

D-38: A horizontal flow roughing filter as a solution to algal problems at the Tissawewa purification plant

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Frequent blocking of the slow sand filters of the Tissawewa water purification plant at Anuradhapura sacred city by the planktonic diatom *Synedra* was reported earlier. A simple Horizontal Flow Roughing Filter (HRF) set up was tested on a pilot scale as a pre-treatment algal screen prior to the delivery of raw water to the filters. This set up consisted of three compartments each 1 m long, filled with granite pieces of (1) 25 - 35 mm, (2) 10 - 20 mm, and (3) 3 - 5 mm. Raw water pumped from the tank was passed through the HRF at a flow velocity of 1.5 m/h.

Representative samples of water passing through the different compartments of the HRF were monitored for *Synedra* population (cell count), turbidity and

colour. Results showed that there was a progressive reduction in all the parameters measured as the water passed through the 3 compartments of the HRF. On the basis of these results, the HRF can be recommended as a pre-treatment algal screen that could minimize the filter blocking by the diatoms.

Since the cost of granite was 25 - 30% of the cost of pebbles (normally used for filters), the use of granite instead of pebbles as filter media could result in a considerable reduction in the cost in a large scale HRF.

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