

Table S1. Parameters used to measure and the method of analyzing the wastewater samples in the batch experiment.

Parameters	Analyzed methods
Total solids (TS)	Gravimetric method
Suspended solids (SS)	Gravimetric method
Volatile solids (VS)	Gravimetric method
Chemical oxygen demand (COD)	Close reflux, Titrimetric method
Temperature	Thermometer
pH	pH meter
Alkalinity	Direct titration method
VFA	Direct titration method
TKN	Macro-Kjeldahl method
NH ₄ ⁺ -N	Tritation method

Source: APHA, AWWA and WEF (2012).

Table S2. The Biogas system installation cost.

	US Dollars
Construction cost	2,550,415
Maintenance cost / year (4 daily labor × 9 US \$/day × 300 days)	10,676
Electricity cost for system operation / year	64,057
Chemicals and materials / year	741
Total cost in the first year (1)	2,625,889

Remark: Data obtained from the case study; palm oil mill installed EFB press.

Table S3. The additional cost from EFB pressing installation.

Cost	US Dollars
Machinery cost	88,968
Maintenance cost / year	12,337
Electricity cost for system operation / year increased	46,987
Chemicals and materials / year	593
Total cost in the first year for EFB press (2)	148,885

Remark: Data obtained from the case study; palm oil mill installed EFB press.

Table S4. The cost of EFB pressing installation into the system.

Cost	US Dollars	
	Project A	Project B (1+2)
Construction cost	2,550,415	2,580,071
Machinery cost		88,968
Maintenance cost / year (4 daily labor × 9 US \$/day × 300 days)	10,676	23,013
Electricity cost for system operation / year	64,057	110,065
Chemicals and materials / year	741	1,335
Total cost in the first year (1)	2,625,889	2,804,431

Table S5. Income from projects.

Items	Project A	Project B
Electricity to power grid (0.12 US\$/kWh) (US\$)	939,502	1,879,004
Crude palm oil (388 tons/year and 0.89 US\$/kg) (US\$)		345,907
Net Income/year (US\$)	939,502	2,224,911

Table S6. Net Present Value (NPV) and Internal Rate of Return (IRR) from Projects.

Item	Project A (US\$)	Project B (US\$)
Cost	2,625,889	2,804,431
Income/year (1-5)	939,502	2,224,911
Discount rate	10%	10%
NPV	3,561,452	8,434,163
IRR	23%	73%



Figure S1. Sludge residue after 25 days of digestion.