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Integrated environmental impact assessment of industrial pollutants using TRACI

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The integrated management of media based (both water and air) pollutants is the vital at current as the management and legalization of individual pollutant is very difficult. Integration of various environmental aspects associated with activities of production processes is one of the challenges in industrial sectors. It is of vital concern to find the scientific way of integration of media based pollutants for today. Based on amount and kind of media based pollutants, Integrated Environmental Performance Score (IEPS) is calculated applying Tool for the Reduction and Assessment of Chemical and other Environmental Impacts (TRACI). The potential impacts of individual pollutants have been modeled for water-based pollutants viz., Chemical Oxygen Demand (COD), Total Phosphorous (TP) and Total Nitrogen (TN) and air pollutants viz., Oxides of Nitrogen (NO_x), Oxides of Sulphur (SO_x) and Particles Matter (PM₁₀). A kilogram of individual pollutants is taken in modeling to compute the individual impact categories of unit pollutants. The EPS penalty of TN is obtained as highest score of 189.70 i.e. 90.82% shares among six pollutants. The total penalty score for TP, PM₁₀, TN, NO_x and SO_x, is derived as 13.53 (6.48%), 2.59 (1.24%), 1.30 (0.62%), 1.30 (0.62%) and 0.44 (0.21%), respectively. Hence, it is necessary to integrate effects of pollutants as per the scientific and justified impact caused by individual pollutants derived from the industrial facilities. Therefore, this study recommends for the compliance of EPS penalty of the pollutants based on a result of TRACI. This helps to enforce a scientific and justified polluters' pay principle.

Biography

Indira Parajuli has completed her PhD from Incheon National University, South Korea. She worked as Assistant Professor in Sapta Gandaki Multiple Campus, Tribhuvan University, Nepal from 2005 to 2006 and served as an Assistant Professor in Nepal Poly-technique Institute, Nepal from 2009 to 2011. She has over 15 years of professional experiences with various agencies including UNDP, European Union, ILO, Helvetas etc. She has more than 35 publications including text book, international journal papers, conference papers, domestic publications. She is a Member of Asian Institute for Environmental Research and Energy (A.ENERGY) and Korean Society of Atmospheric Environment since 2012.

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