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Modeling Tropical Cyclones using the TRIP Framework

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Abstract: Tropical cyclone, a recurring meteorological cataclysm, has been the eye for the diminution of the immense impacts and colossal risks to the populace and to the agricultural panorama. Track-Risk-Impact-Policy (TRIP) Modeling, a newly disaggregated approach, is used to provide a dynamic impetus to address the threats of the environmental tumult. The tropical cyclones at their most intense from the period 1950 to 2009 were considered and assessed using the decadal and monthly analyses in order to identify the tracks and hotspots. Monte Carlo simulation was done to determine the optimum risk in terms of hazard (tropical cyclones), exposure (population), and vulnerability (poverty incidence) for the risk modeling. The use of Quantum Geographic Information Systems (QGIS) was also utilized to model the impacts (e.g. agricultural damages and losses) during the mutilated visits of the most destructive tropical cyclones. With the integration of the Hyogo Framework for Action (HFA), environmental policies that respond to the catastrophic patterns and processes were expansively analyzed and ensured for the attainment of the Millennium Development Goals.

Key Words: Tropical Cyclones; tracks; risks; impacts; policies; Hyogo Framework for Action; Millennium Development Goals