Governance for Environmental Protection of the Great Lakes: Recovering Nutrients from Greenhouse Post Production Water

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Nutrient loading into the Great Lakes is a large-scale environmental risk. It challenges water quality, environmental health, and the security of fresh water supply. Recovering greenhouse post production water can make a large contribution to reducing water demand, recycling nutrients, and diverting pollutants from discharge into the watershed to protect the environment and public health. Actions for recovering greenhouse post production water reuse are available, yet the governance frameworks were lacking in Ontario. The governance change drivers included heighten water management challenges in the Great Lakes, specifically Lake Erie. Risks to public health and environmental health issues such as drinking water quality and stream water quality issues added additional layers of complexity. Against this setting, the opportunities for nutrient recovery from greenhouse post production water and risks are examined. These include application of nutrient rich water for alternative crop productivity, groundwater quality, economic impact on the greenhouse sector, and available technology for water and nutrient recycling within the greenhouse. Water reuse in a greenhouse reduces the water footprint of food production on the environment; and it also entails reduction of annual fertilizer demands. The result was to better integrate greenhouse nutrient recovery and water reuse into core governance frameworks to effectively address the challenges for environmental health protection.