



ISSN 2278 – 0211 (Online)

## People Perception on the Socio-Economic Impact of Mobile Telecommunication Mast on Small Business in Mubi Town, Nigeria

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### **Abstract:**

*This research work was aimed at accessing people perception on the socio-economic impact of mobile telecommunication mast on small business in mubi town of Adamawa State. The fast rise in the use of mobile telecommunication in recent years has resulted to a rise in the amount of mobile transmission masts being built near resident's areas and the mobile telecommunication industry has a tremendous impact on the socio – economic growth of Adamawa State and Nigeria at large. The objectives are to examine the socio – economic impacts of mobile telecommunication masts on Mubi town and examine the environmental effect of telecommunication masts location experienced by resident in the study area. A total number of 100 questionnaires were administered to the respondent to examine the impact on socio – economic and effect to the environment on mobile telecommunication masts. Only 93 questionnaires were successfully analyzed by the researcher. Simple percentage, frequencies and tables were used to analyze the objectives. The study also revealed that the mobile telecommunication masts has effect on the environment thereby causing environmental pollution to its environs (i.e. emission of carbon monoxide). Based on these findings the study recommends that; the federal, state and local government, NCC, ATC and Telecommunication providers should ensure to create enlightenment/awareness campaign to the public regarding the health hazards/illness of residing near a mobile telecommunication mast as well as the new technology used in the company to avoid assumption of the people on the causes of the telecommunication masks.*

**Keywords:** Socio-economic activity, telecommunication, Mast, NCC, ATC

### **1. Introduction**

The Global Mobile System has been distinguished as a technology in which the domain communicates from a distance (Tarmo, 2010). This requires interactions both mechanical and electrical for increasingly more sophisticated electrical systems, the communication system has developed from conventional mechanical to electrical type. That's why many authorities like the National Post, Postal, and Telephone (PTT) firms are participating in both types of telecoms. This gave birth to the governing body of the European Conference of Postal and Telecommunications Administrations of the Global System for Mobile Communication (GSM) in 1982. In Europe, the use of commercial land based cellular mobile telephony has increased dramatically since the first services appeared in the root of the 1980's, particularly with the introduction of the digital GSM 900/1800 systems in 1990's. Today, GSM has become a global, regional and local system for communications. The organization applies a time division multiple accesses which enables more people to communicate simultaneously with a station (Bortkiewitz, Zmyslony and Gadzicka, 2008).

In Nigeria, the quick rise in the usage of GSM in recent years has resulted in a boost in the total of mobile transmission masts being built in or near residential areas. Agreeing to the Nigerian Communication Commission (NCC), the technical specification for the installation of telecoms masts and towers shall be shortened by a minimum of 50 metres from the right-of-way of all controlled access to federal and state roads / highways designated as freeways in order to provide unobstructed flight. The range for setback shall also be 5 meters from any estate other than the fence (NCC, 2016). The telecommunications industry is essential and considered a vital part of our everyday life. The telecom industry has developed quickly over the last two decades. According to ITU (2009) statistics, from nearly a zero base in the early 1980s, the mobile telecommunication penetration worldwide in 2002 was calculated at 15.57 mobile phones per 100 people worldwide. European states were likewise the first to set up and commercialize mobile cellular networks, with the first mobile cellular subscriptions recorded in Finland as early as 1980, followed soon after by Sweden, Norway, and Denmark. Mobile cellular has been the most rapidly adopted technology in history. It is anticipated that the number of mobile phone

subscribers globally will grow to billions. Today it is the most popular and widespread personal technology on the planet, with an estimated 4.6 billion subscriptions globally by the close of 2009 (ITU, 2009; Jones.2009):

After the implementation of GSM in Mubi Town, there are still issues related with the infrastructures resulting in severe environmental, physical and socioeconomic impacts on individuals within the survey area (Bello, 2010).

