Modeling Philippine Climate Risks Using Inoperability Input-Output Analysis

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ABSTRACT – The current emphasis on adaptation measures in the Philippines' climate change policies is based on the country's perceived vulnerability to anticipated shifts, such as more frequent extreme weather events, rise in sea level, and gradual onset of changes in regional precipitation. While the direct consequences of such changes in climate are relatively well-understood, there may also be less obvious indirect effects that propagate through socio-economic systems. Such "ripple effects" are the result of interdependencies that exist in infrastructure and economic networks. Inoperability input-output modeling (IIM) is a methodology for analyzing the cascading effects of disruptive events, such as the risks posed by climate change. Since it was first proposed in 2001, the IIM has been used in many countries for *ex post* analyses of recent natural calamities and malicious attacks, as well as for the simulation of possible future disaster scenarios. In this paper, we propose the use of the IIM methodology for analyzing the collateral damage that may result from climate change-induced events, such as failures of physical infrastructure systems and agricultural lands due to changes in sea level. The analysis of these scenarios clearly demonstrates how IIM can be used as an integral tool for the development of rational climate change adaptation policies in the Philippines.

Keywords: Climate change adaptation; disaster risk management; inoperability input-output modeling (IIM)