UNIVERSITI MALAYA
ZERO WASTE CAMPAIGN
ANNUAL REPORT
2019

Prepared by,
UM ZWC team

Content

Section 1

INTRODUCTION

Sub-section 1.1:
Background of UM Zero Waste Campaign

Zero Waste Campaign (ZWC) aims to spearhead the development of an integrated and sustainable waste management model in UM. The history of ZWC rooted from a students' group, "VeeCYCLE" which developed a recycling project in Faculty of Engineering with "PRO bin" to promote the best practice of waste segregation at source. The inception of Green Bag Scheme in 2010 was inspired by the fact that food waste is the major problem in Malaysia. Subsequently, a composting center was developed with funding from CIMB Foundation, support from UM top management especially DVC (Development) and JPPHB as well as technical assistance by IGES in 2011. In 2013, UMCares continued the funding to ZWC. ZWC signed a MOU with CH Green Sdn. Bhd. in 2013 for research collaboration on COWTEC anaerobic digester. In 2014, ZWC cooperates with Life Line Clothing Sdn. Bhd. to introduce a used clothes collection and recycling program and TSP Waste Management Sdn. Bhd. for separate collection of wood waste for energy recovery.

Year 2015 was a special and significant year for ZWC. For the first quarter of 2015, ZWC welcomed a number of local and international visitors such as UMT, CETDEM, government officers from Bangladesh, GPNM, etc. The biogas generator had arrived in Feb. 2015. Four ZWC signage boards had been installed at ZWC site for wood waste, composting, Cowtec AD and ZWC center. The installation of UM ZWC Center (container-style office & gallery building) had started in March 2015 and completed in early May 2015 by JPPHB. A series of planning and meetings were carried out between several stakeholders of UM (JPPHB, OSH, ICR, Bursary, etc) from Feb. until May 2015 for a MOU signing ceremony with SWCorp. After the ZWC center installation, a launching event and MOU Signing ceremony between UM and SWCorp (National Solid Waste Corporation) was carried out on 28th May 2015, witnessed by the Secretary-General of Ministry of Urban Well-Being, Housing and Local Government. After the launching, installation of a weighbridge station at the entrance of UM waste transfer station had kicked off in June and completed in July 2015.

ZWC is constantly looking for opportunity to sustain itself financially. One of the steps taken in 2015 is selling of organic compost at RM5 per kilogram. At the end of 2016, UM ZWC develops an intelligent recycle center with Coindex Sdn Bhd to promote recycling behavior and inculcate best practice of recyclables drop-off with this innovative automated recycle center located at DK A&B, PASUM. In May – Aug 2017, UM ZWC was appointed by Ministry of Sports and Youth to be the trainer to 1000 green volunteers for KL2017 SEA Games. UM ZWC provided training on waste segregation at source and recycling to the volunteers and the recycling rate measured by SWCorp shows an improvement compared to the previous SEA Games. In year 2018, UM ZWC participated in UI GreenMetric World Ranking and has been ranked no. 1 in solid waste management category.

The year 2019 has been another great year for UM ZWC as the revenue of training and compost sale increased almost quadruple than the initial targeted amount. In Year 2019, compost sale and training have generated RM11,000 for Universiti Malaya. Meanwhile, UM ZWC has collaborated with Alam Flora Sdn. Bhd. on the 3R-On-Wheels program to raise awareness and improve the collection for inorganic solid waste recycling. The program was organized by UM ZWC once a month and 1,000 kg and above of solid waste is the mandatory target collection for every session. In year 2019, 155,000 kg of solid waste was diverted from going to the landfill and UM ZWC has conducted more than 30 sessions of capacity building and knowledge transfer to more than 1,000 local and international people from various organization and background. UM ZWC had also established more than 20 new networking linkages including with Member of Parliament Lembah Pantai, YB Fahmi Fadzil. UM ZWC site has undergone a minor reconstruction where composting site was relocate to a new site and the prior composting site has been transformed to an organic farm. This current 'face-lift' of UM ZWC site portrays circular economy concept where food is produced from food waste that leads to zero waste. Finally, in July 2019, UM ZWC has participated in PECIPTA 2019 and UM ZWC compost research has been awarded with gold medal entitled "UM Zero Waste Campaign (UM ZWC) Waste To Wealth Initiative: Promoting Circular Economy" as the innovation idea.

UM Zero Waste Campaign as a living lab in Universiti Malaya

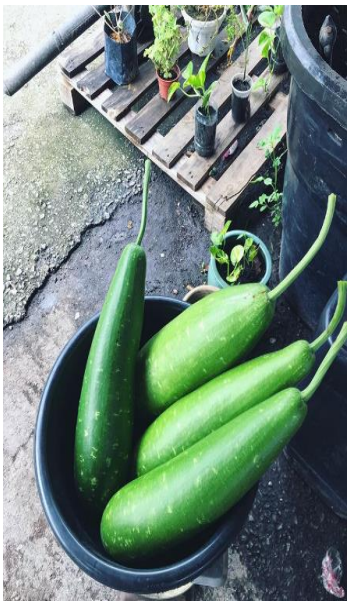
Definition:

A combined lab-/household system, analysing existing product-service-systems as well as technical and socioeconomic influences focused on the social needs of people, aiming at the development of integrated technical and social innovations and simultaneously promoting the conditions of sustainable development (highest resource efficiency, highest user orientation, etc.)

UM Zero Waste Campaign:

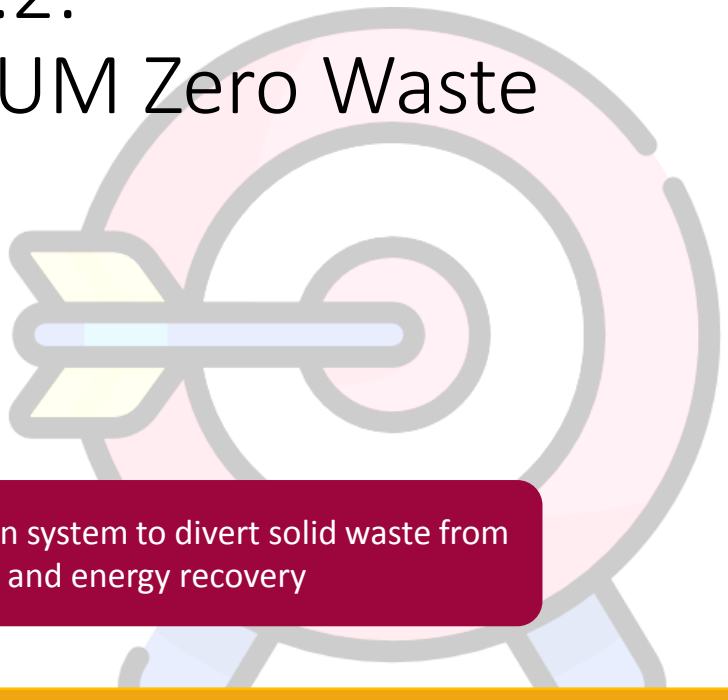
1. In response to the problem of solid waste management in campus, ZWC started off with a goal of diverting and reducing waste generated from going to the landfills.
2. What initially began as a student-initiated campaign earned sponsorship from CIMB Foundation and curated to a campus-wide project with the ultimate goal of zero waste campus status.
3. Today, the ZWC center with container-reuse concept, established an in-house composting technology which has grown into a living lab to solve the issues of solid waste management.


