

# Unequal waters and turbid outcomes: The regressive burden of Water Related infections on income disparity

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Approximately 2.1 billion people in our planet (29% of the world population) are still vulnerable to water-related diseases, commonly referred as diseases of poverty. This paper uses an SIS model with water compartments that incorporate natural water bodies (rivers, lakes and ponds) and tanker trucks, commonly used as direct sources of water in developing countries. The paper intends to determine the contributions for waterborne-infection transmission pathways from these sources. It also explores how different epidemiological and demographical mechanisms affect the dynamics of water-borne infection and finally, study the average epi-demographical conditions under which, income inequality persists at high levels of waterborne infections. The results provide elements to construct policies to potentially decrease waterborne disease transmission in environments with economic stress and consequently, avoid widening the income disparity gap.