

GENERALISED MODEL OF THE EFFECT OF DIFFERENT CONTROL MEASURES IN REDUCING HEALTH RISKS FROM WASTE REUSE †

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ABSTRACT

Health risks from wastewater and excreta reuse are assessed using an epidemiological definition of attributable risk instead of the presence of a microbiological hazard. Measures for health protection need not rely on total pathogen removal by waste treatment processes but may include ways to prevent direct human exposure to the wastes. The range of possible options for health protection includes: waste treatment, crop restriction, localised application methods, control of human exposure, and combinations of the different methods. A generalised model is used to show the effectiveness of each option in reducing health risks to agricultural workers and consumers of the crops grown. Three different regimes are available for rendering waste reuse 'safe' to both workers and consumers, and several regimes are capable of reducing but not eliminating health risks. Case studies are given of the application of the model to wastewater and excreta reuse in agriculture and aquaculture in 6 different countries. The model can be used to aid decisions by planners and engineers to ensure that health protection measures are targetted towards specific exposed groups in the population, within their local context.

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