### 1.1. The Study Area

The study area lies between latitudes 10° 15' 0" and 10° 30' 0" North of the equator and between longitudes 13°15' 0" E and 13°30'0" East of the Greenwich Meridian Adebayo and Tukur (1999). Mubi town is the metropolitan headquarters of Mubi North and South Local Government Areas of Adamawa State. This local government area shares common boundary with Hong Local Government Area to the west, Michika to the North, and with Cameroon Republic in the East.

#### 1.1.1. Economic and Social Activities

The fertile nature of the river valley and flood plains makes it a great sugar cane growing region. The subject region is endowed with abundant ground water which aids in both rainy and dry season farming. The people of this area are predominantly farmers producing crops such as maize, sorghum, cassava, groundnuts, Bennie-seed, sugar-cane, Bambara nuts both sweet and Irish potatoes, and beans on a commercial scale. Since, most of the villages are characterized by farm activities, you find less awareness about health and health-related concerns amidst its populace. While in the academic environment, mostly within Mumbai Metropolis, there is high sensitization about maternal checkups, and equally there is a concentration of maternal health centres and facilities within the town. Here you find higher institutions of learning such as the Adamawa State University, the Federal Polytechnic, the College of Health Technology and several post primary schools. Mubi town has a central market which notably attracts visitors from other parts of the country and even neighboring countries like Cameroon, Niger, Chad and Central African Republic. The official market day of the metropolis is Wednesday, as such, you find villagers coming to the market enroot clinics and wellness centres to seek for medical help after or before trading their commodities.

## 2. Materials and Methods

This segment discussed the method employed in this research work which includes: Data types and sources, methods of data collection and methods of information analysis.

### 2.1. Data Types and Sources

This research employed both the primary and secondary types of data. The primary source of data involves questionnaire and the secondary type of data includes the literatures which was collected from the previous scholarly works and these includes related journals/publications, articles, textbooks, newspapers, thesis/dissertation and conference papers.

### 2.2. Method of Data Collection

The method of data collection for this study was through the distribution of questionnaires, whereby questionnaires will be produced and distributed to the respondents in Mubi Metropolis for the purpose of this study. The questionnaire was closed ended questionnaires which were distributed randomly to the occupiers of the study region. A reconnaissance survey of the work region was run-out by the researcher, whereby co-ordinates of telecommunication masts were captured using the GPS and digitized for the design of the survey.

### 2.3. Method of Data Analysis

The various information obtained for the survey were analysed using some relevant statistical techniques such as descriptive statistics, which include tables and simple percentages was used to study the socioeconomic impact of mobile telecommunication masts on Mubi town, examine the environmental effects of telecommunication mast location experienced by residents within the subject region.

## 3. Results and Discussion

### 3.1. Introduction

This section provides the discussion and the results of all the data collected and analysed from the area of study during this research period. Data was collected through purposive random sampling techniques. The quantitative data were analysed using descriptive statistics, which were represented in the forms of tables, percentages and charts.

### 3.2. The Socioeconomic Impact and Environmental Effect of Mobile Telecommunication Masts in Mubi Town

This was obtained by the purposive random sampling of questionnaires to the respondents in the study area. Most of the respondents in this community which represents 51% are engaged in Charging of Phone and Selling of Recharge Cards (Table 9). Table 10 indicates the income of the respondents on their community, from the income of these respondents which indicated 24% (i.e. the majority of the respondents) said Mobile Telecommunication masts had contributed greatly to the socio-economic activities of the residents in Mubi town, thereby craving various business opportunity in the study area.

3.3. Business Located and proximity to Mobile Telecommunication Mast

The table 7 indicates that 37% of the respondents which is 37 responded that their business is located close to a mobile telecommunication masts, while 63% of the respondents which represents 63 responded that their business is not located close to a mobile telecommunication mast. This indicates that almost all of the respondents said No that their business is located close a mobile telecommunication mast, and these types of business varies from different sources of income and operation. This will enable the researcher to get adequate information to analyze the environmental and socio – economic impact of Mobile Telecommunication Masts in the study area.