UM ZWC
ORGANIC COMPOST FERTILIZER
ADVANTAGES OF UM ZWC ORGANIC COMPOST FERTILIZER
INSTRUCTION TO USE
FOR PURCHASING / FURTHER INFO
WASTE TO RESOURCE
JPPHB




UM ZWC
Composting Center
JPPHB

Sub-section 1.2: Objectives of UM Zero Waste Campaign



1. To develop policy and innovation system to divert solid waste from disposal in landfill for resources and energy recovery
2. To streamline recycling activities and strategize efforts to increase recycling rate
3. To create awareness and inculcate best practice of waste separation at source among the campus community
4. To form strategic partnership with various stakeholders in order to develop integrated waste management system

Sub-section 1.3: 2019 KPI & Summary of Achievements

No.	CATEGORY	TARGET/KPIs (1 year)	ACHIEVEMENTS (1 year)
1	Project target achievement	Food Waste = 65,000 kg	Food Waste = 44,901 kg
		Green Waste = 15,000 kg	Green Waste = 19,559 kg
		Waste Textile = 20,000 kg	Waste Textile = 23,177 kg
		Recyclable Materials = 45,000 kg	Recyclable Materials = 81,385 kg
		TOTAL = 145,000 kg	**TOTAL = 169,021 kg**
		Compost sale & Training = RM3,000	**Compost sale & Training = RM11,587.50**
2	Capacity building	10 sessions	26 sessions
3	Innovation/ Technology/ Knowledge transfer	2 technology transfer	4 sessions
4	Community engagement	3 sessions	3 sessions (p20, Bario, Taman Sri Sentosa)
5	Networking and linkages	2 networking and linkages	17 networking and linkages
6	Publications	2 presentation / proceeding	21 presentations (1 proceeding) 1 journal paper (published) 2 proceeding papers (submitted) 3 fact books (submitted)
7	Policy paper/ Guideline/ Standard	1 guideline / standard	1 guideline – Food waste composting

Sub-section 1.4: Success stories of UM ZWC

2010
PRO-BINS
Green Bags scheme

2011
Takakura composting (CIMB Foundation)

2012
Compost and Farming

2013
Anaerobic Digestion
E-waste collection

2014
Waste textile collection
Wood waste collection

2015
UM ZWC acts as center of Integrated Solid Waste Management

2016
Intelligent Recycling Center (IRC)

2017
Trainer for KL2017 Sea Games
Set up fund transfer account for organic compost sale

2018
Ranked #1 in Solid Waste Management in UI GreenMetric World Ranking
Joined UMCares Tropical Camp program
Engaged with Member of Parliament Lembah Pantai

2019
3R On Wheels in collaboration with Alam Flora Sdn Bhd
Engaged with TRIFECTA volunteers (PASUM Environmental Club)

Sub-section 1.5: Achievements since inception

ENVIRONMENT

- Total waste diverted: **> 1,109 ton**
- Total carbon emission reduction: **> 5,113,443 KG CO_2-eq**

SOCIAL

- Total revenue / charity sponsor: **>RM38,000**
- Total visitors: **>12,000 people**

ECONOMY

- Total waste disposal cost saved: **>RM365,220**
- Income generation from training and compost sale: **>RM40,000**

Section 2

HIGHLIGHTS OF ACHIEVEMENT IN 2019

Section 2:
Highlights of Achievement in 2019

Sub-section 2.1: Diversion of 155,000 kg of solid waste from going to the landfill

Sub-section 2.2: 30 sessions of capacity building and transfer of knowledge on solid waste management

Sub-section 2.3: Engaged with Member of Parliament Lembah Pantai, YB Fahmi Fadzil

Sub-section 2.4: Developed new networking linkages

Sub-section 2.5: The development of new composting site

Sub-section 2.6: UM ZWC Organic farming

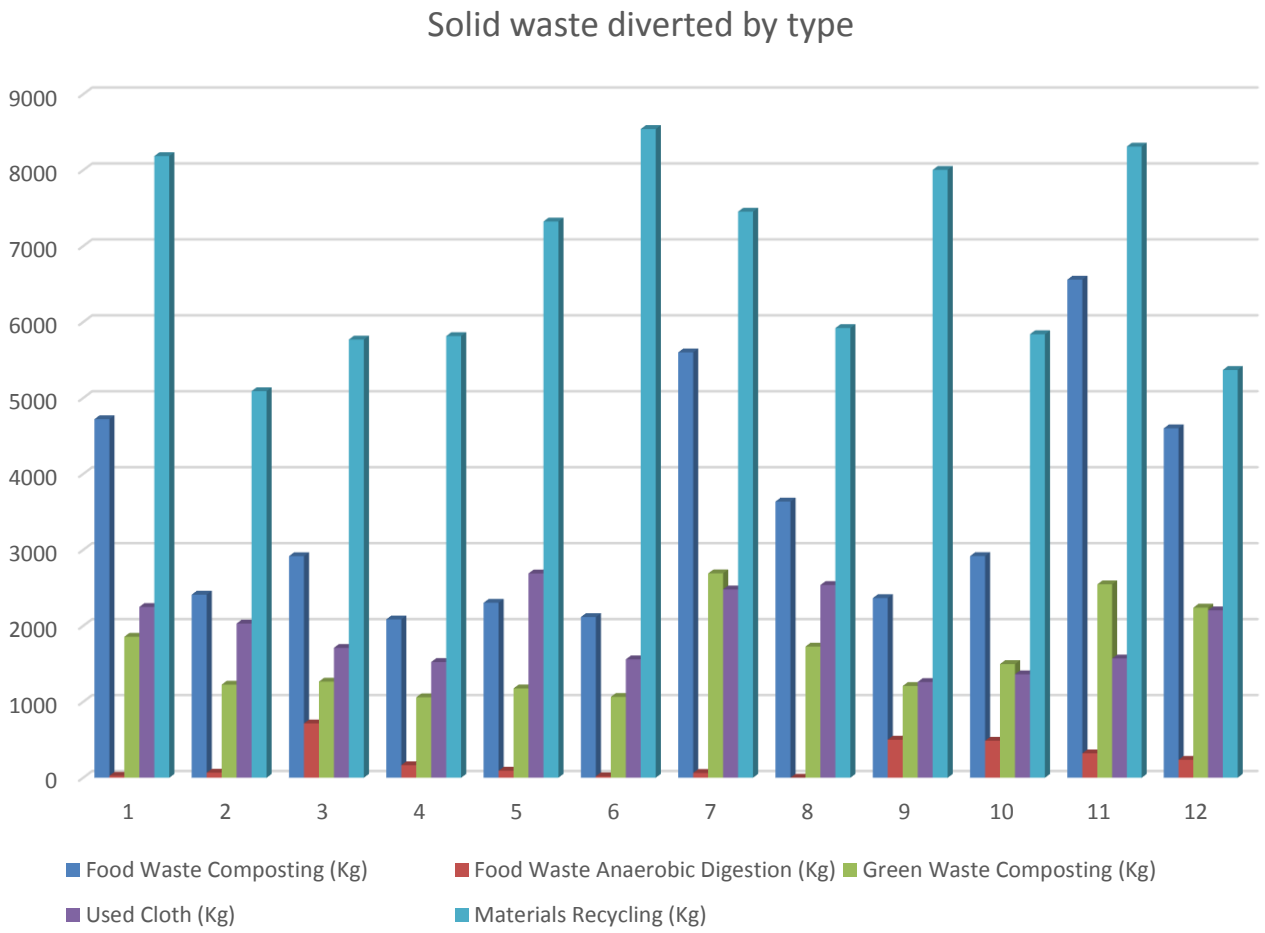
Sub-section 2.7: Awarded gold medal for PECIPTA 2019

