

## **Ecological Implication of Air Pollution From Quarrying and Stone Cutting Industries on Agriculture and Plant Biodiversity Around Quarry Sites in Mpape, Bwari Area Council, FCT, Abuja**

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**Abstract :** Quarry activities are important to modern day life and the socio-economic development of local communities. Unfortunately, this industry is usually associated with air pollution. To assess the impact of quarry dust on plant biodiversity and agriculture, PM2.5, PM10 and some meteorological parameters were measured using Gas analyzer, handheld thermometer and Multifunction Anemometer (PCE-EM 888) as well as taking a social survey. High amount of particulate matters that exceeded the international standard were recorded at the study locations which include the Julius Berger Quarry and 1km away from the quarry site which serve as the base for the farmlands. The correlation coefficient between the particulate matters with the meteorological parameters of the locations all show a strong relationship with temperature recording a stronger value of 0.952 and 0.931 for PM2.5 and PM10 respectively. Similarly, the coefficient of determination 0.906 and 0.866 shows that temperature has the highest meteorological percentage variation on PM2.5 and PM10. Furthermore, a notable negative impact of quarrying on plant biodiversity and local farm crops are also revealed based on respondents' results where wide range of local plants were affected with Maize and Azadiracta indica (Neem) been the most with respondent of 31.5% and 27.5%. According to the obtained results, it is highly recommended to develop green belt surrounding the quarrying using pollutant-tolerant trees (usually with broad leaves) in order to restrict spreading of quarrying dust via intercepting, filtering and absorbing pollutants.

**Keywords :** agriculture, air pollution, biodiversity, quarry

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