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Assessment of Housing Quality and Sustainable Development: A Case Study of Giginyu, Nassarawa Local Government, Kano State

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Abstract: This Paper Assessed Of Housing Quality And Sustainable Development: A Case Study Of Giginyu, Nassarawa Local Government, Kano State. Convenient Sampling Was Used To Obtain 300heads Of Households As Respondents In Study Area Covering Kawo/Badawa, Giginyu, And Nassarawa Gra. Descriptive Statistics Were Employed To Analysed The Data Obtained From The Respondents. The Results Show That 256 (85%) Of The Respondents Live In A Single Household Houses, More Than Half Of The Respondents Occupied Traditional Houses, And More Than Half Also Live In Houses With 4 – 6 Rooms, And More Than Two-Third Of The Respondents Have One Window, More Than About One-Third Of Them Have No Living Rooms/ Parlour. The Results Further Shows That Over One-Third Of The Respondents Have One Living Room, Less Than One-Third Have No Bathrooms In Their Houses, More Than One-Third Have Only One Bathroom, And Majority Have One Window. The Results Also Revealed That More Than Half Of The Respondents Have Windows That Face North And South Direction, And Small Windows And Majority Sourced Water Form Well And Water Vendors. In Addition, More Than Half Dispose Wastes In Uncompleted Buildings Or Open Spaces, And Occupied Houses Littered With Dirt And Noisy Conditions, While Majority Of The Houses Have No Landscaping And More Than Have Only One Among The Listed Facilities. The Finding Of Multiple Regression Revealed That Direction Window Faces Has The Largest Beta Coefficient Of 0.682 Followed By The Size Of The Window With 0.562 Beta Coefficient Arethe Strongest Unique Predictors That Explain The Variation In Ventilation And Room Lighting, When The Variance Explained By Other Predictors In The Model Is Controlled. It Is Recommended That For Achievement Of Sustainable Human Settlement As Enshrine In The Sustainable Development Goals, Housing Facilities In Informal Housing Areas In The Study Area Have To Improved And Direction Window Faces As Well As Dimension Of Widows Need To Be Considered For Adequate Ventilation And Room Lighting In Houses.

Keywords: Housing Quality, Type Of Houses, Sustainable Development, Housing Condition, Housing Facilities, Waste Disposal

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I. INTRODUCTION

Housing Is One Of The Most Important Human Needs Next After Food. It Is Understood As A Place Of Human Habitation, Which Has Physical, Social, And Cultural Infrastructure, However, With A Very Thin Line Of Separation Among Them [1]. In Addition, Housing Is Seen As A Bundle Of Goods And Services That Facilitate Good Living And Subsequently A Key To Quality Neighborhoods. Housing Is Said To Be Bound-Up With Certain Concepts That Could Include Shelter, Location, Privacy, Social Amenities, And Even Investments. Each Of These Has Place In Making Housing An Infrastructure Of Importance In Human Settlement [2]. Housing Is Valued For The Potentials It Has In Assessing The Status Of Its Users And Economic Development Of A Country. The Word Housing Is Viewed As A Noun Or A Verb And By Noun; Housing Describes A Commodity Or Product, For Being Seen As A Verb Describes It As Process Or An Activity Of Housing [3]. Housing Also Includes Not Only The Fabric Itself And What It Contains, But Includes All Those Resources Put Into Its Production/Construction, As Well As The Environment In Which It Resides [4]. Supply Of Housing In Any Country Must Be Adequate To Cater For The Needs Of Its People And The Quality Of Housing Is Viewed As The Nature Of A Housing Unit Relating To The Minimum Or Acceptable Standard For Housing Characteristics, Services, And Features. In Effect, A House Of Good Quality Implies One Attaining A Level That Is Not Less Than The Minimum Standard And Thus Acceptable [5]. In Addition, Adequate Housing Is The Bedrock For Stable Community And Social Inclusion [6]. Deficiency In The Housing Quantity And Quality Affects Quality Of Life And Wellbeing Of Its Users. Furthermore, Location Of Houses, Building Materials

Used, Design, Type Of Windows, Size Of Windows, Direction Face By The Windows, Door Types And Sizes Relations With Socio-Economic And Cultural Components Of The Housing As Well As Neighbourhood Have Important Influence On The Health, Safety, Aesthetic And Wellbeing Of The Present And Future Inhabitants. The Window Types, Dimensions, And Sizes Are Very Important Factors That Need To Be Considered When Designing A House Because They Help In Providing Ventilation To The Houses That In Turn Influence The Life Quality, Health, And Safety Of The Residents. In General, Housing Is Critical For Sustainable Development And Must Satisfy Its Normal Requirements. Despite Lack Of Global Data On Housing Quality, Over 1 Billion People Live In Urban Areas With Poor Housing Quality. These Residents Are Living In Informal Housing, Especially In Developing Countries [7].