Sub-section 2.8: Monthly organized 3R on wheels program in collaboration with Alam Flora Sdn Bhd

Sub-section 2.9: Organized a capacity building and awareness program for CIMB Foundation Scholarship recipient

Sub-section 2.10: Conducted Integrated Solid Waste Management training for Tenby International School community

Sub-section 2.1: Diversion of 155,000 kg of solid waste from going to the landfill



Sub-section 2.2:
Capacity building and knowledge transfer on solid waste management

Sub-section 2.3:
Engaged with Member of Parliament Lembah Pantai

Sub-section 2.4: Networking linkages

YB. Fahmi, the Member of Parliament (Lembah Pantai)

Mascorn and Satay Putera

Alam Flora Sdn Bhd

Food Aid Organisation (FOA)

Cenergi SEA Sdn Bhd

Kyoto University, Japan

Pelabuhan Tanjung Pelepas (PTP), Johor

IIUM and UMT

Delegacy from Korea Institute of Sustainable Design and Educational Environment (KISEE)

CIMB Foundation

Rotary Club Bukit Kiara

American Environmental Health Studies Project

International Islamic University Malaysia (IIUM)

Leo Clubs (including 9 schools in Klang Valley)

SWCorp

SMK Sri Pantai

INTEC Education College

Sub-section 2.5: The development of new composting site

15 July 2019
Site survey on land conditions

16 July 2019
Site excavation for pedestrian pathway

16 July 2019
Pre-construction site

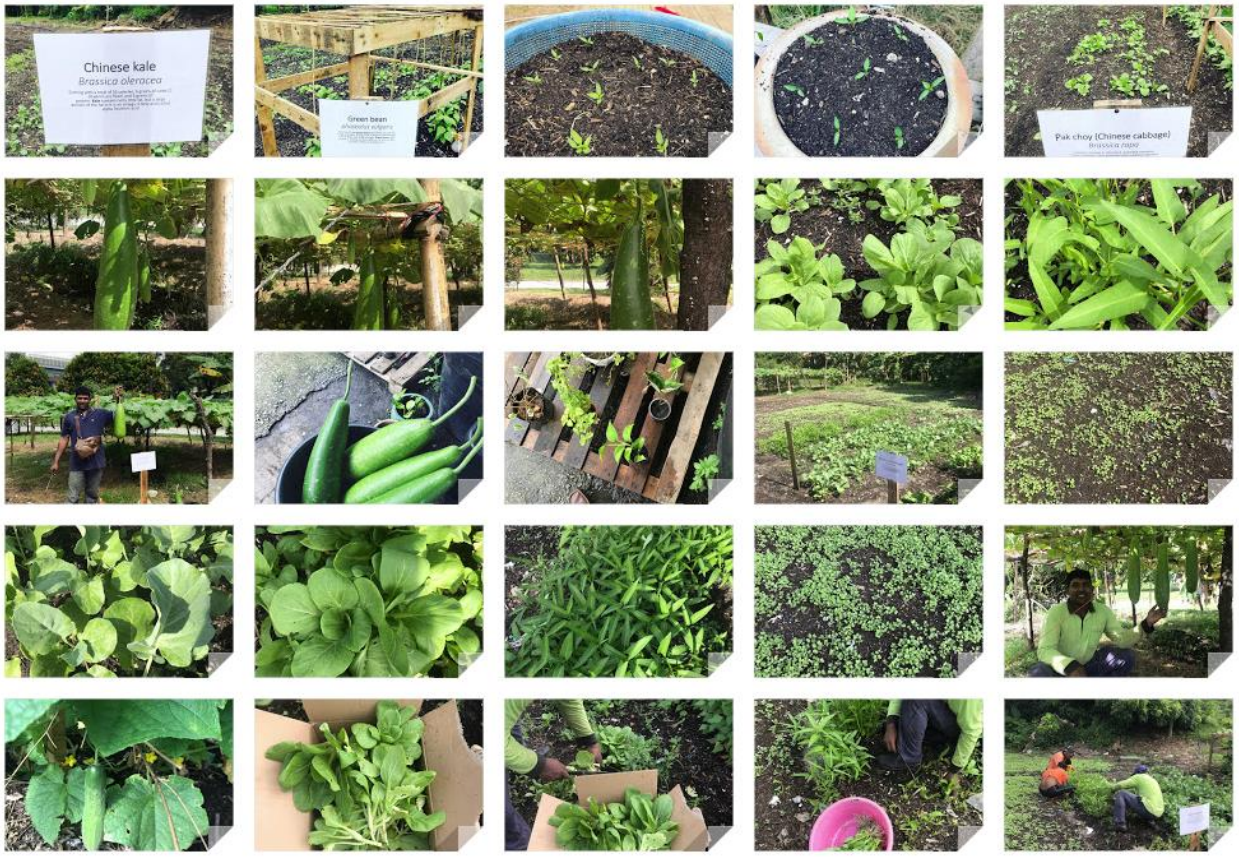
19 July 2019
Adding gravel stone layer as the base foundation