Variables	Frequency	Percentage (%)
Yes	03	03
No	90	97
Total	93	100

Table 8: Sources of Power Supply from the Mobile Telecommunication Masts  
Source: Field Survey, 2020

3.4. Is the Source of Your Power Supply Gotten from the Mobile Telecommunication Masts

Table 8 indicates that 97% of the respondents said that their source of power supply for their business operation was not gotten from the Mobile Telecommunication Masts, while 03% of the respondents said the they do obtain their power supply for the mobile telecommunication masts which is erected close to them. This indicates that majority of the respondents were of the opinion that sources of power supply was not from the mobile telecommunication masts because of one factor or the other. The first factor is proximity and the other factor of mobile telecommunication operators do not provide power source for everyone, if they do provide power supply is due to one condition or other and it is always based on agreement for this power source to be supplied to you.

Variables	Frequency	Percentage (%)
Charging of Phone and Selling of Recharge Cards	48	51
Provision Store and Cool Drinks	35	37
Others (Specify)	10	12
Total	93	100

Table 9: Type of Business You Engage in Your Community  
Source: Field Survey, 2020

3.5. Types of Business You Engage in Your Community

The table 9 depicts that 51% of the respondents said that they are engage in charging of phones and selling of mobile recharge cards from any network, 37% of the respondents said they are engage in provision store and cool drinks selling this is to say that they do combine both of them for their business operation, while 12% of the respondents are the categories of the respondents that did not disclose the type of business they are engage in their various community. This implies that majority of the respondents are engage in charging of phones and selling of recharge cards as their mode of business, because this type of business does not consume large amount of power supply.

Variables	Frequency	Percentage (%)
₦5,000 – ₦10,000	38	41
₦11,000 – ₦20,000	22	24
₦21,000 – ₦30,000	18	20
₦31,000 – ₦40,000	10	10
Others (Specify)	5	5
Total	93	100

Table 10: Daily Income from the Operation of Your Business  
Source: Field Survey, 2020

Variables	Frequency	Percentage (%)
Yes	0	
No	93	100
Total	93	100

Table 11: Challenges Faced With Your Business Since It Is Located Close To The Mobile Telecommunication Masts  
Source: Field Survey, 2020

The table 11 depicts that 100% of the respondents which represents 100 said No that they do not face any challenges in the operation of their business since it was not located close to the mobile telecommunication masts, while none of the respondents responded Yes. This implies that majority of the respondents said there have no challenge they experience in the operation of their business since it's not located close to mobile telecommunication masts.

Variables	Frequency	Percentage (%)
Yes	93	100
No	0	0
Total	93	100

*Table 12: Negative Effect on the Environment  
Source: Field Survey, 2020*

The table depicts that all of the respondents said that mobile telecommunication masts have a very tremendous effect on the environment whereby, apart from noise pollution which not all mobile telecommunication has that problem, but the emission of carbon mono-oxide produce these generators to power the mobile telecommunication masts has effect on the ozone layers, which causes the deletion on this layers, thereby causing the penetration of ultraviolet rays to the earth and causes a large amount negative effect to the environment.

Variables	Frequency	Percentage (%)
Noise	9	9.6
Pollutants	13	13.9
Smoke Emission	28	30.5
RF Emission	34	36.5
Petrochemical Waste	9	9.6
No Effect	0	0
Total	93	100

*Table 13: Ways Mobile Telecommunication Masts Affects the Environment  
Source: Field Survey, 2020*

Table 13 indicates that 9.6% of the respondents responded that noise pollution is the effect of the mobile telecommunication masts in their environment, 13.9% of the respondents said that pollutants are the ways which mobile telecommunication masts affects their environment, 30.5% of the respondents said that smoke emission, 36.5% respondents said that RF Emission is that way which mobile telecommunication affects their environment, 9.6% of the respondents said that petrochemical waste is the major way in which their environment is being affected by the mobile telecommunication masts, while none of the respondents responded to the above mention questions. This implies that majority of the respondents responded that RF emission is one of the major way that the mobile telecommunication masts have affects their environment, but with increase in diverse research the mobile telecommunication masts have no or little effect on its residents leaving close to it or its effects is now reduced to a minimal level of effect.