Housing Problem Is One Of The Serious Problems Facing Urban Residents In Living In Major Cities In Nigeria. The Problem Covers Not Only Shortage Of Houses For The Poor, But Deplorable Conditions Of The Existing Ones [8]. Often, Such Houses Owned By The Low-Income Group In The Cities Especially Informal Houses Are Exposed To Various Environment Problems Including Climate [9]. Thus, Housing Problem In The Country Is Related To Quantity And Quality That Are Aggravated By Rapid Growth Of The Population Urban Centres [10]. Furthermore, An Ever-Increasing Rate Of Urbanization And Poverty Rates In Nigeria Like In Many Developing Countries Exact A Lot Of Pressure On Urban Services And Infrastructure Including Housing Leading To Inadequacy And Gross Fall In The Quality Of Housing In The Country. These Situations Affect The Living Conditions Of The Urban Residents Both Socially And Economically. Moreover, Very Little Effort Is Paid To Provide And Improve Housing Conditions Of The Increasing Populace In The Cities, Although Provision Of Better Housing Will Reduce Overcrowding And Protects The Residents From Being Affected By Ill- Health And Other Related Problems. In Addition, Improvement Housing In Terms Of Services And Facilities Is Crucial To The Quality Of Life And Wellbeing Of The Residents. [11]Argued That Physical Condition, Landscaping, Available Facilities, And Friendliness Of Neighbours, Racial Or Economic Composition Or Symbolic Characteristics Are Relevant To The Perception Of Residents About Their Housing Environment In The Urban Centres In Nigeria.

Kano Is One The Major Urban Centres In Nigeria Where Most Its Residents Are Living Informal Housing Associated With Poor Design And Inadequate Facilities. After Nigeria's Political Independence In 1960, Kano Witnessed Urbanisation And Rapid Population Growth Because Of Commercial And Industrial Growth. These Developments Led To Continues Immigration Of People From Different Places For Economic And Social Reasons Result In The Congestion Kano City And In The Growth Of Unplanned Peripheral Locations. According To Nigerian Environmental Study/Action Team [12], Unplanned Areas Are Uncontrolled "Temporary" Dwelling Units Occupied Illegally Because Building Plans Are Not Approved Before Houses Are Built (P.215). [12]And[13] Argued That Unplanned Dwelling Begin Temporarily But With Time, They Are Consolidated To Become Permanent, But Lack Planning Makes Their Environment To Be Poor And Absence Of Amenities. At Present, Both Migrants And Indigenous Young Couples Occupy These Unplanned Areas Because Of Lack Of Housing Vacancy In The Old City And Even Those Already Within The City Find Expansion Difficult Because Of High Population [13]. This Paper Assesses Housing Quality In Giginyu And Its Implication For Sustainable Development With A View Of Looking At The Housing Characteristics And Factors That Influence Ventilation In The Residential Area In Kano City, Nigeria.

1.1 Literature Review

Sustainable Development Was Defined By World Commission On Environment And Development Called Brundtlandcommission In 1987 As 'Development That Meets The Needs Of The Present Without Compromising The Ability Of The Future Generations To Meet Their Own Needs'. This Suggests That Sustainable Development Comprises Of A Number Of Issues And Emphasises Sustainability As An Idea Of Environmental, Economic, Social Progress And Equity. In Spite Of This, Other Summits And Conventions Such As1992 Rio Earth Summit, The Agenda 21 Plan Of Action, The 2005 Millennium Ecosystem Assessment,Movement Towards Sustainability Seems To Be Lagging Especially In Developing Countries. In 2008, World Bank Development Indicators Reported That Over 1.3 Billion People Are Living Without Access To Clean Water, More Than 660 Million Had Poor Sanitation, 2 Billion Had No Access To Electricity, And About 1 Billion Are Living In Slums. The Need To Ensure Adequate And Qualitative Housing Therefore Forms One Of The Critical Challenges Facing Nations Especially Developing Countries Where Urbanization Is Rapid And Population Increasing At Alarming Rate. It Is In Recognition Of This That The United Nations Centre For Human Settlements Un Habitat Wrote In Its Report In 1995 That Homeless Is A Problem In Developed As Well As Developing Countries. Furthermore, Poor Housing Conditions Are A Global Problem, Being Worst In Developing Countries. And Today 600 Million People Live In Life And Health Threatening Homes In Asia, Africa And Latin America. United Nation Pursued Sustainable Development Goals To Cover Various Aspects Of Human Lives Such As Sustainable Human Settlements**,** Especially In Major Cities**.**It Is Aloscontianedin The Sustainable Development Goals By United Nation That While Many People Around The World Take Clean

Drinking Water And Sanitation For Granted, Many Others Don't. Water Scarcity Affects More Than 40 Per Cent Of People Around The World, And That Number Is Projected To Go Even Higher Because Of Climate Change. If We Continue The Same Path, By 2050 At Least One In Four People Are Likely To Be Affected By Recurring Water Shortages. Thus, It Is Important That Houses And Water That Are Provided By Authorities Or Individuals In Both Urban And Rural Areas Should Be Safe, Healthy, And Clean To Enhance The Quality Of Life For The Residents.

