

## Supplementary materials

### **Assessment of Municipal Solid Waste Generation in Universiti Putra Malaysia and Its Potential for Green Energy Production**

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Supplementary materials

Table S1: Selected Administrative Office, restaurant premises and residential area for the survey of MSW generated in UPM

Group	Name of the premise
Offices	UPM Sport Centre
	Malaysian Research Institute on Ageing ( <i>MyAgeing</i> )
	Office of Deputy Vice Chancellor (Industry And Community Relations)
	Halal Products Research Institute
	University Agriculture Park
	Faculty of Veterinary Medicine
	Faculty of Agriculture
	Faculty of Medicine and Health Sciences
	Office of the Deputy Vice Chancellor (Research & Innovation)
	Centre of Foundation Studies for Agricultural Science
	Faculty of Biotechnology and Biomolecular Sciences
	Faculty of Engineering
	Faculty of Modern Languages And Communication
	Biosciences Institutes (LIVES)
	Institute of Tropical Forestry And Forest Products
	Sultan Abdul Samad Library
	Registrar Office
UPM Press	
University Health Centre	
Pusat Islam UPM	
School of Graduate Studies	
Wazan UPM	
Restaurant	Serumpun A1
	Serumpun A2
	Serumpun A4
	Serumpun A5
	Putra P4
	Putra P5
	Putra P7

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Putra P9

Al Jannah Café

Kolej Canselor Café

Sejora Cafe

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Residentials	Colleges in UPM (college 1- 17)
	Quarters in UPM

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## Supplementary materials

Table S2: Sample question used during the survey activities of MSW generation index and its composition in UPM.

	Major group	Link to access
(1)	Residential house	<a href="http://tiny.cc/uzm37y">http://tiny.cc/uzm37y</a>
	Colleges	<a href="http://tiny.cc/x6m37y">http://tiny.cc/x6m37y</a>
(2)	Administrative offices	<a href="http://tiny.cc/vbn37y">http://tiny.cc/vbn37y</a>
(3)	Restaurant premises.	<a href="http://tiny.cc/91m37y">http://tiny.cc/91m37y</a>

$$\begin{aligned} \text{Max. conversion} &= 2200 \text{ kg COD} \times 0.35 \text{ m}^3 = 770 \text{ m}^3 \text{ CH}_4 \\ 0.72 \text{ kg/m}^3 &= \text{mass CH}_4 / 770 \text{ m}^3, \text{ mass CH}_4 = 554.4 \text{ kg CH}_4 \\ \text{Electricity conversion} &= 554.4 \text{ kg CH}_4 \times 1.29 \text{ kWh/kg} \\ &= 715.2 \text{ kWh} \end{aligned}$$

**Figure S1:** Calculation of potential electricity generation from methane produce from the anaerobic digestion of organic waste in UPM [1].

1. Khanal, S. K., Anaerobic biotechnology for bioenergy production : principles and applications. In Wiley-Blackwell: Ames, Iowa ;, 2008.