Universitas
Esa Unggul
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SUSTAINABILITY REPORT 2019

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1. Setting and Infrastructure
2. Energy
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1

Setting and Infrastructure

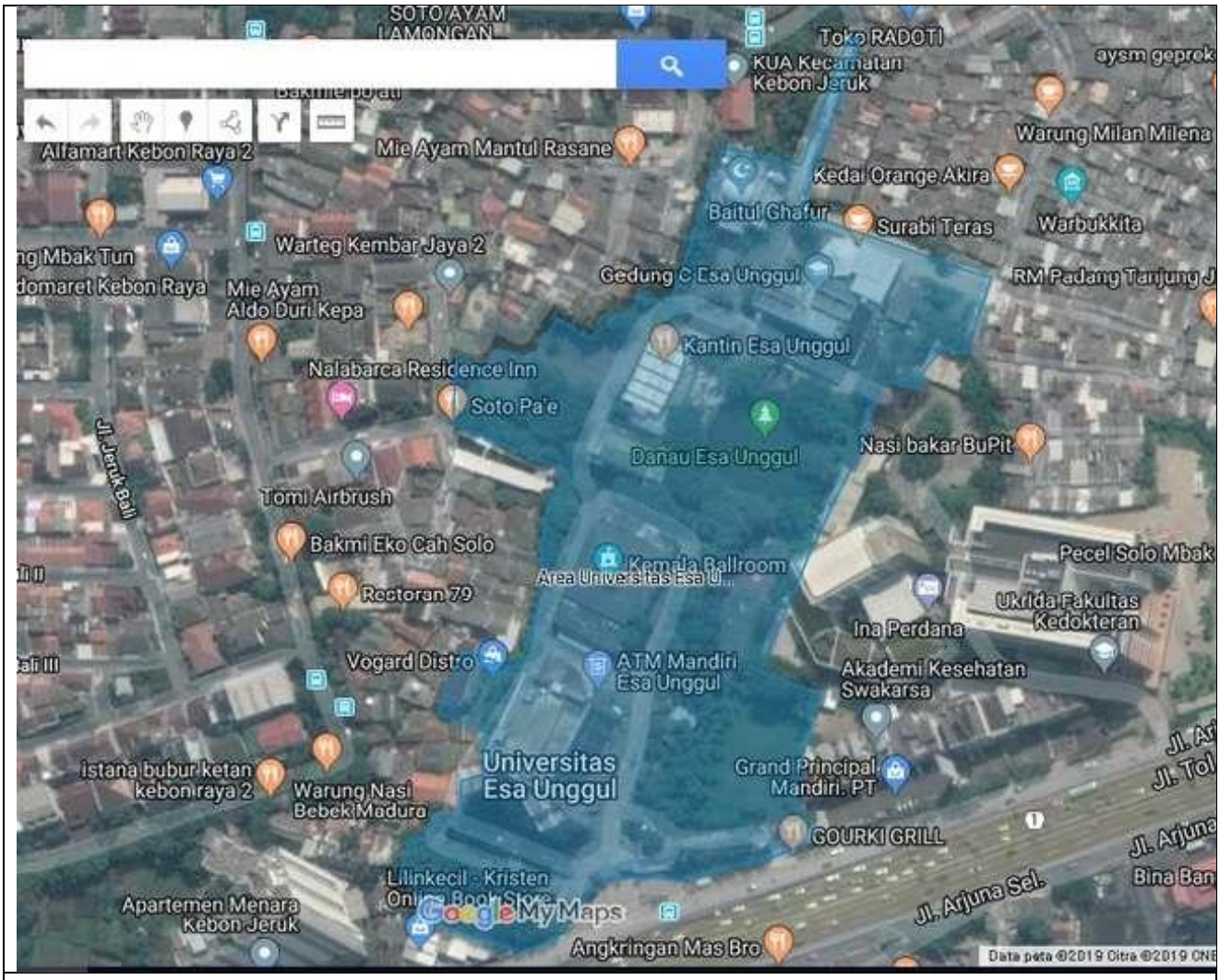
Number of Campus Sites

	Universitas Esa Unggul Jakarta - Indonesia
	Universitas Esa Unggul Jakarta - Indonesia

Campus Setting

Campus Setting - Rural (Universitsa Esa Unggul, Indonesia)

Total Campus Area (meter^2)

