

## Wastewater from a mountain village treated with a constructed wetland

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Received 20 February 2008; accepted revised 13 June 2008

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### ABSTRACT

The “Asiago-Sette Comuni” plateau (Italy) is the main contributing zone of an alpine karst aquifer supplying a multi-aquifer system in the Central Veneto plain exploited for domestic, industrial and agricultural uses. Some of the communities in the upland are connected to public sewers discharging to treatment works. Conversely, several small isolated communities, farms and tourist resorts discharge to short sewers ending in septic tanks, whose overflows feed local streams, which are most of the time dry because waters infiltrate the karst bedrock and reach the plain aquifer within 24–50 h. The two aquifers are highly vulnerable to contamination, due to fast water transport with limited attenuation processes. The aim of the present research is to evaluate the efficiency of a small subsurface constructed wetland system in improving wastewater from a mountain village. In the first 16 months of operation, removal capacity of the experimental system averaged more than 98% of pathogenic organisms, more than 90% of TSS, COD and, BOD<sub>5</sub>, about 50% of N-NH<sub>4</sub><sup>+</sup>, N-NO<sub>3</sub><sup>-</sup>, N-total, Cl<sup>-</sup>, SO<sub>4</sub><sup>2-</sup> and PO<sub>4</sub><sup>3-</sup>, even in the cold season. The vegetal cover is good and there are no operational problems.

*Keywords:* Aquifer; Wastewater; Constructed wetland

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