22 July 2019
Installing asphalt layers

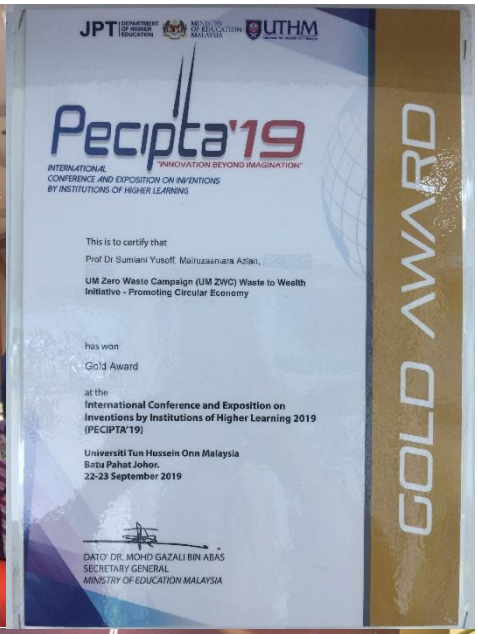
1-17 August 2019
Final pedestrian walk model

20 August 2019
New composting site with pedestrian walk from plan view

Sub-section 2.6:
UM ZWC Organic farming



Sub-section 2.7:
Awarded gold medal for PECIPTA 2019



Sub-section 2.8:
3R-On-Wheels Program in collaboration with Alam Flora Sdn Bhd

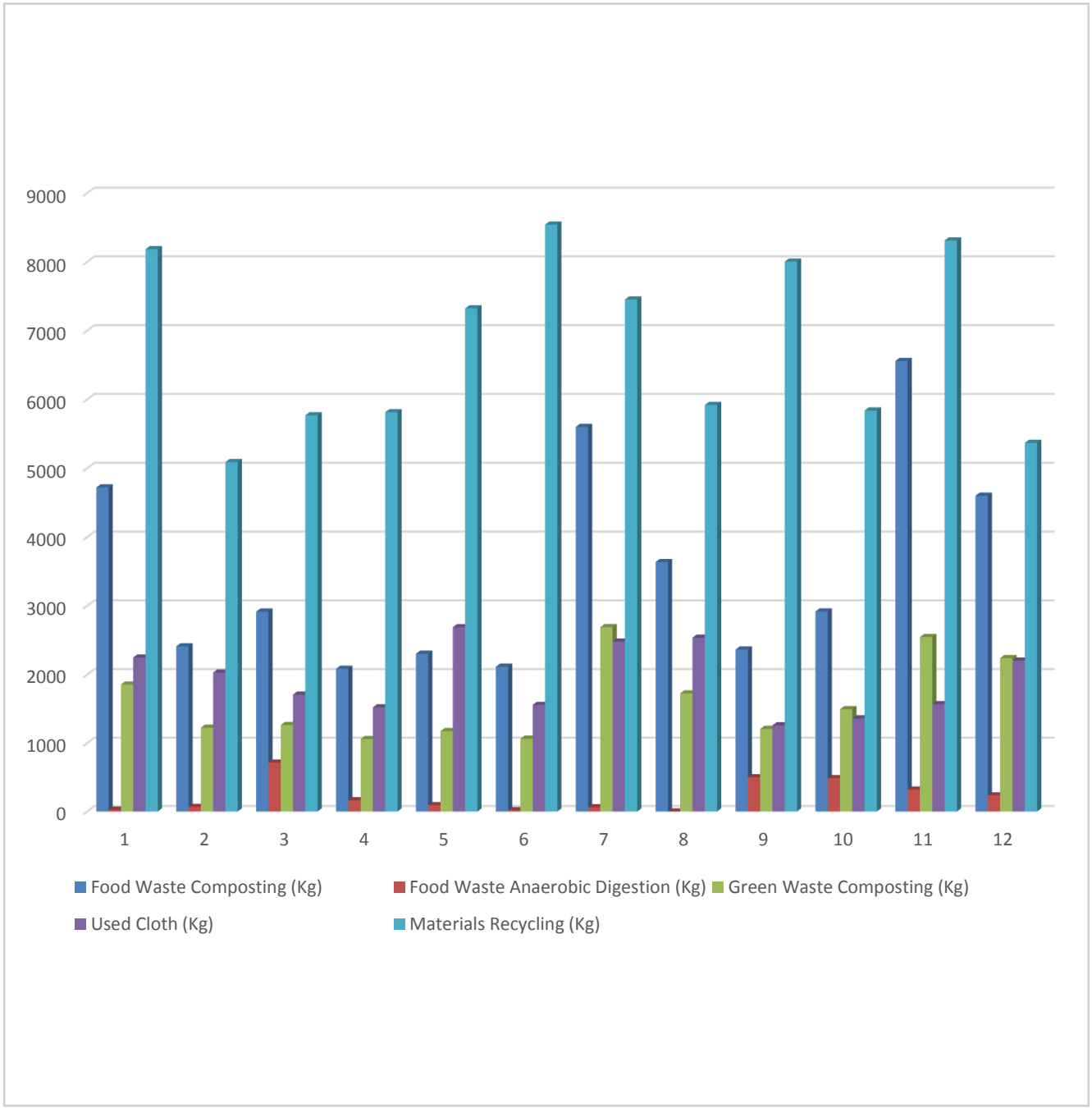
Sub-section 2.9:
Organized a capacity building and awareness program for CIMB Foundation scholarship recipient

Sub-section 2.10:
Conducted Integrated Solid Waste Management training for Tenby International School community

Section 3

SOLID WASTE DATA COLLECTION IN 2019

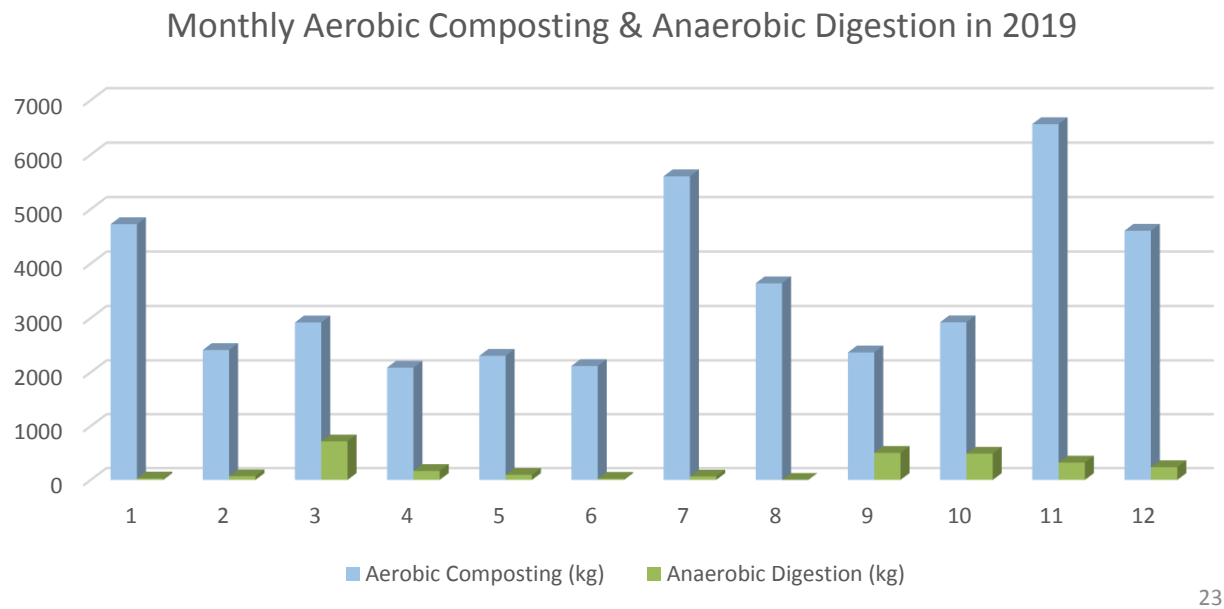
Sub-section 3.1: Total solid waste diversion according to its categories



Sub-section 3.2: Monthly Aerobic Composting & Anaerobic Digestion in 2019

The treatment of food waste via aerobic composting and anaerobic digestion indicates an irregular growth due to inconsistencies of the students and café operators turnover at each semester in a year.