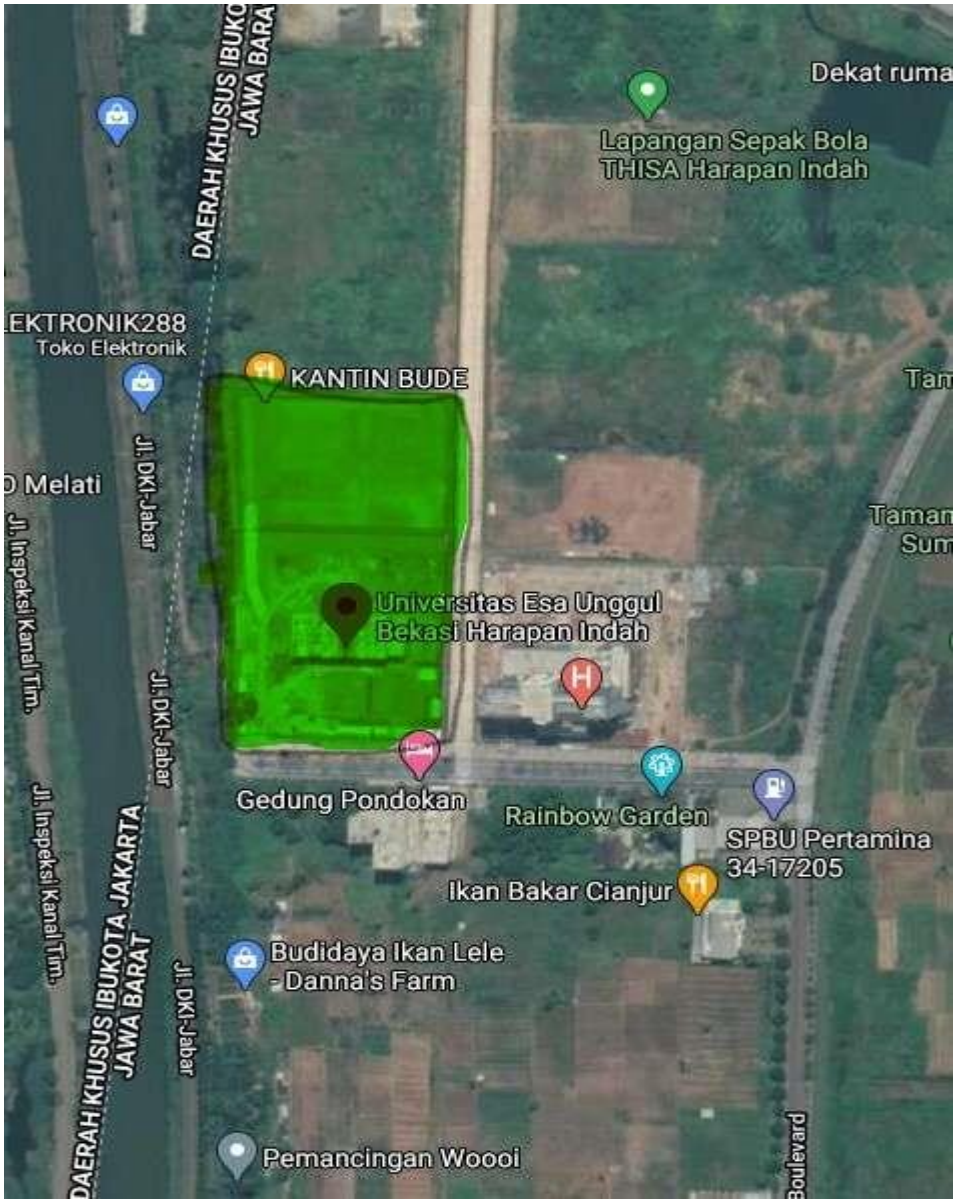


Universitas Esa Unggul – Kebon Jeruk

Description:
Total area: 40.497m^2
Total distance/circumference: 1,2 km

Additional evidence link:
https://www.google.com/maps/place/Universitas+Esa+Unggul/@-6.1850598,106.7788035,18z/data=!4m5!3m4!1s0x2e69f6f9d35766d1:0x9ac2dec76f747b31!8m2!3d-6.1858081!4d106.7788659

UNIVERSITAS ESA UNGGUL – BEKASI, WEST JAVA



Description:
Total area: 30.000m^2
Total distance/circumference: 1 km

Additional evidence link:
https://www.google.co.id/maps/place/Universitas+Esa+Unggul+Bekasi+Harapan+Indah/@-6.1590165,106.9701401,932m/data=!3m2!1e3!4b1!4m5!3m4!1s0x2e698b4f86ba93ef:0xcf58e590de21713a!8m2!3d-6.1590165!4d106.9723288?hl=id

