

Source: Field Survey, 2016

**Residential/ Industrial land use conflict in Gwagwalada town:**

Residential/ industrial land use conflict is similar to Residential/ commercial land use conflict, except that in this instance the conflict is observed to exist when industries such as pure-water factories, paper mills, and other related industrial activities began to sprout up due to population increase in the study area and the need to meet the demand of the ever increasing population of Gwagwalada town.

**Agricultural/ Residential land use conflict in Gwagwalada town:**

Agricultural/ Residential land use in Gwagwalada town from the research carried out is observed majorly in the unplanned areas of Gwagwalada town where the master plan provision zone such lands for agricultural uses. Farmlands are seen to have been converted partly to residential areas due to the high population influx in the area and the need to accommodate these ever increasing populations, land owners in turn built sub-standard houses to maximize profit hence leading to a reduction in land use for agricultural purposes.



**Plate 2:** Agricultural/Residential Land use Conflict in Old Kutunku Gwagwalada Town

Source: Field survey, 2016.

Other forms of land use conflict in the study area are: Agricultural/ commercial land use conflict, Green area/ residential land use conflict. These distortions in the master plan provision have created serious consequences on the environment, though the short run effect tends towards the positive side, but analysis shows that the long run effect tends toward the negative direction with serious consequences.



**Plate 5:** Green area/Residential Land use Conflict at plot 4, Redemption Avenue Gwagwalada Town.

Source: Field survey, 2016

The plates above shows various land use conflict in Gwagwalada town, plate1 shows Residential/Commercial land use conflict around phase 2 in Gwagwalada Town, here land use conflict becomes so severe due to the pressure exerted by the population of the students and workers living off campus. Plate2 shows Agricultural/Residential land use conflict which is conspicuous in most part of the unplanned areas of Gwagwalada town such as Kutunku, Dobi, Dukpa, Agwan-Dodo etc. Here population explosion has caused severe conflict between Agricultural and Residential land use in the various regions.

**EXTENT OF LAND USE CONFLICT IN GWAGWALADA TOWN**

Table2: Extent of land use conversion in Gwagwalada Town

Extent	of	Frequency	Percentage
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Conversion		(%)
<b>Factors responsible for land use conversion</b>	<b>Frequency</b>	<b>Percentage (%)</b>
Urbanization	18	18.0
Resettlement	2	2.0
Implementation of master plan	10	10.0
Population explosion	60	60.0
Others	10	10.0
Total	100	100.0
Severely converted	20	20.0
Moderately converted	38	38.0
Slightly converted	31	31.0
No conversion	11	11.0
Total	100	100.0

Source: field survey, 2016

Table 2 on extent of land use conflict shows that 20% of the land use has been severely converted to other land uses, 28% of the land use has been moderately converted, 31% of the land use form has been slightly converted while 11% of the land use form has not been converted. This shows that the entire area have be converted in one way or the other either severely, moderately or slightly, leaving 11% of the entire study area unconverted. The areas with severely converted status are due to high pressure exerted by the ever increasing population leaving the areas severely converted. Such areas are the prime lands close to major institutions like Uniabuja, UATH, Custom Staff College, Gwagwalada Area council Head Quarters and the market area, ranges from slightly converted areas to moderately converted areas and then to very converted areas. Areas without conversion are due to a strict adherence to the implementation of the masterplan. Along the University of Abuja Teaching Hospital (UATH), a large green belt which serve as a green area is gradually fading away due to a severe conversion in that area to build more houses for people to live in.

**FACTORS RESPONSIBLE FOR THE LAND USE CONFLICT**

These sub-sections present the various factors responsible for land use conversion in Gwagwalada town.