Variables	Frequency	Percentage (%)
Yes	53	57
No	40	43
Total	93	100

*Table 14: Posed Effects on Residents Close to the Masts.  
Source: Field Survey, 2020*

### 3.6. Effects of Mobile Telecommunication Masts on Residents

Table 14 depicts whether mobile telecommunication masts have posed effects on residents close to the masts, 57% of the respondents which represents 53 said Yes, while 43% of the respondents responded No. This implies that majority of the respondents said Yes, that mobile telecommunication masts posed effects on its residents close to the masts, considering the exposure levels and research results collected to date, there is a little convincing scientific evidence that the weak RF signals from base stations and wireless networks cause adverse health effects on its residents living close to the mobile telecommunication masts. The Nigerian Communication Commission (NCC), in the pursuance of its regulatory functions in ensuring compliance with acceptable environmental, public health and safety standards, conducts regular measurements of Electromagnetic field (EMF) on Base Transceiver Station (BTS) across the country.

Variables	Frequency	Percentage (%)
Hearing Disorder	21	24
Respiratory Disease	25	27
Sleeping Disorder	28	30
Physical Harm	10	10
None	9	9
Total	93	100

*Table 15: Type of Health Hazards/Illness posed by Mobile Telecommunication Masts to the Residents  
Source: Field Survey, 2020*

Table 15 Depicts that 24% of the respondents responded that hearing disorder is the type of health hazards/illness posed by the mobile telecommunication masts, 27% of the respondents responded that respiratory

disease is the health hazards/illness that been posed, 30% of the respondents responded that sleeping disorder is the health hazards/illness, 10% of the respondents responded that physical harm is the type health hazards/illness, while 9% of the respondents responded that the mobile telecommunication masts does not posed any health hazards/illness to the residents living close to the masts. This indicates majority of the respondents said sleeping disorder is the type of health hazard/illness that is been posed to them by the mobile telecommunication masts.

#### 4. Summary, Conclusion and Recommendations

##### 4.1. Summary

From the above analysis, mobile telecommunication masts erection in Mubi town has created business opportunities to some of its residents living close and far to the mobile telecommunication masts, this business opportunities ranges from charging of cell phones and selling of recharge cards which among one of the fastest growing business among Mubi residents. Just a few numbers of mobile telecommunication use solar lightening, but with that there is always constant power supply at the mobile telecommunication station but on a regulated level to the business operator.

It also reveals that; Mobile telecommunication masts have posed negative effects on the environment and these negative effects includes the noise, vibration and fumes generated from the standby power generators cause pollution to the environment. The engine oil when changed from the generator also spilled out and pollutes that land around the environment.

The study also reveals that, Mobile telecommunication masts posed an effect on health of residents close to the masts and not only residents living close to the masts but residents around the masts. The mobile telecommunication masts release electromagnetic waves and this waves that is being released causes short term memory, sleep disorder, increase in leukemia, partial deafening headache, risk of brain tumor and speed of cancerous growth amongst others.

##### 4.2. Conclusion

In conclusion, this study has analyzed the socio-economic impact of mobile telecommunication masts on Mubi residents, Adamawa State. The study had revealed positive impact of mobile telecommunication masts on the socio - economic activities of the people in the study area.

##### 4.3. Recommendations

The NCC, NESREA, ATC and Telecommunication network company in conjunction with the Federal, State and Local government to create enlightenment/awareness campaign to the public regarding the health hazards/illness of residing near a mobile telecommunication mast as well as the new technology in telecommunication and their effect on humans so as to eradicate the people perception on the telecommunication masks.

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