The Assessment Of Quality Of A House Is Subjective Depending On Many Variables, It May Depend Upon The Design Of The House, Its Physical-Structural Efficiency, The Individual Tenant Of The House, The Location Of The House, And Environment It Is Located. [14]Argued That A Habitable Home Or An Ideal Home Relates To The Social, Behavioural, Cultural, And Personal Characteristics Of The Inhabitants, In Addition To The Physical, Architectural, And Engineering Components Of The Home. Furthermore, Adequate Housing Conditions Also Relates To The Components Of The Environment Of Which The Home Is A Part And The Nature Of Institutional Arrangement Under Which The House Is Managed. Therefore, Housing Is One Important Need Especially In Developing Countries That Requires A Lot Of Effort From Institutions Responsible For Ensuring Standard In Quality Housing In Order To Satisfy The Needs Of Its Residents.

Moreover, Housing Quality Relates With Ventilation Standards And Regulations That Impact On Health And Comfort Of The Residents ([15]& [16]). Adequacy Of Ventilation Requirements Are Connected With Ventilation Rates And Occupant Health Effects And Productivity ([17]; [18 & [19]). Ventilation Denotes To The Exchange Of Indoor And Outdoor Air. Without Adequate Ventilation, An Otherwise Insulated And Airtight House Will Cover In Harmful Pollutants, Such As Carbon Monoxide, And Moisture That Can Destruct A House. Need For Ventilation In Houses Becomes Necessary As Gases From Various Combustion Appliances, Such As Stoves And Fireplaces, Can Accumulate In A Poorly Ventilated Home And Threaten Residents' Health And Safety. Furthermore, Excessive Moisture In The Home Can Also Threaten The Health Of The Occupants, And Can Lead To Mold Growth, Ruin Insulation, And Even Cause Structural Damage In The House. In Addition, Wetted Regions Of The World Suffered More Costly Energy Bills Because Elevated Levels Of Humidity Can Make Cooling Equipment Work Harder.Thus, Proper Ventilation Helps Keep A Home Energy-Efficient, Safe, And Healthy. Therefore, Sustainable And Quality Housing Require Well-Ventilated Features And Facilities That Will Ensure Good Health Of The Residents. Despite The Importance Of Ventilation, Scholars In Housing And Urban Studies Give Little Attention To The Housing Characteristics And Factors That Influence Ventilation In Residential Areas Of A City In Developing Countries Such As Kano City, Nigeria. Thus, This Paper Assessed Of Housing Quality And Sustainable Development: A Case Study Of Giginyu, Nassarawa Local Government, Kano State.

1.2 Study Area

Giginyu Is One Of The Eleven Political Wards Of Nassarawa Local Government Area Of Kano State. It Is Located Between Latitude $8^0$30'43.53"n And $8^0$44'01.97" N And Between Longitude12^0 03' 21.41"e And 12^0 13' 40.31" E (See Figure 1). Giginyu Ward Has A Land Area Of About 16.6km^2, That Is, 20.3% Of The Total Land Area Of Nassarawa Local Government. Geologically The Study Area Is Underlain By The Basement Complex Rocks Of Precambrian Age Of The Hausa High Plains Of Nigeria.Giginyu Lies Within The Tropical Continental Climate Zone, Which Is Characterised By Two Main Seasons, Wet And Dry Seasons. [20]Has Identified Three Main Temperature Regimes; A Cool And Dry Season That Lasts From November To February; A Hot And Dry Season, Which Lasts From March To Mid- May; A Warm And Wet Season Lasts From May To October. When The Three Are Merged With Rainfall Regimes, Four Season Can Be Identified [20] Namely; A Dry And Cool Season (Kaka) From Mid –November To The End Of February Known As Hamattan Period. The Second Season Isreferred To As A Dry And Hot Season (Bazara) That Lasted From March To Mid-May. This Season Is The Hottest Period With 40^0c And 24^0c As The Diurnal Maximum And Minimum Temperatures, Respectively. The Third Season Is Named Wet And Warm Season (Damina) That Runs From Mid-May To The End Of September With Monthly Average Temperature Of About 25^0c To 26^0. The Last Season Is Dry Warm Or Hot Season (Rani) That Begins From The Beginning Of October To Mid – November, It Is The Shortest Season. The Annual Rainfall Recorded For The State Ranges From About 500mm To 600mm In The Northern Part Of The State To About 1000mm To 1100mm In The Southern Part Of The State. Kano Metropolitan Area Receives About 800mm To 900mm Per Annum. The Study Area Lies With The Sudansavannah Belt In Which Grasses Are The Dominant Plant Cover Interspaced By Short Stunted And Xerophytic Trees That Can Withstand The Long Period Of Dryness. Human Activities Greatly Altered The Vegetation, Except Few Exotic, Economic And Shed Providing Trees That Remain Standing In The Area.