Total Campus Building Area

Picture A

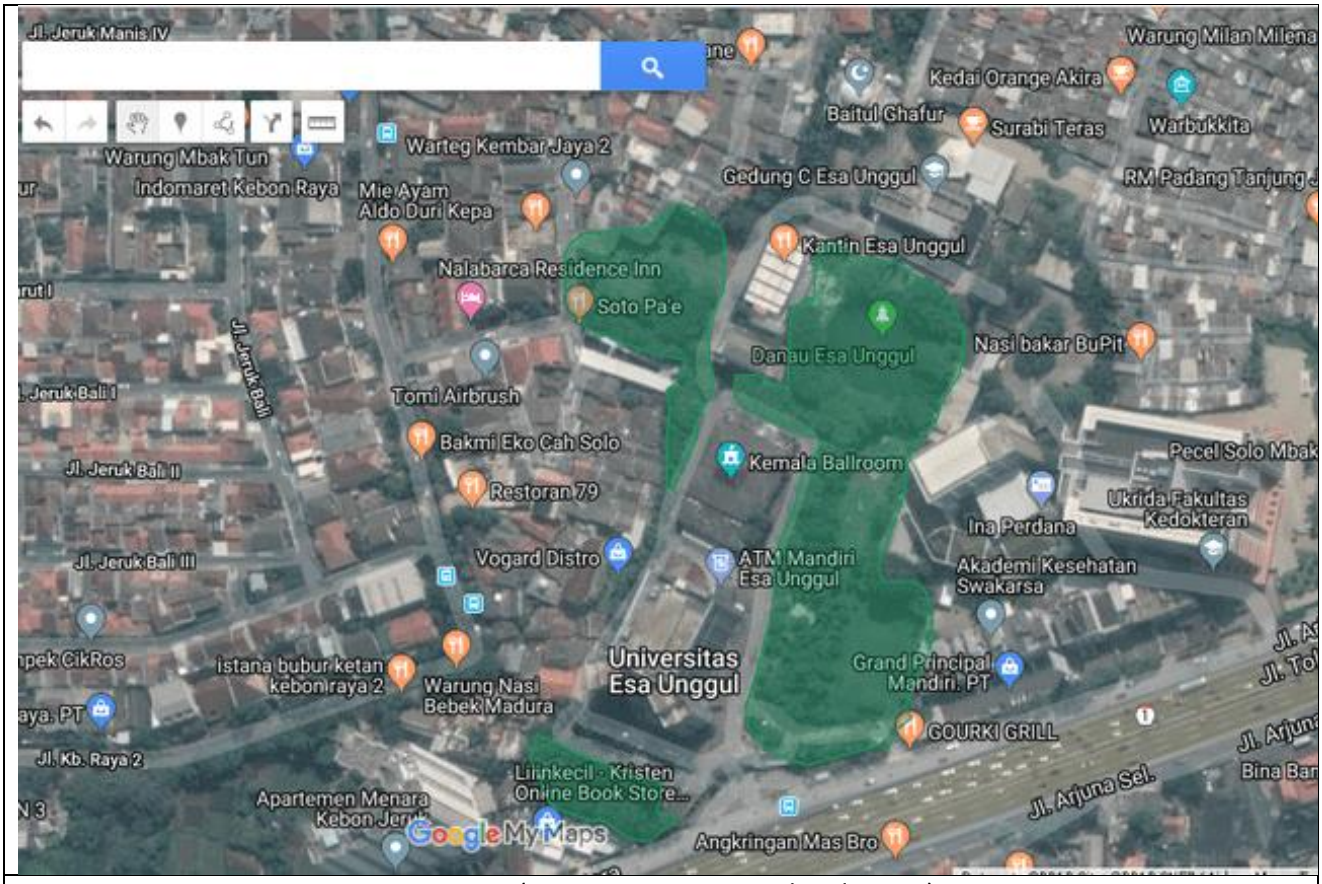

Description:
The total area of the campus building in Esa Unggul Kebon Jeruk - Jakarta is 17,532.53m2

Additional evidence link: www.esaunggul.ac.id

Picture B


Description:
The total building area of the Esa Unggul Bekasi - West Java campus is 10,000m2

Total Area on Campus Covered in Forest Vegetation (meter^2)



