

Depuranat project: sustainable management of wastewater in rural areas

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ABSTRACT

The Urban Wastewater Directive is aiming to implement adequate treatments of collected wastewater before 31 December 2005 in small communities with a population until 2000 equivalent inhabitant. Within the framework of the DEPURANAT project, co-financed by the European Inter-regional Cooperation Programme (Interreg IIIB Atlantic Arc), several Natural Reclamation Systems (NRS) based upon no-conventional technologies of wastewater treatment, have been studied from different points of view in rural areas: their effectiveness for producing regenerated wastewater of acceptable quality for several reuse options and vegetal biomass for different purposes, their environmental integration or their potential of implementation. Most of these treatment plants achieved high mean removal efficiencies: TSS (73–96%); BOD₅ (74–94%); COD (53–90%); E. coli (2–3 log units); Enterococci (1.5–4 log units). The environmental impact of the systems was determined using an adapted life cycle assessment methodology and the economic analysis of the systems was focused on analysing the financial indicators, empirical cost functions, and the potential market for these technologies. Furthermore, maps of potential implementation of these systems and a support tool for deciding upon the installation of conventional or NRS were designed with the aim of promoting them.

Keywords: Natural reclamation systems; Rural areas wastewater; Sustainable management; Life cycle assessment; Sanitary risk; Biomass; Wastewater reuse; Market studies

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