

DEVELOPMENT OF KNOWLEDGE TRANSLATION TOOLS

TO FOSTER THE UPTAKE OF CONSTRUCTED WETLAND TECHNOLOGIES TO TREAT RURAL WASTEWATERS

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KEY MESSAGES FOR DECISION MAKERS

Constructed wetland technologies can provide effective solutions for a wide variety of rural wastewater treatment applications with low capital and operating and management costs for the end users.



WHO IS THIS INFORMATION RELEVANT FOR?

- System designers
- Government approvals agencies
- System installers and end users (rural households, rural municipalities, agricultural producers, septage haulers)

WHAT WAS THE RESEARCH FOCUS?

The research projects addressed the design and application of constructed wetland technology in rural wastewater treatment, with a focus on design factors and kinetic rates applicable to Canadian climatic conditions.

The Knowledge Translation project aimed to develop a series of tools to aid in the dissemination of the research results to a wide audience, from end users to system designers and approval agencies.

WHAT WAS THE RESEARCH METHOD?

The research projects studied pilot to full-scale systems treating domestic, agricultural and septage waste streams using both free water surface and subsurface flow constructed wetland technologies. The extension deliverables include factsheets, YouTube videos, a design manual and a constructed wetland workshop.

WHAT WERE THE RESEARCH RESULTS?

In comparing research results from Ontario and Nova Scotia systems to those in the literature, it was found that agri-food wastewaters had significantly lower kinetic removal rates than domestic wastewater and those recommended by the literature.

WHAT ARE THE IMPLICATIONS FOR DECISION MAKERS?

- 4 to 5-minute YouTube videos and factsheets (Septage Treatment Reed Beds, Domestic Wastewater Constructed Wetlands and Milking Centre Washwater Constructed Wetlands) were developed to provide easily accessible information for end users.
- The design manual provides in-depth knowledge geared toward the system designer and approval agencies.
- The recommendations presented suggest a more conservative design approach for agricultural wastewaters than the literature suggests, and addresses the importance of pre-treatment of high strength wastes to avoid common problems of system clogging due to grease and solids entrainment in the wetland cells.
- The winter operating data provides useful insight into properly designing systems for cold climate applications, and in the case of septage/sludge treatment, proposes the application of freeze-thaw conditioning to continue operation throughout the winter months.
- Design recommendations can be used by approval agencies to help validate designs being submitted by project proponents for similar applications.

MORE INFORMATION AVAILABLE AT: WWW.ORWC.UOGUELPH.CA