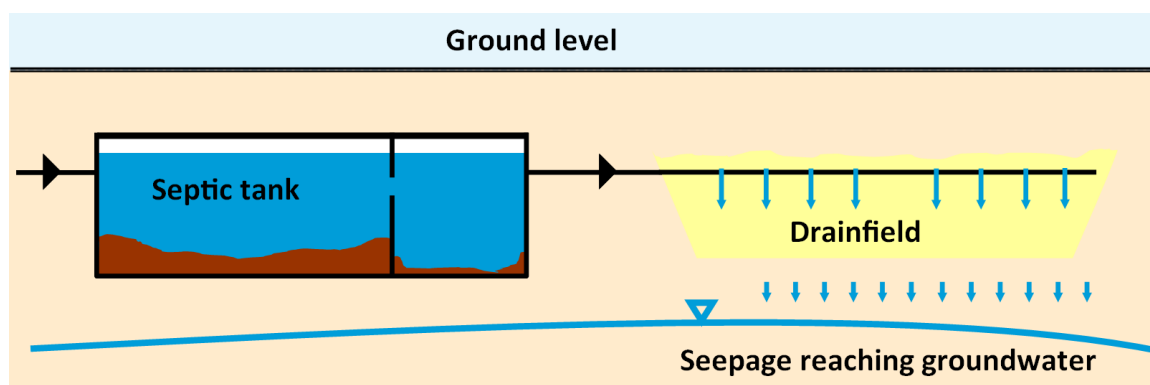
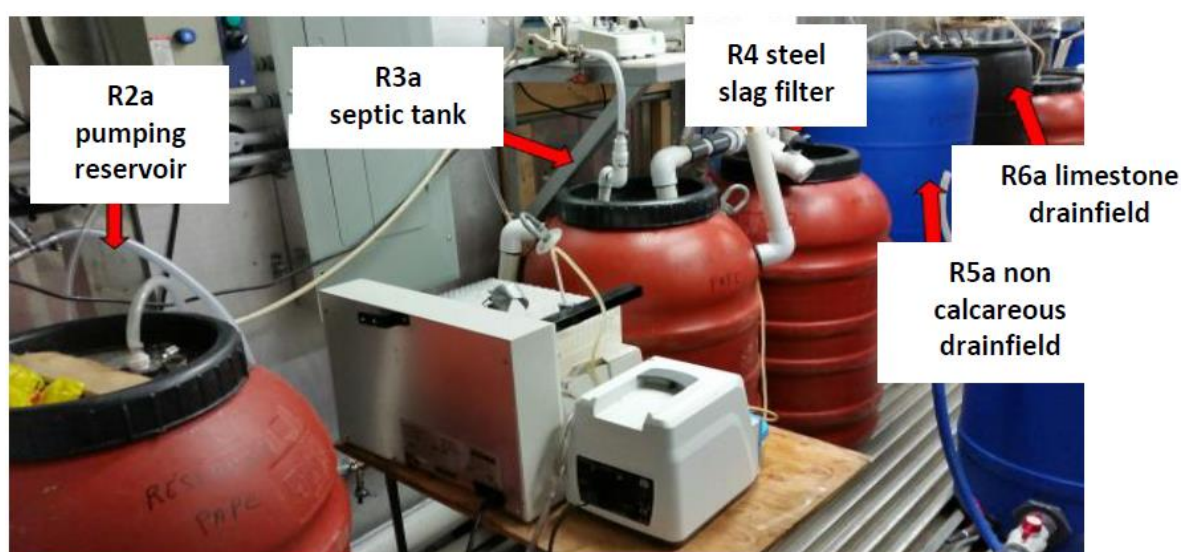


# Phosphorus Removal and Carbon Dioxide Capture in a Pilot Conventional Septic System Upgraded with a Sidestream Steel Slag Filter