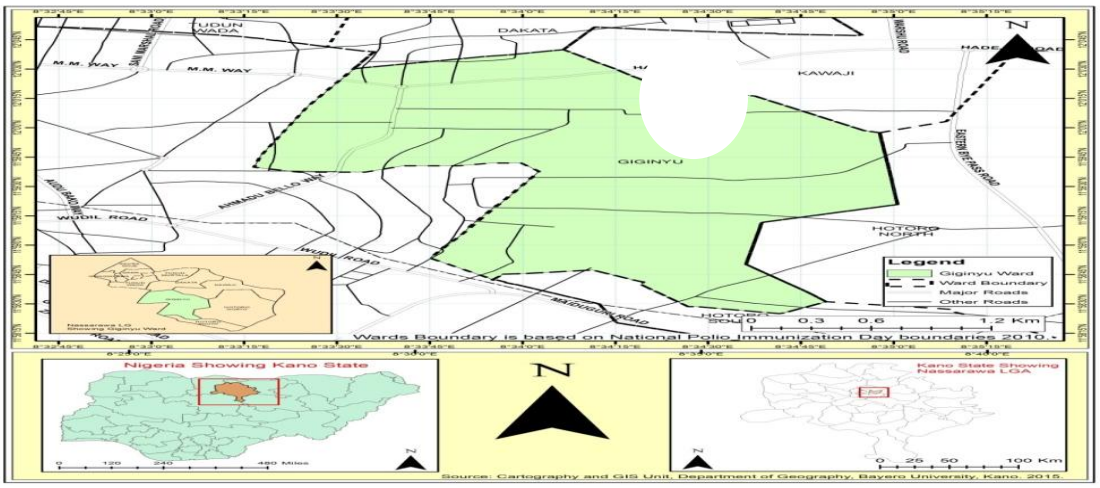

Figure 1: Nassarawa Lga Showing The Study Area

II. MATERIALS AND METHODS

Data For The Study Was Obtained By Questionnaire Administration To 300 Conveniently Selected Respondents In The Study Area. Data For This Study Included Number Of Households And Data Relating To Housing And Neighbourhood Variables Such Astype Of Houses, Number Of Windows, Size Of Windows, Directions Faced By Windows, Dimension Of Courtyards And Number Of Rooms. Other Variables Included Number Of Living Rooms, Number Of Bathrooms, Condition Of The Houses, Waste Disposal, Sources Of Water, Materials Used For Landscaping And Proximity To Some Facilities In The Study Area. The Data Was Collected With The Help Of Well-Trained Enumerator From The Study Area For Easy Acceptability And Cooperation Of The Respondents. The Same Copies Of Questionnaire Administered To The Respondents Were Retrieved Back And None Was Invalid. Respondents Of The Study Are The Head Of The Family Or Any Adult Members Of The House Seen In The Households When The Head Of The Households Are Not Available. The Questionnaire Used In This Study Was Semi-Structured Consisting Of Open-Ended And Close-Ended Questions. For The Purpose Of This Study, And For Scientific Selection Of The Sample Of The Respondents, A Sample Size Of 20% Of The Population Of The Respondents In The Study Area Was Selected. This Is Accordance With The Studies Attributed To Arlosoroff*et Al* (1987) And Umar, (2006) As Quoted In [21]Who Argued That 20% Of Any Population As Sample For A Study Is Sufficient To Yield A Meaningful Statistical Validity Results. The Samples Of The Respondents Are Derived Fromwithin Giginyu Area Including Kawo And Badawa Areas. Descriptive Statistics Including Frequency And Percentage Were Used For The Analyses Of The Collected Data. In Addition, Multiple Regression Was Used To Predict The Variables Responsible For Explaining The Variation In Ventilation In The Housing Environment In The Area.

III. RESULTS AND DISCUSSION

3.1 Housing Characteristics In The Study Area

3.1.1: Number Of Householdsin The Houses Of The Respondents

Table 1 Shows The Number Of Households In The Houses Of The Respondents. The Finding Shows That 256(85%) Of The Respondents Live In A House With One Household, 24(8%) Live In Houses With Two Households, 12(4%) Live In Houses With Three Households And 8 (3%) Of The Respondents Live In Households With More Than Three Households. The Finding Indicates That Majority Of The Respondents Live In Houses With One Household,While The Least Of Them Live In Houses With More Than Three Households.

Table 1: Number Of Households In The Houses Of The Respondents

Number Of Households	Frequency	Percentage(%)
One Household	256	85
Two Household	24	8
Three Household	12	4
More Than Three Household	8	3
Total	**300**	**100**

Source: Field Survey, 2015

3.1.2: Type Of Houses Occupied By The Respondents

Table 2 Shows The Distribution Of House Type, Majority Of The Houses About 210(70%) Of The Respondents Occupied Traditional Houses, 70(23%) Occupied Bungalow Houses, 4(1%) Occupied Detached Houses, 10(3%) Lived In Semi-Detached Houses And 6(2%) Of The Respondents Lived In The Storey/Duplex Houses In The Area. The Implication Of The Findings Suggests The Study Area Is Unplanned Residential Environment That Is Characterised By Inadequate Facilities And Services.