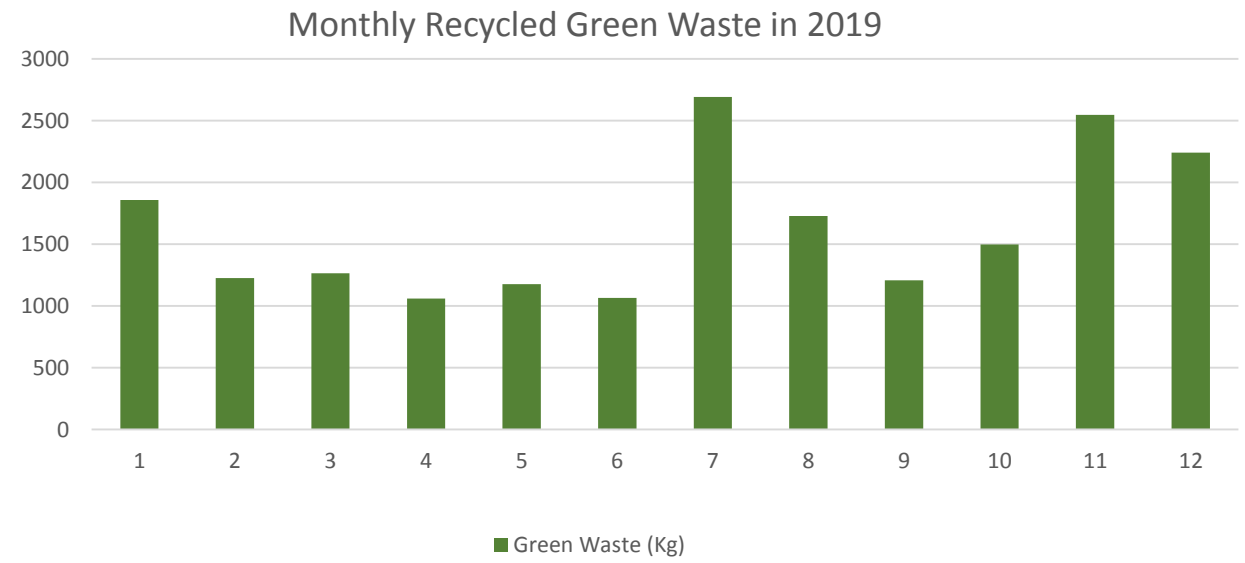
Month	Aerobic Composting (kg)	Anaerobic Digestion (kg)
1	4722	26
2	2411	67
3	2917	715
4	2085	165
5	2304	93
6	2116	20
7	5601	63
8	3637	0
9	2366	501
10	2919	487
11	6559	321
12	4601	236
TOTAL	***42238***	***2694***



Sub-section 3.3: Monthly Recycled Green Waste in 2019

The collection of green waste in UM campus demonstrates a gradual decrease in the early months and a spike amount in July, November and December suggesting that trimming schedule of JPPHB is related to the uncertain landscaping waste generated in UM

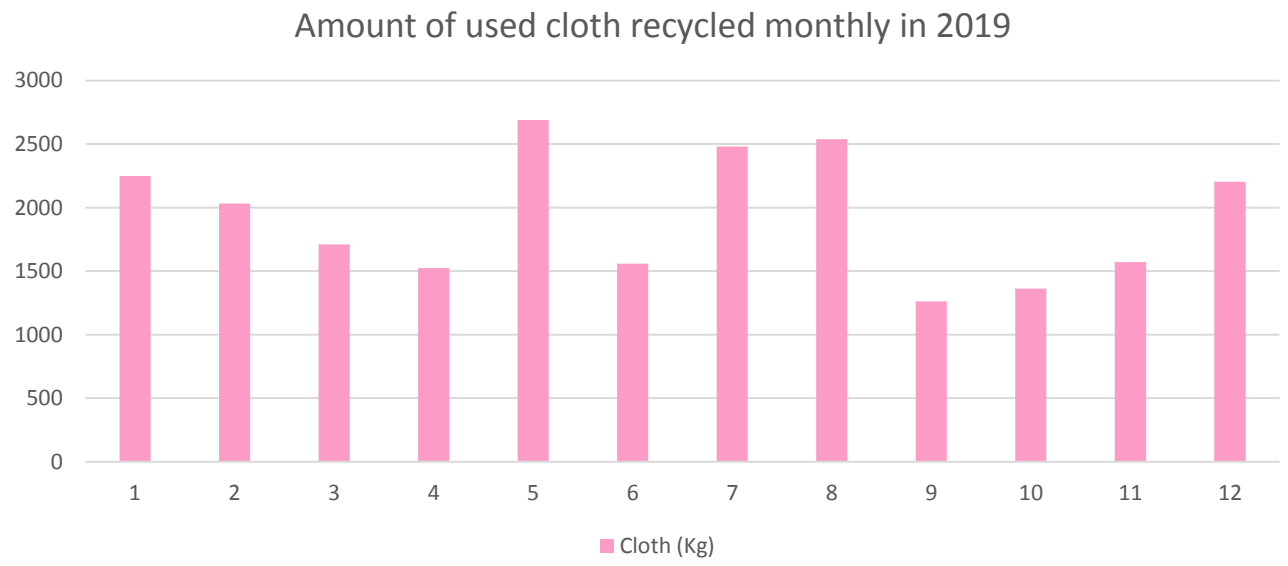
Month	*Green Waste (Kg)*
1	1856.5
2	1226
3	1265
4	1060
5	1176
6	1065
7	2691
8	1727
9	1208
10	1497
11	2547
12	2240
TOTAL	***19558.5***



Sub-section 3.4: Amount of used cloth recycled monthly in 2019

Used cloth collection revealed the highest accumulation in May 2019 due to the office and home spring cleaning gathered by UM staff and students that would celebrate Hari Raya Aidilfitri in June