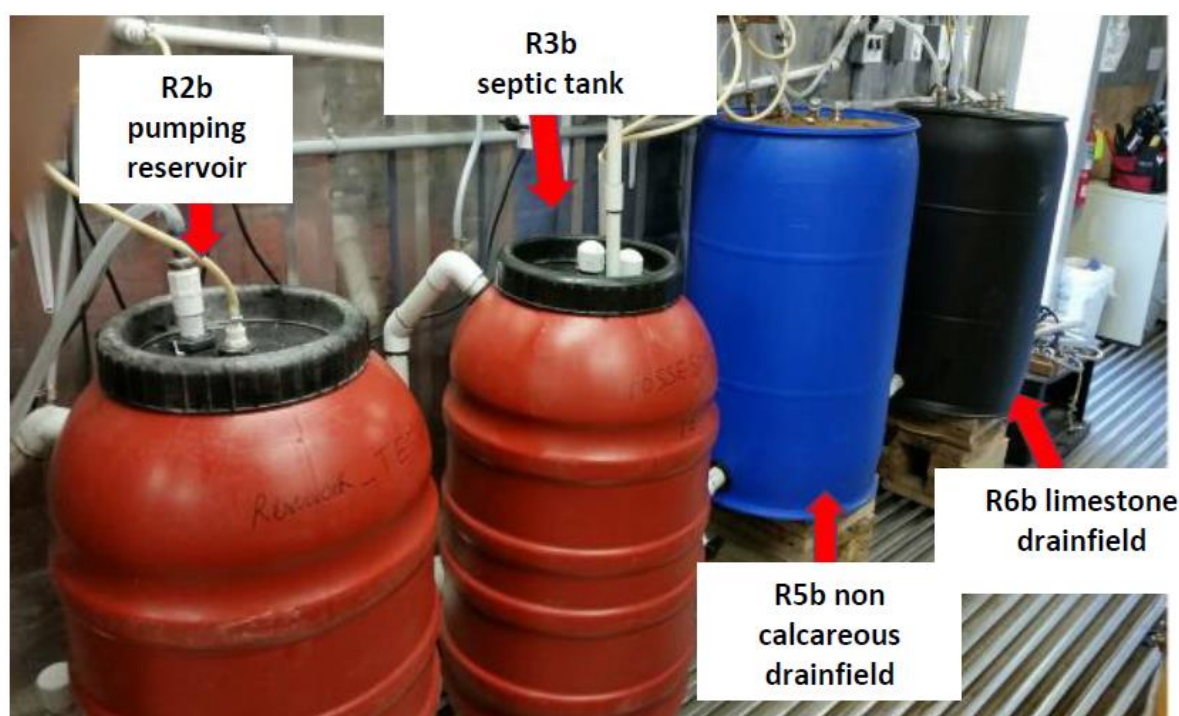
Dominique Claveau-Mallet, Hatim Seltani and Yves Comeau



**Figure S1.** Schematic of a conventional septic system used in decentralized domestic wastewater treatment.



**Figure S2.** Picture of the septic system with slag filter.



**Figure S3.** Picture of the control septic system.

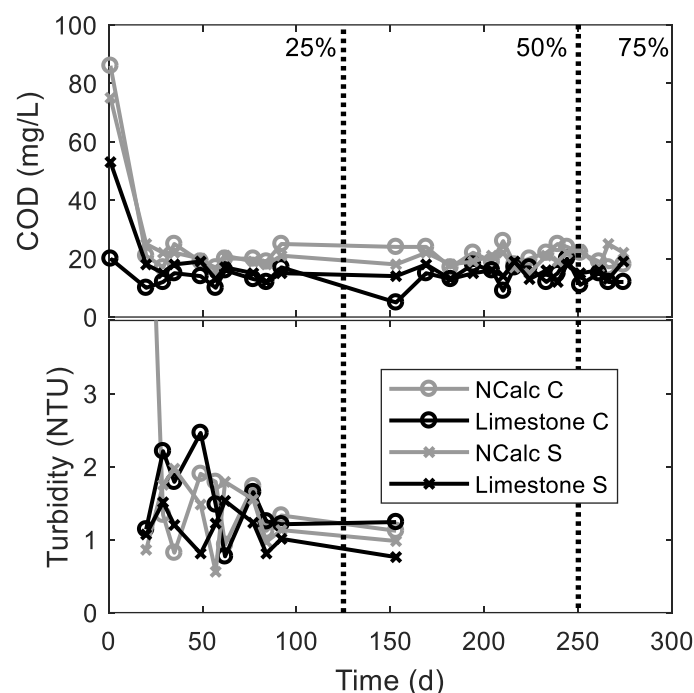
**Table S1.** Heavy metals concentrations in a leaching test using a 35-g 5–10 mm slag sample in 700 mL of distilled water, shaken for 24 h.