Table 2: Type Of Houses Occupied By The Respondents

Type Of Houses	Frequency	Percentage (%)
Traditional	210	70
Bungalow	70	23
Detached	4	1
Semi-Detached	10	3
Storey/Duplex	6	2
Total	**300**	**100**

Source: Field Survey, 2015

3.1.3: Number Of Rooms Per Households

Table 3 Shows The Number Of Rooms Per Households In The Sampled Houses In The Study Area. The Finding Revealed That 60(20%) Of The Respondents Had 1 – 3 Rooms In Their Houses, 154 (51%) Have 4 – 6 Rooms, 51 (17%) Have 7 – 9 Rooms And 24(8%) Have 9 – 12 Rooms, And 11(4%) Of The Respondents Have More Than 1 Rooms In Their Houses. The Finding Indicates That Majority Of The Respondents Have 4 – 6 Number Of Rooms In Their Houses, While The Finding Revealed That Least Respondents Are Those With More Than 12 Rooms In Their Houses.

Table 3: Number Of Rooms Per Households

Number Of Rooms	**Frequency**	**Percentage(%)**
1-3 Rooms	60	20
4-6 Rooms	154	51
7-9 Rooms	51	17
9-12 Rooms	24	8
More Than 12 Rooms	11	4
Total	300	100

Source: Field Survey, 2015

3.1.4: Number Of Windows Per Rooms

Table 4 Shows The Number Of Windows Per Room In The Respondents' Houses. The Finding Reveals That 193 (64%) Of The Respondents Have One Window, 99 (33%) Have Two Windows, 7(2%) Have Three Windows And 1(0.3%) Of The Respondents Have Four Windows In Their Houses. This Finding Revealed That Majority Of The Respondents Have Only One Window In Their Room, Less Than One Percent Of The Respondents Have Four Windows In Their Rooms. The Finding Has A Negative Implication For Ventilation And Lightening Of Room Especially In The Light Of The Global Climate Change Where Temperatures Are Expected To Increase In Room And House Temperature With Repercussions On Health And Stress.

Table 4: Number Of Windows Per Rooms

Number Of Windows	**Frequency**	**Percentage (%)**
One Window	193	64
Two Windows	99	33
Three Windows	7	2
Four Windows	1	0.3
Total	300	100

Source: Field Survey, 2015

3.1.5 Number Of Living Rooms In The Houses

Table 5 Shows The Number Of Living Rooms In The Respondents' Houses. The Table Reveals That 90 (30%) Of The Respondents Had No Living Rooms/ Parlour, 129 (43%) Had One Living Room, 60 (20%) Of The Respondents Had Two Living Rooms/ Parlours In Their Houses, 16 (5%) Had Tree Living Rooms, While 5(2%) Had More Than Tree Living Rooms/Parlours In Their Houses. This Suggests That More Than One-Third

Of The Respondents Had One Living Room, While Respondents With More Than Three Living Rooms Were The Least. However, Exactly One-Third Of The Respondents Had No Living Rooms In Their Houses, Which Indicates Inadequacy Of Rooms In The Houses Among The Respondents.

The Table Also Shows That The Number Of Bathrooms In The Houses In The Respondents' Houses. The Finding Reveals That 81(27%) Of The Respondents Have No Bathrooms In Their Houses,110(37%) Have Only One Bathroom, 46(15%) Have Two Bathrooms, 20(7%) Have Three Bathrooms, While 43(14%) Of The Respondents Have More Than Three Living Rooms In Their Houses. This Finding Reveals That Majority Of The Houses In The Area Have No Adequate Bathroom For The Bathing Of The Household Members. The Finding Is In Line With The Findings Of Previous Studies That Housing Facilities In Traditional And Informal Houses Are Inadequate ([22]& [23]).

Table 5: Number Of Living Rooms In The Houses

Living Rooms And Bathrooms	Frequency	Percentages
No. Of Living Rooms		
Not Available	90	30
One Living Room/Parlour	129	43
Two Living Rooms/Parlours	60	20
Three Living Rooms/Parlours	16	5
More Than Three Living Rooms/Parlours	5	2
Total	**300**	**100.0**
Number Of Bathrooms		
Not Available	81	27
One Bathroom	110	37
Two Bathrooms	46	15
Three Bathrooms	20	7
More Than Threebathrooms	43	14
Total	**300**	**100**