Table3: Factors responsible for the land use conflict in Gwagwalada Town

Source: field survey, 2016

Table3 on factors responsible for land use conflict shows that urbanization constitutes 18% of the total factor responsible for the conversion, 2% is due to the resettlement scheme, 10% of unconverted area is due to a strict implementation of the master plan, 60% is due to population explosion in the study area, while 10% is due to other factors. The analysis shows that a greatest factor responsible for the conversion is due to some pull factors which has attracted the population such as the presence of the university, specialist hospital, Government agencies, infrastructural development amongst others. Certain push factors have also propelled immigrants into the area such as the demolition exercises of “illegal development” in the city enforced by Former FCT minister MallamNasir El-Rufai in 2006, and people fleeing from places of conflict and unrest such as the North-eastern part of Nigeria. Early Gwagwalada town was like any other remote village prior to the moving of the FCT to Abuja, the onetime unplanned village became urbanized gradually in other to meet up to the standard and expectation of the new FCT. Also, it was also noted that the Federal government house alongside other Government agencies which were meant to dwell in Gwagwalada but failed, gave room for the need to expand the town and create more functionaries, residential sites for government workers among others.

Gwagwalada Town is witnessing severe Land use Conflict, such areas as phase 2. Kutunku and Angwan Dodo. Angwan Gwari, AngwanShanu, and phase 3, phase 1, FMH, and Angwan Basa have been slightly converted as a result. While Kontagora Estate has been fairly stable. The

factors responsible for the Land use Conflict that exists in the study areas include urbanization, population explosion, establishment of the University of Abuja Teaching Hospital (UATH), the establishment of the University of Abuja, resettlement of people from other locations especially during the 2005 – 2006, Mallam Nasir El-Rufai demolition of most slums in the federal capital territory. The places with no traces of Land use Conflict in Gwagwalada Town can be attributed to a strict adherence to the master plan implementation.

Overcrowding and overpopulation has led to more pressure on the available resources such as land, water as well giving rise to land use conversion overtime.

### ASSUMPTION VERIFICATION

Since the calculated  $x^2$  of 43.52 is greater than the critical value 7.82, the assumption is rejected. Hence, there is a significant difference in Land use Conflict in Gwagwalada town. This implies that while some Areas in Gwagwalada Town experiences severe Land use Conflict other areas are fairly stable due to strict adherence to Gwagwalada Regional master plan.

### SUMMARY AND CONCLUSION

Within Gwagwalada Town, Some areas have been converted while other areas remain unconverted due to a strict adherence to master plan provision. About 89% of the entire study areas have been converted into other uses, while 11% of the areas have not been converted. Examples of such areas with severe Land use Conflict are phase2, kutunku, Agwan Dodo, while such places without conflict are Kotangora Estate, FMH. Some of the factors highlighted responsible for Land use conflict include, urbanization, resettlement, implementation of master plan, population explosion. Various forms of Land use conflict exist within the study area such as Residential/Commercial, Agricultural/Residential, and Residential/Industrial Land use conflict.

Within the planned area, the conflict in land use exist heavily between residential land use and commercial land use in other unplanned area of the town such as Kutunku, Agricultural land use conflicts with residential land use. It is quite

disturbing that these developments go without any systematic development plan. Similarly marshy lands and flood plains within the town are being turned into residential due to high population. Land use conflict within Gwagwalada town has revealed the extent of the land use conversion in the study area. It shows that the area is still undergoing conversion.

### RECOMMENDATIONS

Offenders of Land use Conflict should be sanctioned. Such sanctions could be demolition of such structures, reconversion to original land use provision or imposing heavy fines to serve as deterrent.

The planning authorities need to utilize high resolution data provided by various researchers for planning and urban information generation.

Ministry of FCT and Gwagwalada Area Council should ensure that farmlands which are preserved for Agricultural purposes should not be used alongside other purposes as it poses a threat to food security.

Gwagwalada area council should continually advance measures to ensure total adherence to master plan provision within the Gwagwalada environ and enforce into law punishment for offenders.

The Satellite Town Development Authority (STDA) should be empowered to discharge its mandate to develop Gwagwalada in accordance with the provisions of the Master plan.

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