Water Quality Improvement with Wetlands

Ulo Mander, Ph.D.
Head, Department of Geography, Institute of Ecology and Earth Sciences
Professor of Physical Geography and Landscape Ecology
University of Tartu, ESTONIA

Summary

Among several ecosystem services provided by wetlands, the regulation service of water purification has been widely studied. However the application still needs better elaboration and further studies. This lecture will focus on water quality improvement by different wetland ecosystems. Examples will be presented from several European countries and USA covering most types of constructed wetlands for wastewater treatment (surface flow, vertical and horizontal subsurface flow) and created riverine wetlands. The lecture will cover the role of constructed and created wetlands in carbon sequestration and nitrogen pollution control, and the significance of greenhouse gas emissions from these man-made wetlands.

Biography

Ülo Mander is Professor of Physical Geography and Landscape Ecology and Head of the Department of Geography, Institute of Ecology and Earth Sciences at the University of Tartu, Estonia. He received a B.Sc. in physical geography (1977) and Ph.D. in biology/ecology (1983) at the University of Tartu, Estonia.

Prof. Mander's research and teaching has focused on landscape ecology (nutrient cycling at landscape and catchment levels) and ecological engineering (constructed wetlands: design and performance). He has written over 200 papers and edited 27 books and special issues of international peer reviewed journals in these fields. According to Thomson Reuters Web of Science, he belongs to 1% most cited scientists in the field of ecology and environmental sciences. He has been supervisor of 25 PhD theses and is currently supervising 14 PhD students in earth sciences, environmental research and engineering.

He has been visiting scientist/visiting professor at various universities and research centers (University of Kiel, Germany, Lund University and University of Linköping, Sweden, Norwegian University of Life Sciences, Leibniz-Centre for Agricultural Landscape and Land Use Research, Germany, National Agricultural Research Center for Hokkaido Region, Sapporo, Japan; The Ohio State University, USA). At present, he is Visiting Professor at the French National Institute of Science and Technology for Environment and Agriculture (IRSTEA, formerly CEMAGREF) in Paris. Since 1994 he is/has been member of editorial board of 7 international peer reviewed journals.