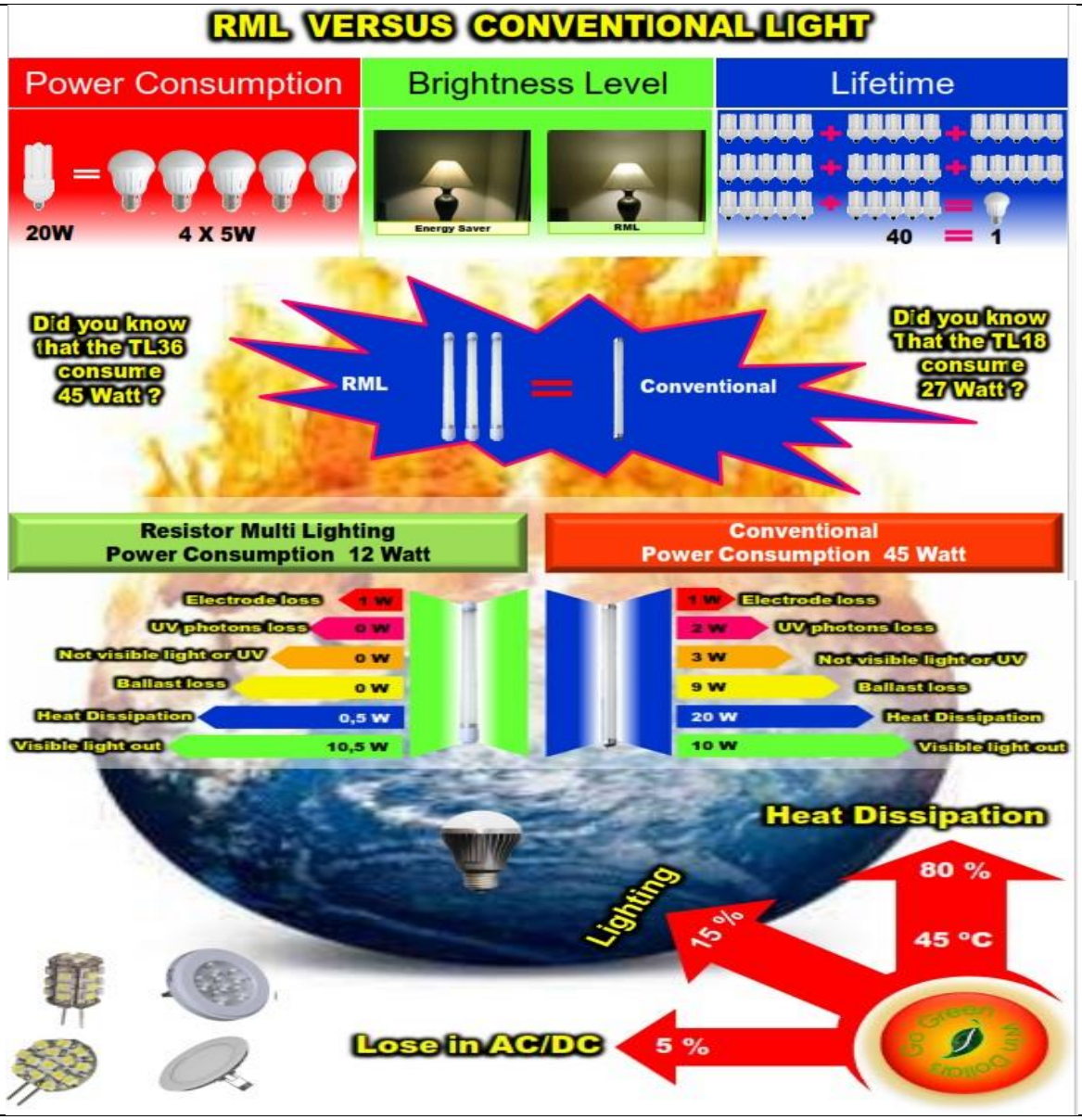
Area Hijau (Universitas Esa Unggul, Indonesia)

Description:
Total area: 40.497 m^2 (40% Of total area)
Total distance/circumference: 4.84 km

2

Energy

Energy Efficient Appliances Usage



Energy Saving Lamp with RML Lamp

Conventional lamp Test

LED RML lamp Test

Savings Calculation Table Of Lamp

Universitas Esa Unggul

Jl. Arjuna Utara No. 9 RT 1/RW 2 Duri Kepa, Kb. Jeruk - Jakarta Barat

No.	Type	Jumlah Bola Lampu	LAMPU KONVENSIONAL									LAMPU RML					
			Daya Bola Lampu	Lampu	Ballast	Jumlah daya	Jumlah Daya	LWBP		WBP		Daya Bola Lampu RML	Jumlah Daya RML	LWBP		WBP	
			watt	Set	watt	watt	Kw	Jam	Kw	Jam	Kw	watt	Kw	Jam	Kw	Jam	Kw
1	TL 36 / T8	3601	36	1	11,7	47,7	171,77	10	1.718	4	687,1	12	43,21	10	432,12	4	172,85
2	Bulb	25	0	1	0	0	-	10	-	4	-	0	0,00	10	0,00	4	0,00
3	Down Light / ROUND PANEL	561	18	2	0	36	20,20	10	202	4	80,8	5	2,81	10	28,05	4	11,22
4	PJU	11	250	1	45	295	3,25	10	32	4	13,0	45	0,50	10	4,95	4	1,98
5	Lampu Sorot	1	0	1	45	45	0,05	10	0	4	0,2	0	0,00	10	0,00	4	0,00
Jumlah		4.199	***Total Konsumsi Listirk Lampu Konvensional (kw***						1.953		781,0	***Total Konsumsi Listirk Lampu RML (kw)***			465,12		186,05