Component	Concentration (mg/L)
Fe	0.04
Mn	<0.01
Zn	<0.001
Cu	<0.01
Cd	<0.01
Pb	<0.01
Ni	<0.01
Ag	0.009
Ca	50.8
Al	1.37

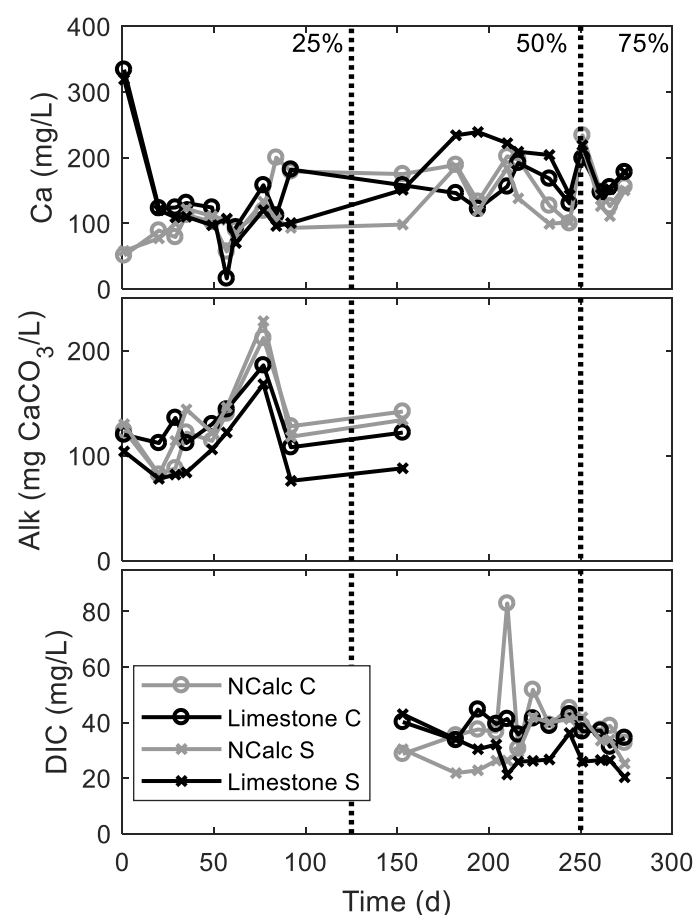
**Table S2.** Drainfield sand properties.

Parameter	Units	Non-calcareous Sand	Limestone Sand
D <sub>10</sub>	mm	0.5	0.55
C <sub>u</sub>	-	2.0	3.1
Fraction < 80 µm	%	0.58	0.16
Fraction > 2.5 mm	%	1.4	8.4

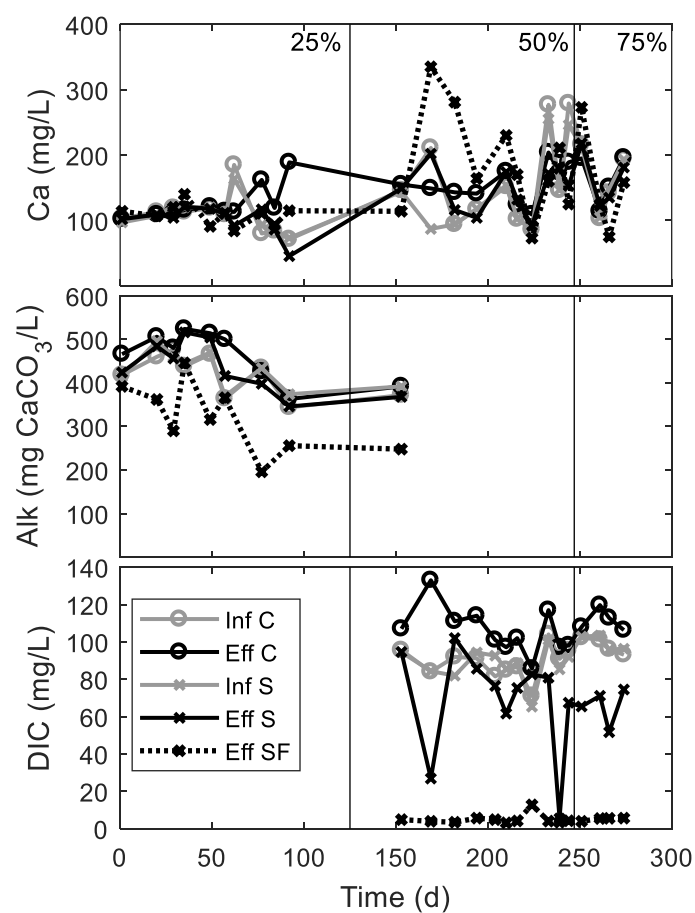
D<sub>10</sub>: sieve mesh that lets 10% of soil particles pass through the mesh. C<sub>u</sub>: uniformity coefficient, defined as D<sub>60</sub>/D<sub>10</sub>. D<sub>60</sub>: sieve mesh that lets 60% of soil particles pass through the mesh.