Source: Field Survey, 2015

3.1.6: Number Of Windows Per Rooms And **Direction Of Windows**

Table 6 Shows The Number Of Windows Per Rooms In The Respondents' Houses. The Table Also Shows That 193(64.4%) Of The Respondents Had One Window, 99(33%) Had Two Windows, 7(2.3%) Had Three Rooms, And 1(0.3%) Had Four Rooms. The Finding Reveals That Majority Of The Respondents Have Only One Window In Their Houses. Furthermore, The Table Also Shows The Direction The Windows Of The Sampled Houses. The Findings Show That 53 (18%) Of The Respondents Have Windows That Face Only One Direction. In Addition, 127 (42%) Of The Respondents Have Windows That Face North And South Direction, 27 (9%) Have Windows Facing Three Directions, And 48 (16%) Have Windows That Face All Directions, And 45 (15%) Have Windows With Direction Facing East Or West. The Sustainable Implication Of This Is That Majority Of The Windows Of The Sampled Houses Do Not Have Adequate Ventilation That Will Affect Natural Lightening In The Houses Although This Could Depend Upon The Sizes Or Dimension Of The Windows.

Table 6: Number Of Windows Per Rooms And Direction Of Windows

Number And Direction Of Windows	Frequency	Percentage (%)
Number Of Windows		
One Window	193	64.4
Two Windows	99	33
Three Windows	7	2.3
Four Windows	1	0.3
Total	**300**	**100**
Direction Of Windows		
Only One Direction (N Or E Or S Or W)	53	18
Two Directions (N And S)	127	42
Three Directions(N,S&W; N,S & E)	27	9
All Directions	48	16
Only East Or West Directions	45	15

Total	**300**	**100**

Source: Field Survey, 2015

3.1.7: Sizes Of The Windows And Dimension Of Courtyards

Table 7 Depicts The Dimension Of The Windows. The Finding Shows That 11(4%) Of The Respondents Have Windows With 25cm By 25m Size, 132(44%) Have 50cm By 50cm Windows, 70(23.3%) Have 75cm By 75cm Window Size, 30(10%) Have Of 1m By 1m Window Size, And 56(18.7%) Of The Respondents Have More Than Windows With 1m By 1m Size. This Shows That Majority Of The Windows Are Small Thereby Limiting The Amount Of Air And Light To Penetrate Into The Rooms For Adequate Fresh Air And Light. The Table Also Revealed That 197(66%) Of The Respondents Have Courtyards With 1msq - 10msq 37%, 78(25%) Have Courtyards With 11msq - 25msq Dimension, 18(6%) Have 26msq - 50msqcourtyards And 7(2%) Of The Respondents Have More Than 50msq Courtyards. The Finding Also Reveals That Majority Of The Respondents Have Small Windows In Their Houses. The Sustainable Implication Of This Finding Is Adequate Ventilation, Circulation Of Air And Penetration Of Natural Light Could Be Affected And In Turn Might Results Poor Health Among The Residents.

Table 7: Sizes Of The Windows And Dimension Of Courtyards

Windows Sizes And Dimension Of Courtyards	**Frequency**	**Percentage (%)**
Windows Sizes		
25cm By 25cm	11	4
50cm By 50cm	132	44
75cm By 75cm	70	23
1m By 1m	30	10
More Than 1m By 1m	57	19
Total	**300**	**100**
Dimension Of Courtyard		
1msq - 10msq	197	66
11msq - 25msq	78	26
26msq - 50msq	18	6
More Than 50msq	7	2
Total	**300**	**100**

Source: Field Survey, 2015

3.1.8: Conditions Of Housing Environment

Table 8 Shows The Condition Of Housing Environment In The Study Area. The Finding Revealed That 165(55%) Of The Respondents Littered With Dirt And Noisy, 52(17%) Have Not Spacious And Has Rumbles Of Structures/Unpleasing To The Eye, 45(15%) Have Free From Hazard And Neat, 25(8%) Have Neat, Airy And Pleasing, And 13(4%) Free From Hazard, Neat, Airy And Aesthetically Pleasing. This Finding Revealed That More Than Half Of The Respondents Live In Housing Environment That Is Dirty And Noisy, Which Will Create Pollution In The Environment. This Pollution Will Have Serious Effects On The Health Of The Residents.

Table 8: Condition Of Housing Environment

Condition Of The Environment	**Frequency**	**Percent**
Littered With Dirt And Noisy	165	55
Not Spacious With Rumbles Of Structures/Unpleasing To The Eye	52	17.3
Free From Hazard And Neat	45	15
Neat, Airy And Pleasing	25	8.3
Free From Hazard, Neat, Airy And Aesthetically Pleasing	13	4.3
Total	300	100

Source: Field Survey, 2015

3.1.9: Type Of Landscaping In The Houses

Table 9 Shows The Type Of Landscaping In The Houses In The Area. The Finding Reveals That 219(73%) Of The Respondents Have No Landscaping In Their Houses, 10(3%) Used Cement Mixed

Landscape, 11(4%) Use Tiles Or Interlocks For Landscaping, 1(0.3%) Use Trees And Grasses For Landscaping, 59(20%) Of The Respondents Use Hedges For Landscaping In The Area. The Finding Reveals That The Respondents Use Various Materials For Landscaping In The Area, Although Majority Have No Landscaping In The Study Area. The Finding Also Indicates That In Traditional Or Informal Housing Environment, Landscaping Is Not Given A Priority In The Area, Despite Its Environmental Protection And Beautification.

