

EXPERIMENTAL SITE FOR REAL TIME MEASUREMENT OF THE WASTEWATER QUALITY WITHIN A COMBINED SEWER NETWORK

A. Muraca, and M. Balistrocchi

*Department of Civil Engineering
University of Brescia, Italy*

ABSTRACT

The paper deals with the wastewater quality variation in combined sewer during wet weather conditions. This is a very important topic in combined sewer design and management. Despite this, there is a very little knowledge of the pollutant transport and transformation processes in the urban runoff and in the sewer systems.

An experimental catchment has been delimited in central Verona (Veneto Region, Italy) and quantity and quality measurement devices have been placed into the sewer at the closure section. The discharge was monitored using an ADS Flow Monitor, equipped with a Doppler velocity sensor and a water pressure depth sensor, directly inserted in the final pipe. The water level was additionally controlled by an ultrasonic sensor located into the closure manhole.

The water quality was analyzed using a spectrolyser, that gives the spectrum of the wastewater in the visible and ultraviolet field. Many parameters have been synchronously collected in real time. Two raingauges were also installed inside the contributing catchment, allowing a very accurate rainfall evaluation.

Finally, the detailed knowledge of the sewer system configuration permitted to construct a hydrodynamic model of the urban catchment. A MOUSE computer model was run to simulate the rainfall-discharge transformation and the pollutant transport. Its parameters have been calibrated with the support of the collected measures within the sewer network.

Keywords: Real-time, waster water, combined sewer, experimental