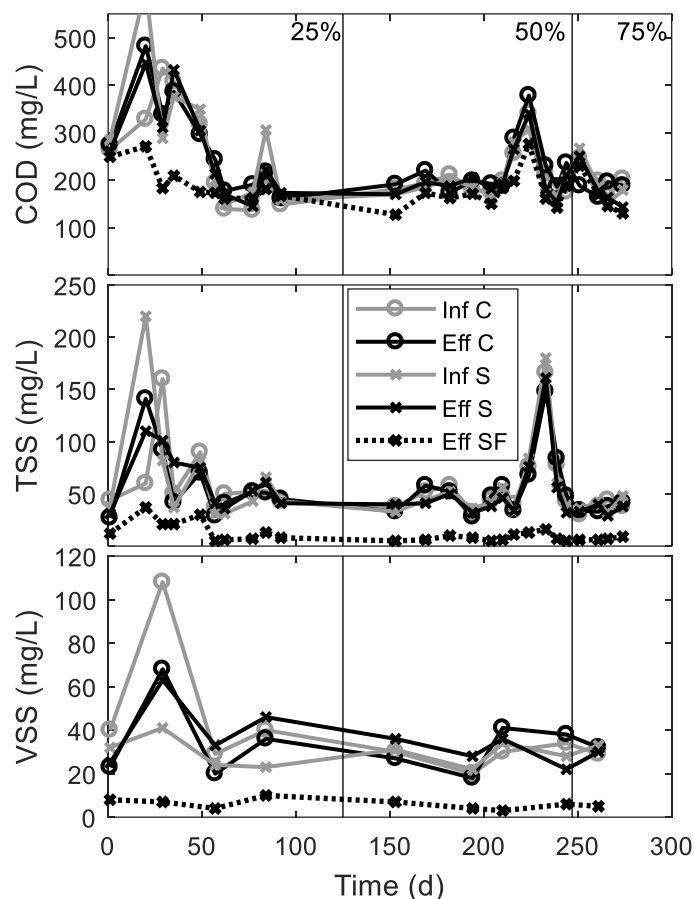
**Figure S4.** Chemical oxygen demand (COD) and turbidity monitoring at the effluent of drainfields following septic tanks without (C) or with (S) slag filter. Recirculation ratios are indicated at the top of the Figure and delineated by vertical lines.



**Figure S5.** Calcium, alkalinity and dissolved inorganic carbon (DIC) in the effluent of drainfields following septic tanks without (C) or with (S) slag filter. Recirculation ratios are indicated at the top of the Figure and delineated by vertical lines.



**Figure S6.** Calcium, alkalinity and dissolved inorganic carbon (DIC) monitoring in septic tanks without (C) or with (S) slag filter. Inf: influent, Eff: effluent; SF: slag filter. Recirculation ratios are indicated at the top of the Figure and delineated by vertical lines.



**Figure S7.** Chemical oxygen demand (COD), total suspended solids (TSS) and volatile suspended solids (VSS) monitoring in septic tanks without (C) or with (S) slag filter. Inf: influent, Eff: effluent; SF: slag filter. Recirculation ratios are indicated at the top of the Figure and delineated by vertical lines.

**Table S3.** Calibration of the septic tank effluent and the slag filter effluent (mean values in the 50 and 75% recirculation ratio periods).

Parameter		Septic Tank Influent		Slag Filter Effluent	
		Exp	Sim	Exp	Sim
pH	-	7.24	7.24	11.22	11.22
o-PO <sub>4</sub>	mg P/L	3.25	3.25	0.07	0.02
Ca	mg/L	165	165	196	223
DIC	mg/L	100	100	4.9	2.1