Table 9: Type Of Landscaping In The House

Types Of Landscaping	Frequency	Percent
Not Applicable	219	73
Cement Mixed Landscape	10	3.3
Tiles/Interlock Landscape/Terrazzo	11	3.7
Trees And Grasses	1	0.3
Ornamental Flowers An Hedges	59	19.7
Total	300	100

Source: Field Survey, 2015

3.2 Characteristics Of Neighbourhood Facilities In The Study Area

3.2.1: Sources Of Water Supply

Table 10 Shows The Sources Of Water Supply Among The Respondents In The Study Area. The Table Reveals That 103 (34%) Of The Respondents Used Hand Dug Well As The Main Source Of Water Supply In The Study Area And 8 (9%) Source Water From Water Vendor, 32(11%) Source From Borehole, 45(15%) Source From Municipal Tap Water, And 92 (31%) Of The Respondents Source Water From Both Borehole And Tap. This Finding Revealed That The Respondents In The Study Area Source Their Water Used For Domestics And Other Usage From Various Sources With More Than One-Third Sourcing Their Water From Wells And Water Vendors. The Finding Also Indicates That The Respondents Have Little Access To Public Municipal Tap Water Provided By Government In The Area.

Table 10: Sources Of Water Supply

Sources Of Water Supply	Frequency	Percent
Hand Dug Well	103	34.3
Water Vendors	28	9.3
Borehole	32	10.7
Municipal Tap Water	45	15
Borehole And Tap	92	30.7
Total	**300**	**100**

Source: Field Survey, 2015

3.2.2: Method Of Waste Disposal

Table 11 Shows The Methods Of Waste Disposal In The Study Area. The Finding Revealed That 26(9%) Of The Respondents Dispose Their Wastes In The Gutter/Drainage, 172(57%) Dispose In Uncompleted Buildings Or Open Spaces, 2(1%) Dispose In The Incinerator/ Burnt It, 82(27%) Dispose At Dump Site Provided By Government And 18(6%) Dispose Their Wastes At The Bins/Buckets Provided By Private Waste Disposal Agencies. The Finding Reveals That The Respondents Dispose The Waste Generated From Their Homes In Various Places, But Majority Dispose The Waste In Unauthorised Dumping Sites In The Area.The Implication Of This Finding Is That Policies Towards Sustainable Environmental Sanitation Should Focus On Provision Of Adequate Dumping Sites In The Area And Government Should Ensure Appropriate Waste Deposition In The Authorised Sites Such As Public Bins And Buckets.

Table 11: Method Of Waste Disposal

Method Of Waste Disposal	Frequency	Percent
In The Gutter/Drainage	26	8.7
In Uncompleted Building/Any Available Space	172	57
Incinerator/Burn It	2	1
At Dumpsite Provided By Government	82	27
Bins/Buckets Provided By Private Waste Disposal Agencies	18	6

Total	300	100

Source: Field Survey, 2015

3.2.3: Proximity To Public Facilities(School/ Hospital/Market/Security Post)

Table 11 Depicts The Proximity To Public Facilities In The Study Area. The Finding Shows That 135 (45%) Of The Respondents Claimed That There Are No Public Facilities Closer To Them In Their Area, 160(53%) Have Only One Among The Listed Facilities, 3(1%) Have Two Of The Facilities, And 2(0.7%) Of The Respondents Have Proximity To More Than Two Of The Facilities. This Finding Reveals That Majority Of The Respondents Have No Public Facilities Or Have Proximity To Only One Facility In Their Area. The Sustainability Implication Of This Finding Is That Any Policy The Target Future Provision And Improvement Of Public Facilities Should Focus On The Proximity Of Such Facilities For Maximum And Convenient Utilisation Among The Residents In The Area.

Table 12: Proximity To Facilities(School/ Hospital/Market/Security Post)

Proximity To Facilities	**Frequency**	**Percent**
No Facilities	135	45
One Facility	160	53.3
Two Facilities	3	1
More Than Two Facilities	2	0.7
Total	**300**	**100**

