

EGU2020-831

<https://doi.org/10.5194/egusphere-egu2020-831>

EGU General Assembly 2020

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



## Gully Erosion: A Threat to Livable Cities in Developing Countries

**Adeyemi Olusola<sup>1</sup>** and Samuel Yakubu<sup>2</sup>

<sup>1</sup>UNIVERSITY OF IBADAN, GEOGRAPHY, IBADAN, Nigeria (olusolaadeyemi.ao@gmail.com)

<sup>2</sup>Osun State University, Osogbo, Nigeria (samsamyakubu@gmail.com)

The United Nations Centre for Human Settlement in 2007 estimated that out of about 6 billion people in the world, 3 billion (50%) live in urban cities. A projection of about 61% of the total world population will be living in urban cities by 2030. As these cities grow, certain aspects of the urban space are significantly affected due to this unavoidable growth especially in developing countries. Aspects such as demographic, environmental and economic are severely altered. This study employs a 'mixed approach' to explaining how gully erosion, is a threat to liveable settlements/cities in the 21st century. The first part of the study is a meta-research on gully erosion and how it affects human settlements in Nigeria, then a field study on gullies within Osogbo Metropolis, southwestern Nigeria, its morphology and distribution. The morphology (width and depth) of each of the identified gully was determined using standard instruments. Structures around the gullies were also identified spatially using a handheld GPS (Global Positioning System). Gully clusters were analysed using Moran I index. The identified gullies within Osogbo Metropolis at its deepest section are about 10metres, while the widest of the gullies is 2.5metres. On the average the measured gullies are about 0.7meteres wide and 1.7meteres deep. All the measured gullies are still undergoing downcutting and almost all of them are affecting one structure or the other within their catchment area. Given a z-score of -0.40 and -1.15 Moran I index I, the pattern does not appear to be significantly different than random. Hence, the occurrence of these gullies cannot be said to be associated with natural factors like lithology or soil properties. Out of the twelve major gullies identified, nine (9) were as a result of poor engineering, largely due to the on-going urban renewal process. Osogbo and elsewhere in Nigeria suffer from the havocs of gully erosion. Urban sprawl coupled with urban renewal processes in many parts Nigeira (particularly in the Third World) leads to the rapid development of large gully channels (urban gullies) endangering the bearing function of soils and causing damage to infrastructure and private property. The implication of the result is that, as good as the renewal process being carried out mostly in southwestern cities is a good one especially to achieve livable cities in the 21st century, there is the need for such planning to ensure that most engineering works adhere to best practices. The government at all levels in Nigeria and stakeholders in environmental management should ensure proper planning and make it a duty to create cities that are livable and healthy.