

**THE PERFORMANCE OF INTEGRATED CONSTRUCTED WETLANDS IN THE
MANAGEMENT OF WATER QUALITY WITH SPECIAL REFERENCE TO FAECAL
INDICATOR ORGANISMS**

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ABSTRACT

The concept and innovation in the use of constructed wetlands has been deployed in a community based initiative that commenced 12 years ago to improve the water quality of a small stream that exits to the south County Waterford coast, Ireland. The development of a particular approach to the design and application of surface flow constructed wetlands, known as Integrated Constructed Wetlands (ICW's) ensued. This design approach combines water quality management with appropriate landscape fit and habitat/biodiversity enhancement. Although larger land areas are used in the design compared with those generally used in other constructed wetland designs, it has demonstrated distinct robustness and effectiveness. This is largely due to the longer residence time and ecological diversity that is inherent in the ICW design. These facilitate a greater range of physical, chemical and biological processes that occur in the wetland environment including that necessary for the removal of the more difficult contaminants, especially phosphorous. The reduction of coliforms especially faecal coliforms is particularly well demonstrated, providing further incentive for their deployment especially on a water catchment basis.