Source: Field Survey, 2015

3.2.4: Multiple Regression Model Summary, Anova And Coefficient

To Find Out The Best Predictor For Ventilation In The Study Area A Stepwise Multiple Linear Regression Model Was Used. Prior To Result Interpretation, Classical Assumption Of Linear Regression According To [24], [25] And [26]Were Checked. An Inspection Of Normal P-P Plot Of Regression Standardized Residuals Revealed That All The Observed Values Are From Normally Distributed Population. Furthermore, The Scatter Plot (Standardized) Predicted Values Against Observed Values Indicated That The Relationship Between The Dependant Variable And The Predictors Is Linear And The Residuals Variances Are Equal Or Constant.In Addition, Collinearity Diagnostic Table Obtained Indicates That None Of The Models Dimensions Has Conditional Index Above The Threshold Limit Of 30.0 And None Of The Tolerance Values Is Smaller Than 0.10 And None Of The Variance Inflation Factor (Vif) Statistics Is Less Than 10.0. This Indicated That There Is No Multicollinearity Among The Predictors' Variables Of The Model. Since There Is No Multicollinearity Problem, The Predictors In The Ventilation And Lighting Of Room In The Final Models And The Classification Assumptions Of Normality, Linearity And Equality Of Variance Are Met. It Is Reasonable To Conclude That The Estimated Multiple Linear Regression Models To Explain Ventilation And Lighting Of Rooms In Giginyu Are Stable, Good And Quite Respectable. Furthermore, Based On The Stepwise Method Of Linear Regressions, Four Predictors Variables Were Found To Be Of Significance In Explain Ventilation And Room Lighting (Table 13), They Are Number Of Rooms, Number Of Windows In Each Room, Windows Direction, And Size Of Window, Other Variables That Did Not Contribute To Explaining Ventilation Were Excluded. Obtained R-Square Of 0.912in Table 13 Means That The Four-Predictor Variables Explained About 91.2% Of The Ventilation Variation In Giginyu.

The Anova Table (Table 14) Revealed That The F-Statistics (F =763.581) Was Very Large And The Corresponding P Value Was Highly Significant (P = 0.0001) Or Lower Than The Alpha Value (0.05). The Result In Table 15 Also Revealed That The Largest Beta Coefficient Was Direction Window Faces With 0.682, Which Means That The Direction Window Faces Makes The Strongest Unique Contributions In Explaining The Variation Of Ventilation And Room Lighting When The Variance Explained By Other Predictors In The Model Is Controlled. This Indicates That As One Standard Deviation Increases In The Concentration Of Direction Windows Faces, 0.682 Standard Deviation Increases In The Variation Of Ventilation And Room Lighting In The Study Area. The Beta Value For Size Of Windows Was The Second Highest (0.562), Followed By Number Of Windows In The Room (0.051), While The Least Was Number Of Rooms In The Houses (0.007).Furthermore, Direction Of Window Faces And Size Of Windows Are All Significant Factors That Predict Ventilation And Room Lighting In The Houses In The Study Area.

Table 13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error Of The Estimate	Change Statistics				
					R Square Change	F Change	Df1	Df 2	Sig. F Change
1	.955[a]	.912	.911	.411	.912	763.581	4	293	.000

A. Predictors: (Constant), Sizes Of The Windows , Number Of Rooms In The Household, Direction Window Faces, Number Of Windows In Each Room

B. Dependent Variable: Ventilation And Lighting Of Room

Table 14: Anova

Model		Sum Of Squares	Df	Mean Square	F	Sig.
	Regression	516.530	4	129.133	763.581	.000[b]
	Residual	49.550	293	.169		
	Total	566.081	297			

A. Dependent Variable: Ventilation In The Rooms

B. Predictors: (Constant), Sizes Of The Windows, Number Of Rooms ,Direction Window Faces, And Number Of Windows Per Room

Table 15: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-Order	Partial	Part	Tolerance	Vif
	(Constant)	-.732	.082		-8.948	.000					
	Number Of Rooms	.007	.026	.005	.275	.783	.302	.016	.005	.894	1.118
	Number Of Windows Per Room	.051	.057	.020	.897	.370	.553	.052	.016	.572	1.747
	Direction Window Faces	.682	.019	.664	35.176	.000	.828	.899	.608	.838	1.193
	Sizes Of The Windows	.562	.026	.489	21.562	.000	.715	.783	.373	.581	1.720

a. Dependent Variable: Ventilation in the rooms

IV. CONCLUSION

This Paper Assesses Housing Quality And Sustainable Development: A Case Study Of Giginyu, Nassarawa Local Government,Kano State. The Findings Of This Study Revealed Thatmajority Of The Respondents In The Study Area Live In Traditional Housesand Majority Of The Houses Are Occupied By Only One Household, And Source Their Water From Wells And Water Vendors. In Addition, Most Of The Houses In The Studyhave Only One Window And Are Small With Little Ventilation And Majority Of The Residents Dispose Waste In Unauthorised Dumping Sites, And More Than Half Of Them Live In Dirty And Noisy Housing Environment. Majority Of Houses In The Study Area Have No Landscaping Lackadequate Public Facilities.The Finding Also Revealed That The Direction Window Faces Makes The Strongest Unique Contributions In Explaining The Variation Of Ventilation And Room Lighting When The Variance Explained By Other Predictors In The Model Is Controlled. It Is Recommended That For The Achievement Of Sustainable Human Settlement Contained In The Sustainable Development Goals, Urban Renewal Programme And Housing Improvement By Authority Should Provide Facilities And Services And Direction Of Window Faces As Well As Size Of The Widows Need To Be Considered For Adequate Variation Of Ventilation And Room Lighting In Houses In The Study Area.

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