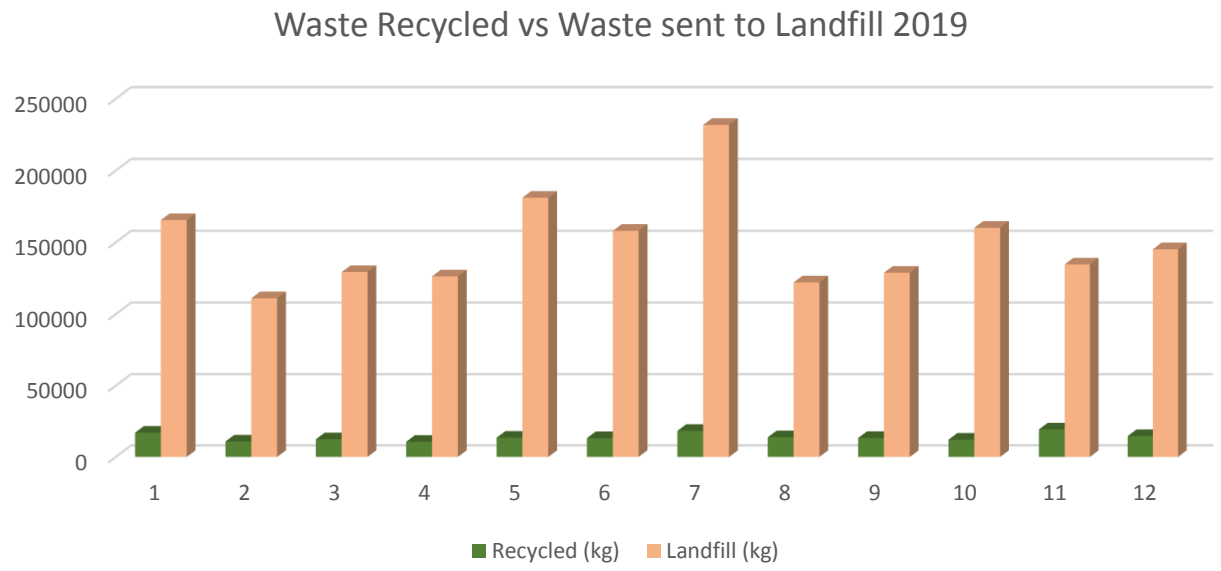
Month	*Amount of used cloth (Kg)*
1	2249
2	2031
3	1710
4	1524
5	2690
6	1559
7	2480
8	2538
9	1261
10	1362
11	1570
12	2204
TOTAL	***23178***



Sub-section 3.5: Waste Recycled vs Waste sent to Landfill 2019

Phase 1 (2012-2020) in UM ZWC project had targeted to divert 15% of waste generated in UM campus from landfill. Based on the graph below, average of recycling rate by UM ZWC is 9.6%. UM ZWC has almost achieve the target of phase 1 and this project strive to intensify the recycling rate up to 15% by 2020

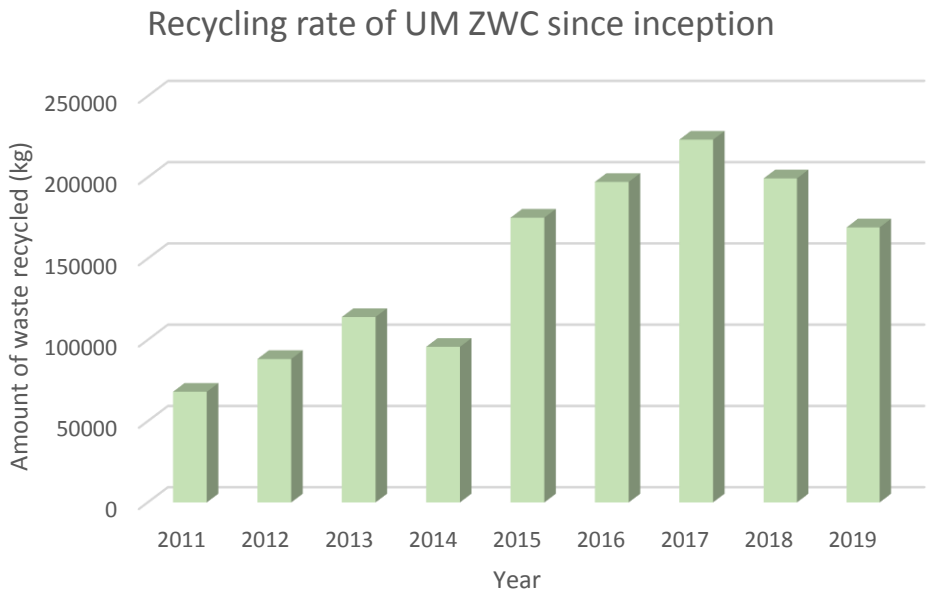
Month	Recycle (kg)	Landfill (kg)	Recycling rate (%)
1	17039	165550	10.3
2	10825	111068	9.7
3	12377	129340	9.6
4	10649	126340	8.4
5	13467	181100	7.4
6	13206	158050	8.4
7	18289	231800	7.9
8	13823	122120	11.4
9	13285	128840	10.3
10	12105	160150	7.6
11	19308	134615	14.3
12	14650	145199	10.1
TOTAL	***169022***	***1794172***	



Sub-section 3.6: Recycling Rate of UM ZWC Since Inception

The graph illustrated below shows a decline amount of waste recycled after 2017. This gradual decline was affected by the waste collection activity by TSP Wood Waste contractor. In 2018, the TSP Sdn Bhd has stopped its wood waste collection operation at UM ZWC site due to unforeseen circumstances. Hence, this type of wood waste was eventually sent to the landfill for disposal.

Year	Amount of waste recycled (kg)
2011	68088
2012	88242
2013	114076
2014	95722.3
2015	175209
2016	197200
2017	223198
2018	199355
2019	169201
TOTAL	1330291.3



