



Criteria for Site Selection for Human Activities Generating Pollutants for Anambra State

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Abstract: Site of human activities in Anambra State has been based on availability and proximity of open spaces to users, resulting to groundwater pollution due to pollutants migration through porous rocks. To this effect, a study was carried out, using an infiltrometer to investigate the velocities of pollutants (four fluids) through five sedimentary formations of varying lithological characteristics, with a view to ascertaining the criteria for site human activities that generate mobile pollutants of the area, and to establish, using the velocities, the suitable formation for such activities. A purposive/judgmental sampling technique was used to select the formations used. The study tested the following hypotheses: ((i) the velocity of pollutants through a geologic formation is not affected by its nature and (ii) the geologic formations do not allow the pollutants (fluids) at equal velocities. The following findings were made: (i) velocity of pollutants through a geologic formation is affected by its nature and, (ii) different geologic formations allow pollutants at different velocities. Consequently, the study recommended that in the planning and management of the physical environment, in order not to pollute the groundwater of the area, there should be the integration of pollutants' vertical velocity through porous rocks into water resources management of Anambra State. This is to say that shale terrains or any other formations that have, at most, porosity and hydraulic conductivity values of 18% and 2.3×10^{-8} cm/sec. respectively, should be used for human activities that generate mobile pollutants. It also recommended that site selection for various wide scales human activities that generate mobile pollutants should be based on the knowledge of underlying geology of the place in question, and not merely on the availability of such space and close proximity to users. Further research areas were also recommended.

Keywords: *Anambra, Human Activities, Pollutants, groundwater, porous rocks*

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