Konsumsi Listrik untuk Lampu Konvensional setiap Bulan					
Biaya Pemakaian per Bulan (LWBP)	TDL	Biaya LWBP	955,50Rp/kwh	48.506.876,69	Rp/Bulan
Beban Puncak (WBP)	TDL	Biaya WBP	1.433,28Rp/kwh	29.104.735	Rp/Bulan
Pajak 3 % (PPN , Pph, Pajak Penerangan)	Rp	2.328.348		-	Rp/Bulan
Perkiraan Biaya Maintenance 0,5 %				419.900	Rp/Bulan
Total Biaya Pemakaian per Bulan				78.031.512	Rp/Bulan

Konsumsi Listrik untuk Lampu RML setiap Bulan					
Biaya Pemakaian per Bulan (LWBP)	TDL	Biaya LWBP	955,50Rp/kwh	11.554.976	Rp/Bulan
Beban Puncak (WBP)	TDL	Biaya WBP	1.433,28Rp/kwh	6.933.131	Rp/Bulan
Pajak 3 % (PPN , Pph, Pajak Penerangan)	Rp	554.643		0	Rp/Bulan
Total Biaya Pemakaian per Bulan				18.488.107	Rp/Bulan

Perhitungan Penghematan Biaya Listrik		
Penghematan Listrik dari pemakaian Lampu	***59.543.405***	***Rp/Bulan***

Energy efficient with RML Lamp can reduce 75% of KWH usage. LED Lighting continues aplication for each room and facility with light detection.

Freon is used for air conditioning on campus

Scanned with CamScanner

Use zero ozone Deletion potentia

Smart Building Implementation

***Min. at least five requirements for each building**

No.	Name	Place	automation		safety				energy		water		Indoor environment				lighting				Building Area (m^2)
			B1	B2	S1	S2	S3	S4	E1	E2	A1	A2	I1	I2	I3	I4	L1	L2	L3	L4	
	Universitas Esa Unggul Building A	Jakarta, Indonesia				x											x				13.600
	Universitas Esa Unggul Building B	Jakarta, Indonesia	x			x											x				1.548
	Universitas Esa Unggul Building C	Jakarta, Indonesia				x										x	x				4.655
	Universitas Esa Unggul Building D	Jakarta, Indonesia				x											x				720
	Universitas Esa Unggul Building A	Bekasi, Indonesia	x		x				x		x			x			x				11.000
	Total																				**31.523**

Please compile one row for each building (or homogeneous part of it) by ticking with a "X" for each requirement

Smart building implementation

$$\frac{total\ smart\ building\ area}{total\ building\ area} \times 100\%$$

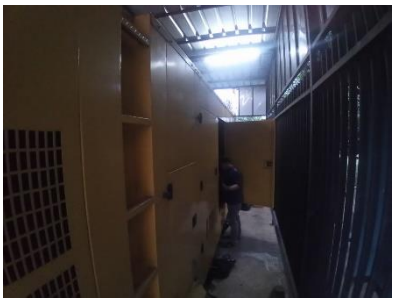
$$\frac{20,523\ m^2}{40,497\ m^2} \times 100\% = 50,6\%$$

Note:

Additional evidence link: www.esaunggul.ac.id

Building A	Building B
	
Building C	Building D
	

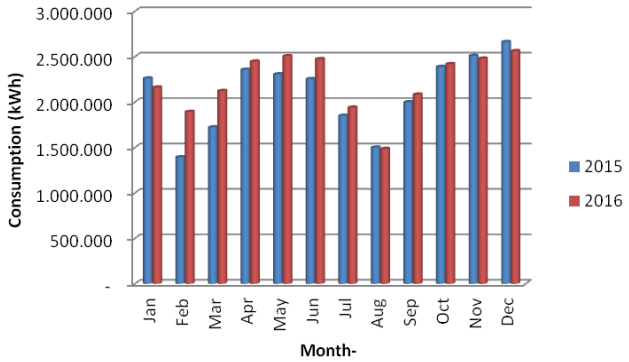
Renewable Energy Sources in Campus


Biodiesel Generator and Power Integration Unit (Esa Unggul University - Indonesia)

Using biodiesel as fuel, located in the campus area. The generator rated power is 1 mega watt.

