

(which did not encroach into the powerline right-of-way) thereby making the shops or additional rooms encroach into the setbacks of powerline. Furthermore, 87% (89) were willing to relocate if compensated by the government, while 13% (13) were not. 41% (42) of the respondents said they do not experience reduction in property value while 59% (60) said they do. 5% (3) said proximity to overhead powerline was the reason for the reduction in property value, 12% (7) said inadequacy of infrastructural facilities, 35% (48) said irregular power supply, whereas 25% (15) had other reasons. Therefore, irregular power supply is the major reason for the reduction in the value of properties on the right-of-way of overhead powerlines. Moreso, 37% (145) of the respondents in the study area said they were aware of the hazards associated with medium voltage powerline, while 63% (251) said they were not aware. That is to say that a greater percentage of the respondents in the study area were not cognizant of the fact that residing on the buffer corridor of powerlines were dangerous.

Conclusion

From this study, it is clear that 4% (1,692) of the buildings in the study area encroached into the medium voltage powerline right-of-

way. This showcased the inadequacy, on the part of the government, in monitoring developmental activities in the study area. These buildings, as observed, are mostly rooming/face to face, concrete buildings not more than 20 years of age, used for commercial purposes. They are occupied by predominantly poor indigens who are not well educated and therefore ignorant of the hazards associated with proximity to powerlines.

This study also showed the usefulness of Geographic Information System (GIS) in developmental planning, monitoring and regulation compliance.

Recommendations

It is therefore recommended that the base map of the medium voltage powerline produced in the course of this research should be used by the government in decision making and for future developmental planning.

Furthermore, all one thousand six hundred and ninety-two (1,692) building siting on the setbacks of powerline should be demolished and the rights-of-way landscaped or beautiful trees and shrubs planted there as this will serve as another way of improving the ecosystem. There is also need for massive public sensitization on the possible

hazards associated with living in proximity to powerline.

Also, the inhabitants should be relocation and the property owners compensated. There is need for the provision of affordable low-cost housing estates for the low-income earners in the study area.

The Bayelsa state government should pass into law and also ensure strict adherence to setbacks as stipulated by the Nigerian Electricity Supply and Installation Standard Regulation (2015).

REFERENCES

- Abdulkareem, G. A. (2016). Evaluation and mitigation of technical losses on power lines: A case study of Nigeria 330-Kv network (Doctoral dissertation). Covenant University, Ota, Ogun State, Nigeria.
- Abidoye, R. B. & Oyedeji, J. O. (2014). The impact of high voltage power lines on residential property values in selected parts of Lagos State. *Journal of International Academic Research for Multidisciplinary*, 2(8),443-453.
- Anderson, O. C., Williamson, J. & Wohl, A. (2017). The effect of high-voltage overhead transmission lines on property values: A review of the literature since 2010. *The Appraisal Journal*. Retrieved from <http://www.appraisalinstitute.org>.
- Brown, D. (1976). The effect of power line structures and easements on farm land values. *Right of Way*, 33–8.
- Chalmers, J.A. and Voorvaart, F.A. (2009). High-Voltage Transmission Lines: Proximity, Visibility and Encumbrance Effects. *The Appraisal Journal*, (Summer ed.), 227–45.
- Delaney, C. J. & Timmons, D. (1992). High voltage power lines: Do they affect residential property value? *Journal of Real Estate Research*, 7(3), 315–29.
- Draper, G., Vincent, T., Kroll, M. E., & Swanson, J. (2005). Childhood cancer in relation to distance from high voltage power lines in England and Wales: A case-control study. *British Medical Journal*, 330.
- Elliott, P., Shaddick, G., Douglass, M., de Hoogh, K., Briggs, D. J. & Toledano, M. B. (2013). Adult cancers near high-voltage overhead power lines. *Epidemiology*, 24(2), 184–190.
- Fahria, M. (2009). Urban Fringe Management and Role of Good Governance: Integrating Stakeholders in Land Management Process. Paper presented at the Seventh FIG Regional Conference Spatial Data Serving People: Land Governance and the Environment – Building the Capacity (19–22), Hanoi, Vietnam.
- Gönen, T. (2014). *Electrical power transmission system engineering: Analysis and design* (3rd ed.). CRC Press. Retrieved from:

- https://en.wikipedia.org/wiki/Overhead_power_line Accessed August 2018.
- Jackson, T. O & Pitts, J. (2010). The effects of electric transmission lines on property values: A literature review. *Journal of Real Estate Literature*, 18 (2).
- Kinnard, W. N. (1967). Tower lines and residential property values. *The Appraisal Journal*, 269–84.
- Kung, H. & Seagle, C. F. (1992). Impact of power transmission lines on property values: A case study. *The Appraisal Journal*, 60(3), 413–18.
- Nigerian Electricity Supply and Installation Standards Regulation (2015): Transmission lines. Right-of-way. 01, 50.
- Nkeki, F. N. (2013). Living near high-voltage power lines: GIS-based modelling of the risk in Nigeria's Benin region. *Applied GIS*, 9(1), 1-20.
- Nwofe, P. A. (2016). Electrical and power lines hazards: Implications and mitigation (A case study). *Advances in Natural and Applied Sciences*, 10(8), 108.
- Ochei, M. (2020, December 22). Two disco workers electrocuted in Delta. Punch online newspaper. [https://punchng-com.cdn.ampproject.org/v/s/punchng.com/two-disco-workers-electrocuted-in-delta](https://punchng.com.cdn.ampproject.org/v/s/punchng.com/two-disco-workers-electrocuted-in-delta)
- Olamiju, I.O. & Oyinloye, M.A. (2015). Characteristics and vulnerability of houses under overhead high-tension powerline in Akure, Nigeria. *World Environment*, 5(3), 121-133.
- Olasunkanmi O. (2015). *Planning and health implications of land use encroachment on setback of high-tension power lines in Agbado, Ogun State, Nigeria*. Conference Paper presented at the School of Environmental Studies, Federal Polytechnic Ilaro. https://www.researchgate.net/publication/317674274_planning_and_health_implications_of_land_use_encroachment_on_setback_of_high_tension_power_lines_in_agbado_ogun_state_nigeria.
- Solum, C. L. (1985). Transmission line easement effect on rural land in Northwest Wisconsin. *Right of Way*, 14–8.
- Priestley, T. & Evans, G. W. (1996). Resident perceptions of a nearby electric transmission line. In Chava & David: (2009): Winter, 2009. *Journal of Environmental Psychology*, 65–74.
- Punch online Newspaper (2017). Saving Nigerians from electrocution. <https://punchng.com/saving-nigerians-from-electrocution>.
- Punch online Newspaper (2020). High rate of electrocution, unpardonable. <https://punchng.com.cdn.ampproject.org>.
- THISDAY online Newspaper (2018). Death by electrocution. <https://www.thisdaylive.com/index.php/2018/06/29/death-by-electrocution-2/>.
- Usikalu, M. R., Olawole, C. O., & Ikeh, I. T. (2004). Safe distance to extremely low frequency radiation associated with power transmission lines located in Ota, Southwest, Nigeria. *International*

*Journal of Engineering &
Technology, 14(02), 118-121.*

Wolverton, M.L. & Bottemiller, S.C.
(2003). Further analysis of

transmission line impact on
residential property values. *The
Appraisal Journal, 244-252.*

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