Section 4

POTENTIAL SAVING FROM UM ZWC INITIATIVE

Sub-section 4.1: Tangible saving

Inventory of UM ZWC

No.	Scope	Description	Value	Unit
1	Total energy saved	Total Energy Saved is equivalent to total biogas produced from anaerobic digestion process of food waste. 1 kg of food waste produces 26m3 of biogas with calorific value of 11.06 kwh/m3. Assume the efficiency of conversion is only 50%	464,121.84	kwh
2	Total diesel saved	Total diesel saved is due to the trip saved from transporting waste to landfill. Assuming diesel consumption of a 3.5-7.5 ton truck is 8L/100km. The total trips saved from transporting all recycled waste (food waste, landscape waste, wood waste, textile and recyclables) to landfills which is 120km away from UM. Assume the density of diesel is 0.832kg/L	977.29	kg
3	Total chemical fertilizer consumption avoided	Total chemical fertilizer consumption avoided due to the production of compost from food waste. From record, 1kg of food waste produce 0.15 kg of compost after 60 days. The weight reduction is due to loss of moisture content. Assume the fertilizer replacement factor of 0.5	4,632.75	kg
4	Total new products avoided due to recycling effort	Total new product avoided is in association to total recycling effort carried in ZWC which include, textiles, papers, plastics, metal etc. Assume the substitution factor of 1.0	104,240	kg
5	Total mileage of freight truck avoided	Total mileage of freight truck is associated to the mileage travelled during transportation of waste to landfill. Total mileage saved is equal to total trips avoided due to waste recycling effort. Total trips avoided (food waste, landscape waste, wood waste, textile and recyclables) to landfill which is 60km away from UM.	14,682.80	km
6	Expected revenue	Revenue is generated by selling compost at RM 5/kg. By using open air takakura method, From record, 1kg of food waste produce 0.15 kg of compost after 60 days. The weight reduction is due to loss of moisture content.	46,327.50	RM
7	Disposal cost saving	The disposal cost include the hauling charge of RM 300/haul and landfill tipping fee of RM 55/ton.	45,985.50	RM
8	Waste avoided from disposed at landfill	The waste avoided from ZWC project include all recycling programs (food waste, green waste, clothes, recyclable materials, wood waste and electronic waste)	168,700	kg

Sub-section 4.2: Intangible saving

Carbon Emission Reduction

No.	Scope	Description	kg CO_2eq
Direct carbon emission			
1	Waste Avoided From Disposed At Landfill	Carbon emission from degradation of waste in landfill is quantified. Carbon emissions avoided from landfill is associated to the total amount of mixed recyclable materials collected and diverted away from landfill.	127,286
2	Total Mileage Of Freight Truck Avoided	Carbon emission from combustion of diesel during transportation is quantified. Carbon emissions avoided is associated to the total amount of mileage to landfill avoided.	7,097
Indirect Carbon Emission			
1	Total Energy Saved	Carbon emission from national energy generation from fossil fuel is quantified. Carbon emissions avoided is associated to the total amount of energy produced in ZWC via biogas.	358,788
2	Total Diesel Saved	Carbon emission from industrial production of low sulfur diesel is quantified. Carbon emissions avoided is associated to the total amount of diesel avoided due to hauling trip reduction.	440
3	Total Chemical Fertilizer Consumption Avoided	Carbon emission from industrial production of N-fertilizer is quantified. Carbon emissions avoided is associated to the total amount of N-fertilizer replaced by compost from ZWC.	12,696
4	Total New Products Avoided Due To Recycling Effort (Applicable To Papers, Plastics, Aluminium, Metals, Textiles)	Carbon emission from production of clothes, paper, plastics, metal, electrical are quantified and normalized. Carbon emissions avoided is associated to the total amount of new product replaced by recyclable materials collected from ZWC recycling program.	144,360
TOTAL CO_2 emission avoided in 2019 = 650,667 kg CO2eq			

Section 5

ACTIVITIES OF UM ZWC IN 2019

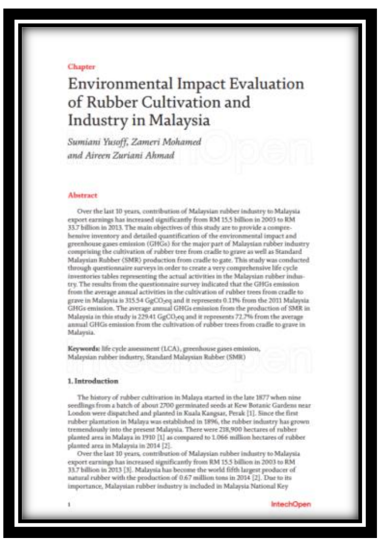
Sub-section 5.1:
UM ZWC Publication

BOOK CHAPTER

1. Yusoff, S., Mohamed, Z. & Ahmad, A. Z. (2019). Environmental Impact Evaluation of Rubber Cultivation and Industry in Malaysia. Climate Change and Agriculture, Saddam Hussain. DOI: 10.5772/intechopen.84420

ARTICLE IN ACADEMIC JOURNAL

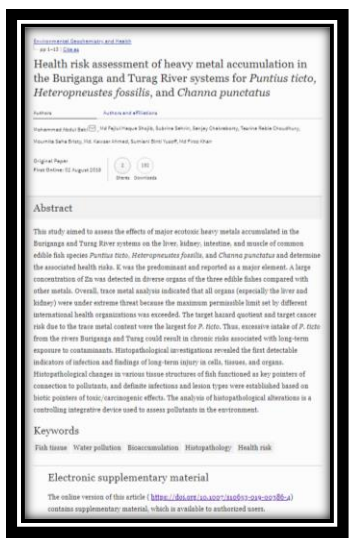
1. Baki MA, Shojib MFH, Sehrin S, Chakraborty S, Choudhury TR, Bristy MS, Ahmed MK, Yusoff SB, Khan MF. Health risk assessment of heavy metal accumulation in the Buriganga and Turag River systems for Puntius ticto, Heteropneustes fossilis, and Channa punctatus. Environmental geochemistry and health 2019: 1-13
2. Ibrahim, I.Z., Chong, W.T., Yusoff, S., Wang, C.T., Xiang, X. & Muzammil, W.K. (2019). Evaluation of common indoor air pollutant reduction by a botanical indoor air biofilter system. Indoor and Built Environment, DOI: 10.1177/1420326X19882080
3. Onn, C. C., Mo, K. H., Radwan, M. K. H., Liew, W. H., Ng, C. G. & Yusoff, S. (2019). Strength, Carbon Footprint and Cost Considerations of Mortar Blends with HIgh Volume Ground Granulated Blast Furnace Slag. Sustainability 11, 7194; doi:10.3390/su11247194
4. Nayaka, R. R., Alengaram, U. J., Jumaat, M. Z., Yusoff, S. B., & Ganasan, R. (2019). Performance evaluation of masonry grout containing high volume of palm oil industry by-products. Journal of Cleaner Production, 220, 1202-1214.
5. Choong, JE; Onn, CC; Yusoff, S; Mohd, NS 2019. Life Cycle Assessment of Waste-to-Energy: Energy Recovery from Wood Waste in Malaysia. POLISH JOURNAL OF ENVIRONMENTAL STUDIES


Chapter

Environmental Impact Evaluation of Rubber Cultivation and Industry in Malaysia

Sumiani Yusoff, Zameri Mohamed and Aireen Zuriani Ahmad

Abstract


Health risk assessment of heavy metal accumulation in the Buriganga and Turag River systems for *Puntius ticto*, *Heteropneustes fossilis*, and *Channa punctatus*

Abstract

Keywords

Electronic supplementary material


Original Paper

Indoor and Built Environment

Evaluation of common indoor air pollutant reduction by a botanical indoor air biofilter system

Abstract

Keywords

Introduction


sustainability

Strength, Carbon Footprint and Cost Considerations of Mortar Blends with High Volume Ground Granulated Blast Furnace Slag