Electricity Usage per Year (in Kilowatt hour)



Electricity Usage (kWh) on Esa Unggul University - Indonesia)

Description:

The total electricity usage for Esa Unggul University Campus in 2017 is 40,228,415 kWh. In the main campus area of the University of Esa Unggul & electricity is used for lighting, cooling, heating, and laboratory equipment.

Please Provide The Total Carbon Footprint (CO_2 emission in the last 12 months, in metric tons)

Option 2: Recommended by UI GreenMetric

CO_2 (electricity)

$$= \frac{electricity\ usage\ per\ year\ (kWh)}{1000} \times 0,84$$

$$= \frac{1,633,286\ kWh}{1000} \times 0,84$$

= 1,371.96 metric tons

CO_2 (bus)

$$= \frac{number\ of\ shuttle\ bus\ in\ your\ university \times total\ trips\ for\ shuttle\ bus\ service\ each\ day \times approximate\ travel\ distance\ of\ vehicle\ each\ day\ inside\ campus\ only\ (KM) \times 240}{100} \times 0,01$$

$$= \frac{15 \times 150 \times 5 \times 240}{100} \times 0,01$$

= 270 metric tons

CO_2 (cars)

$$= \frac{number\ of\ cars\ entering\ your\ university \times 2 \times approximate\ travel\ distance\ of\ vehicle\ each\ day\ inside\ campus\ only\ (KM) \times 240}{100} \times 0,02$$

$$= \frac{2,000 \times 2 \times 5 \times 240}{100} \times 0,02$$

= 960 metric tons

CO_2 (motorcycle)

$$= \frac{number\ of\ motorcycle\ entering\ your\ university \times 2 \times approximate\ travel\ distance\ of\ vehicle\ each\ day\ inside\ campus\ only\ (KM) \times 240}{100} \times 0,01$$

$$= \frac{4,000 \times 2 \times 5 \times 240}{100} \times 0,01$$

= 960 metric tons

CO_2 (total)

= 1,371.96 + 270 + 960 + 960

= 3,561.96 metric tons

Carbon footprint in 2018 = 3,561.96 metric tons

Example of Total Carbon Footprint (UI GreenMetric)

Description:

(*Please describe the total carbon footprint on your campus. You can describe more related items if needed.*)

.....

.....

Additional evidence link:

3

Waste

Recycling Program for University Waste

Recycling Program for University Waste (Esa Unggul University, Indonesia)

Recycling Program for University Waste (University of Esa Unggul, Indonesia)

Description:

Esa Unggul uses a local recycling which has implemented single stream recycling, to prepare student and faculty have giudence campus also promotes recycling with spesific category for papers,glass,can/alumunium so easier to be application.

Program to Reduce the Use of Paper and Plastic on Campus

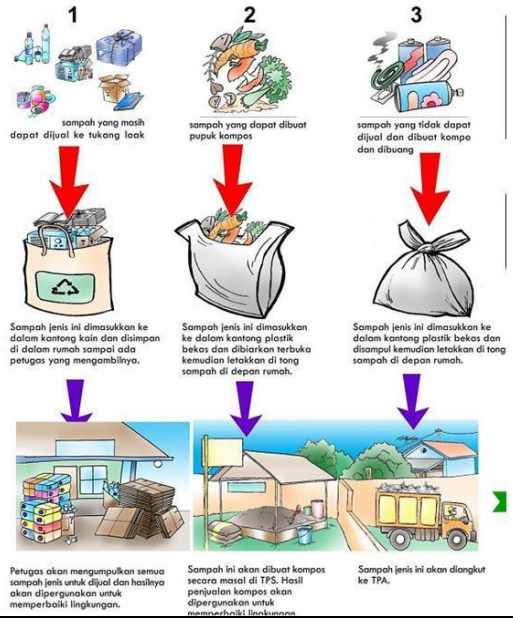
<table>
<tr><td></td><td></td></tr>
<tr><td>1.
 
</td><td>2
 
Paper separation</td></tr>
<tr><td colspan="2"> 
</td></tr>
<tr><td>3</td><td></td></tr>
<tr><td colspan="2">Example of Program to Reduce the Use of Paper and Plastic in Campus (Esa Unggul University, Indonesia)</td></tr>
</table>

Description:

1. Esa Unggul supports paperless system to reduce paper in daily workplace. It can reduce a lot of paper use that mean Esa Unggul University can reduce CO2 emissions and save the world.
2. Solutions of reusable paper in back office, e.g. using 2-side of paper, always recheck your data before print, use online system instead of hard copy.
3. Esa Unggul University has a policy of “Reduce Reuse plastic bag in the last 2 years. We can reduce around 1,5 million bags per year or reduce 80% of plastic waste in university”,"consistent with the campaign reduce plastic and use tumbler”.

