



Constructed Wetland Pilot System in Semi-arid Northeast Brazil Used in the Post-Treatment of Anaerobic Effluents.

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Figure 1: Schematic of the pilot unit

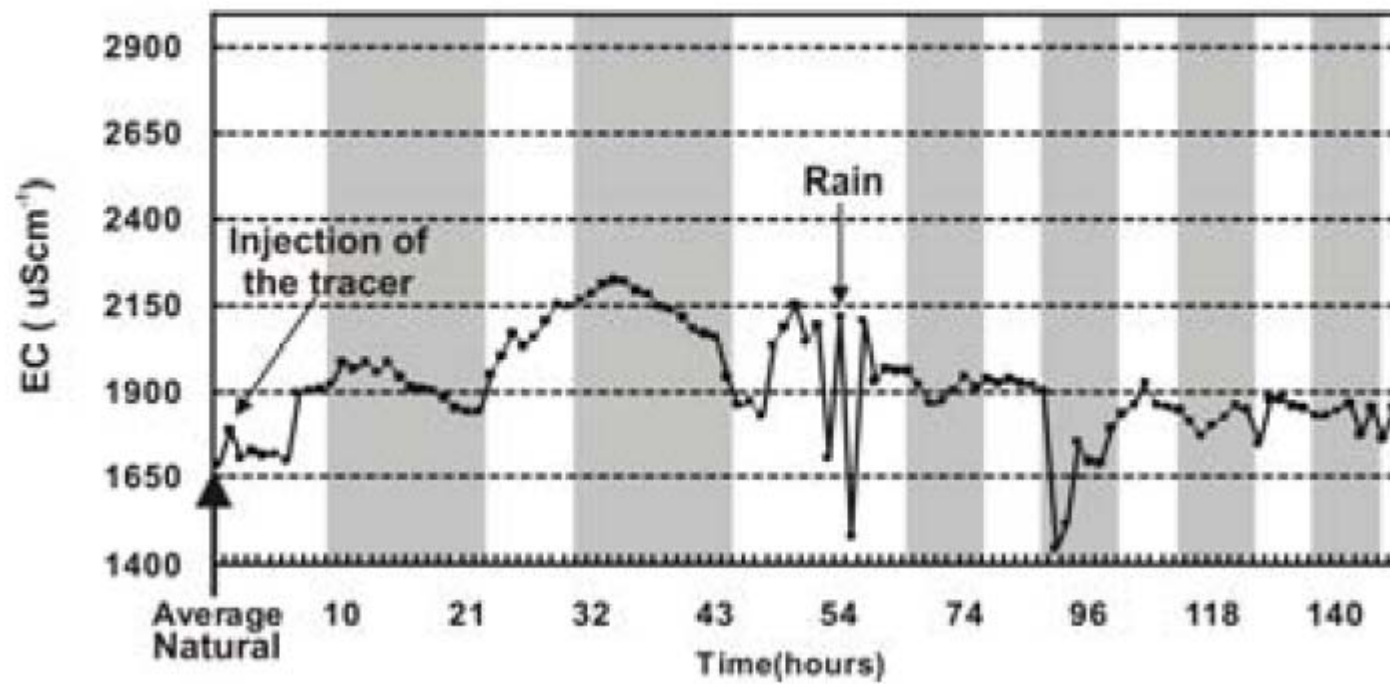


Table 4: Summary of the efficiency for each unit and for the overall system.

Parameter	Efficiency of the ST**	Efficiency of CW1	Efficiency of CW2	Overall Efficiency
Total alkalinity	-21%	6%	10%	-2%
COD	68%	63%	-17%	86%
BOD₅	68%	64%	-30%	85%
Suspended solids	57%	68%	29%	90%
Total phosphorus	10%	13%	18%	36%
Total soluble phosphorus	10%	9%	27%	40%
<i>Escherichia coli</i>	1.4*	0.4*	0.3*	2.1
Ammoniacal nitrogen	5%	16%	5%	25%
Electrical conductivity	-2%	4%	7%	9%

* removal in logarithmic units.

** ST – septic tank.



CONCLUSÕES

- Constructed wetland systems are appropriate for the post-treatment of anaerobic effluent from septic tanks. For communities with characteristics similar to those presented in this study, it is remarkable that the constructed wetlands can still be easily constructed and operated.
- The treatment system study exhibited the following results for an eleven-week trial: 85% average removal of COD, 86% average removal of BOD5 and 90% TSS removal. The removal of ammoniacal nitrogen, and the total and soluble phosphorus measured 25%, 36 % and 40%, respectively. The removal of *E. coli* was *2.1 logarithmic units*.
- The sand used exhibited a very fine particle size - this may have affected the hydrodynamics of the constructed wetlands by causing a water sheet to form over the support material. This reduced the hydraulic detention time of the constructed wetlands and may have negatively impacted system efficiency.