Influence of palm oil clinker powder on the fresh and mechanical properties of masonry mortars


Polish Journal of Environmental Studies

Life cycle assessment of waste-to-energy: energy recovery from wood waste in Malaysia

Sub-section 5.2: Knowledge sharing by UM ZWC and visits from various organizations

12 JANUARY 2019

Demonstration of waste separation at source in Arts Policy, Cultural Democracy and Artist Communities Programme at Pusat Kebudayaan Universiti Malaya

17 JANUARY 2019

Training and demonstration to the students from University of RCE Tongyeong, South Korea

27 FEBRUARY 2019

Training and capacity building to researchers from International Islamic University Malaysia and Universiti Malaysia Terengganu

27 FEBRUARY 2019

Capacity building on integrated waste management to KISEE Delegation from Korea

8 MARCH 2019

Awareness program for officers from CIMB Foundation

18 MARCH 2019

Training and demonstration to the representatives from Universiti Malaysia Pahang

22 MARCH 2019

Awareness and capacity building to the Rotary Club Bukit Kiara

27 MARCH 2019

Knowledge sharing on UM ZWC organic compost to the staff of JPPHB

30 MARCH 2019

Training and demonstration to Leo Clubs House that involves 9 school clubs in Klang Valley

5 APRIL 2019

Discussion on the best solution for solid waste generation with Dr. Paul Cornett from American Environmental Health Studies Project, Oxford University

12 APRIL 2019

Training and capacity building for SWCorp staff that had an intention to transfer the knowledge of composting to Langkawi community

17 APRIL 2019

Awareness program and integrated waste management system training to the students from Environment and Recycle Club, SMK Seri Pantai.

6 MAY 2019

Awareness program for students from Faculty of Engineering

9 MAY 2019

Training on integrated waste management system for INTEC Education College representatives from Shah Alam, Selangor.

1 JULY 2019

Training and demonstration to students from Philippines Science High School

22 JULY 2019

Awareness program and demonstration on food waste treatment to delegates from India

8 AUGUST 2019

Capacity building and awareness program on recycling in University of Malaya campus in collaboration with Alam Flora Sdn. Bhd

22 SEPT 2019

Awareness talk to UKM students from Faculty of Engineering

29 SEPT 2019

Training and demonstration to the CIMB Foundation staff and scholarship recipients

11 SEPT 2019

Site visit of students from Chongqing University, China

21-23 SEPT 2019

Participated in PECIPTA 2019, awarded gold medal for Innovation by UM Zero Waste Campaign – Co-digestion of food waste.

9-10 OCT 2019

Participated in International GreenTech Eco products (IGEM'19)

19-20 NOV 2019

Invited to give awareness talk to Pusat Perubatan Universiti Malaya (PPUM) staff about food waste separation at source generates organic compost

22 NOV 2019

Capacity building on waste management in UM campus to CITRA students

30 NOV 2019

Capacity building and training program to Tenby International Setia Eco Park community (staff and students)

List of visitors to UM ZWC site

No.	Date	Organization	No. of visitor(s)
1	17/1/2019	University of RCE Tongyeong, Korea - International	4
2	27/2/2019	International Islamic University Malaysia – Local Universiti Malaysia Terengganu – Local Korea Institute of Sustainable Design and Educational Environment (KISEE), Korea – International	2 3 26
3	8/3/2019	CIMB Foundation – Local Kebun-kebun Bangsar – Local	3 1
4	18/3/2019	Universiti Malaysia Pahang (UMP) – Local	37
5	27/3/2019	Jabatan Pembangunan & Penyelenggaraan Harta Benda, Universiti Malaya – Local	45
6	30/3/2019	Lion Clubs – Local	35
7	5/4/2019	University of Oxford – International	2
8	12/4/2019	SWCorp – Local	3
9	17/4/2019	SMK Sri Pantai – Local	43
10	6/5/2019	Faculty of Engineering, Universiti Malaya - Local	25
11	9/5/2019	INTEC Education College	15
12	1/7/2019	Philippines Science High School, Philippines – International	15
13	22/7/2019	India delegation, India – International	32
14	11/9/2019	Chongqing University, China – International	37
14	22/9/2019	Universiti Kebangsaan Malaysia – Local	30
15	29/9/2019	CIMB Foundation – Local	27
16	22/11/2019	Centre For The Initiation Of Talent And Industrial Training CITra, Universiti Malaya – Local	20
17	23/12/2019	Akademi Pengajian Islam, Universiti Malaya – Local	12

Sub-section 5.3:
2019 Media appearances

2020 TARGETS

2020 TARGETS

PROJECT TARGET ACHIEVEMENT

Landfill diversion: 147,000 kg

- Food waste: 50,000 kg
- Green waste: 17,000 kg
- Textile waste: 20,000 kg
- Recyclable materials: 60,000 kg

Revenue from UM ZWC compost sale and UM ZWC training module: RM8,000.00

CAPACITY BUILDING

To organize at least ten (10) sessions of seminar / demonstration / training

INNOVATION & TECHNOLOGY TRANSFER

To carry out two (2) technology / knowledge transfer

COMMUNITY ENGAGEMENT

To involve in at least two (2) sessions of community engagement programs

NETWORKING & LINKAGES

To form at least two (2) new networking / linkage with external party

PUBLICATION(S)

To publish at least two (2) presentations/proceedings

POLICY PAPERS / GUIDELINES / STANDARDS

To introduce at least one (1) guideline

OTHERS

To create 1 home-composting kit

CONCLUSION

Conclusion

2019 is marked as another significant year for UM ZWC, the recycling culture in UM campus has shown an improvement with the new initiative that involves collaboration with Alam Flora Sdn. Bhd. A recycling program has been scheduled to be held monthly. Every session (per month), the waste collection is targeted to collect 1 tons and above. As agreed with Alam Flora Sdn Bhd, the UM community needs to fulfill this target to keep the continuity of the program onwards. That's one of the notable 'force' in increasing recycling rate in UM campus, thereby the amount of waste to be sent to the landfill can be reduced. With the on-going projects of UM ZWC, 155,000 kg of waste has been successfully diverted from going to landfill in year 2019. While in relation to capacity building, UM ZWC has transferred knowledge on integrated solid waste management to more than 1000 visitors. Besides that, in year 2019, UM ZWC has developed an engagement with Member of Parliament Lembah Pantai, YB Fahmi Fadzil. This helps UM ZWC to gain more positive reputation to the public exposure. Meanwhile, in UM ZWC site, the composting piles have been relocated to a new site due to safety issues to avoid accidental risk of fire hazard that might affect the electric pole, owned by TNB, which is situated above the composting piles. Subsequently, the prior composting site has been replaced with organic farm and further promote the circular economy concept. With the achievements of UM ZWC in year 2019, our target to enhance public awareness widely can be accomplished at more significant level.