

# Estimated Weekly Intake and Potential Target Hazard Risks of Exposure to Particulate Matter (PM 2.5) Among Communities Living Near Bosowa Cement Industry, Indonesia.

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- **Abstract:** Aims; This study aims to estimate weekly intake and investigate the target hazard risk of PM2.5 exposure in ambient air among respondents around cement industry areas. Materials and Method; Analysis of gathered data used statistical test by applied linear regression in order to determine the relationship between air quality of PM2.5 with outdoor communities' activities and respiratory disturbance experienced. Estimated weekly intake calculated used the PTWI conversion and Target hazard Quotient by applying the formulation provided by the Environmental Protection Agency (EPA) and World Health Organization (WHO). Level of exposure both by environment and communities to PM2.5 within a particular time and field direct measurements were commenced at noon. 15 samples were measured of its PM 2.5 level of pollution in the period of June 2021. Results; of those 15 stations observed, the estimated weekly intake calculation results revealed that high values were in Station 6 with 0.220, followed by station 5 with 0.189 and station 7 with 0.172, respectively. Whereas, the result values of target hazard quotient (THQ) through inhalation route were high in station 11 with 0.577, then followed in station 9 with 0.561, and in station 14 with 0.514, respectively. In addition, values of THQ through dermal contact were high in station 2 and 9 with 0.008 and in station 10 with 0,007, respectively. The finding of the calculation for the acceptable risks for lifetime indicated the three high areas are not at risk with a THQ value  $\leq 1$ , but have the potential for danger and risk because PM 2.5 pollutant emissions are continuously generated and accumulated in the long term. Conclusion: The potential health disturbance among communities through inhalation have been over than one indicated potential of pulmonary illness occurrence, however, risks via dermal contact was still less than one indicates safe.
- **Keywords:** intake, hazard risk, Materials, PM2.5, EPA, THQ, pulmonary.