Esa Unggul project use tumbler for meeting and several activity every membersin campu, not use drink with plastic package, focus of campaign on “ Reduce Plastic Pollution “ and efficient cost for drink expense budget.

Organic Waste Treatment



Organic Waste Treatment (Esa Unggul University, Indonesia)

Description:

Esa Unggul is separate with organic and unorganic wastes. The wastes manage are canteens and cafetaria then eliver to plants. The organic wastes use for festilizer usefil for campus parks.

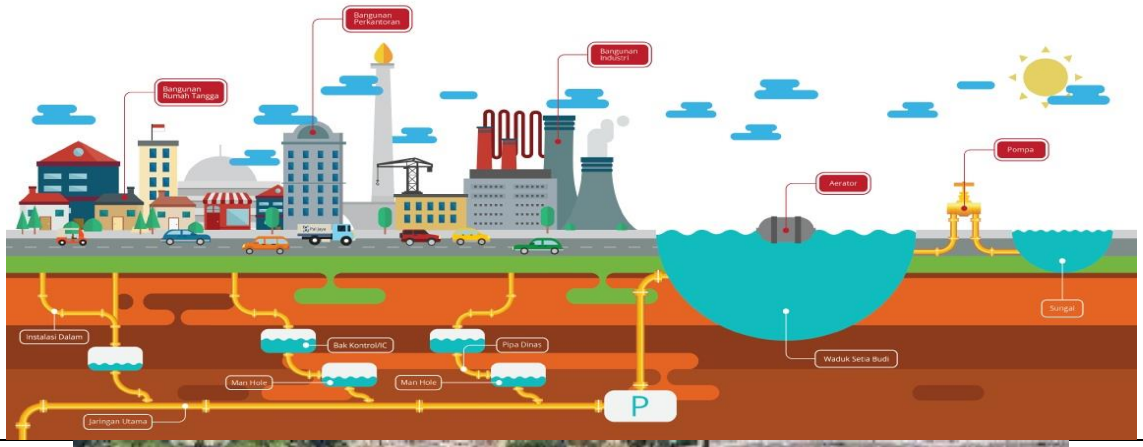
Inorganic Waste Treatment

Inorganic Waste Treatment (Universitas Esa Unggul, Indonesia)

Description:

1. Inorganic waste treatment at Esa Unggul University - Indonesia in collaboration with companies in Jakarta, has estimated that the installation of inorganic waste collectors where (Electrical and Electronic Waste Equipment) can be collected.
2. The Battery Project: the project, starting from collaboration between the University, DKI Jakarta has the aim to increase the awareness of users and citizens about collection and recycling.

Sewage Disposal



Pembuangan limbah (Esa Unggul,Jakarta)

Description:

Provision of waste water management piping System/centralized system to overcome the problems of soil and surface water pollution in the province of DKI Jakarta.Referring to the decree of the Governor No. 45 year 1992, that every building located in an area that has been attached wastewater pipes are obliged to dispose of the waste water to the pipe through a narrow pipe connection.

By removing waste water to PD PAL Jaya piping Channels, the university does not need to make septic tanks or local wastewater treatment (IPAL) installations.Wastewater from grey water and from biological waste such as human stool (black water) will be transmitted through a piping system to a centralized wastewater treatment plant (IPAL).The waste water that enters the IPAL is further processed until it meets the quality standards for disposal to the receiver's water body (river)

Additional evidence link:

4

Water

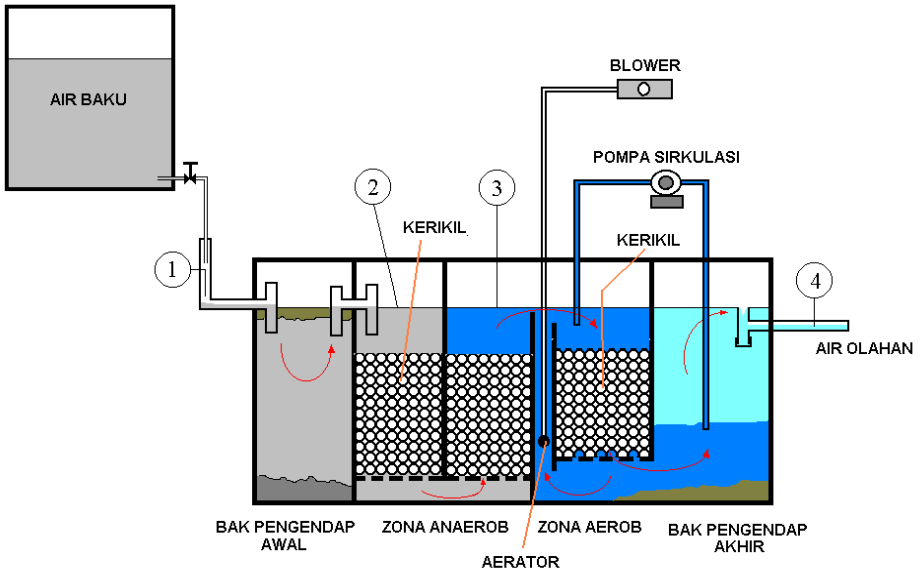
Water Conservation Program Implementation

Water Conservation – Rain Water Collection (University of Esa Unggul, Indonesia)

Description:

Buildings of Esa Unggul University have separate waste disposal systems, for wastewater and clean water (rain water). Rainwater is thus collected from the roof of the building and then discharged into local ponds and canals around the building. Esa Unggul also has a building where all the rainwater is collected for flushing toilets and for watering plants in the building. On our campus, we have a separate waste disposal system. We collect rainwater from the roof, parking area etc. And throw it in the ponds and channels on our campus.

Water Recycling Program Implementation

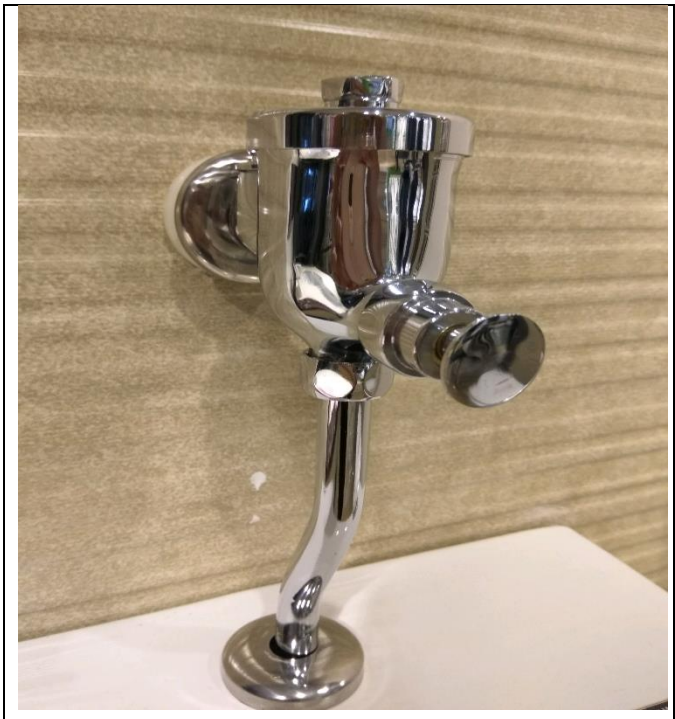


Example of Water Recycling Program (Esa Unggul, Indonesia)

Description:

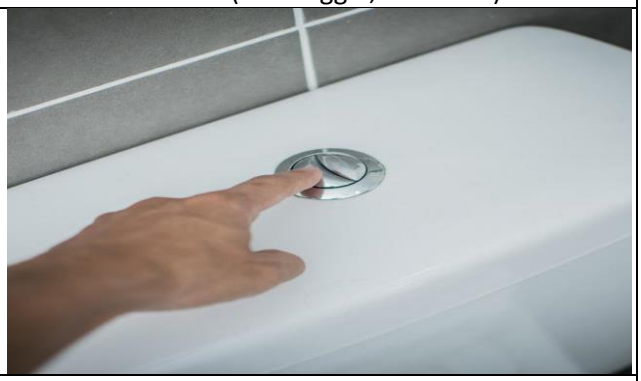
Light-level water treatment program, and the amount of rainwater Recycled water is also used for garden sprinkler systems, toilet flushes, and used in fish ponds.

Water Efficient Appliances Usage (e.g. hand washing taps, toilet flush, etc.)



Example of Water Efficient Appliances Usage Flush Valve Urinoir (Esa Unggul,Indonesia)

Kran Air (Tap Water)
Tap with efective reduce water consumption.



Toilet push valve
Toilet with the efective push valve can reduce water as efective consumption.

Description:
Urinoir the system with high temperature also efective and efisien for usage. We can reduce water with minimun flush.

Appliance	Total Number	Total number water Efficient appliances	Percentage
Toilet	250	150	60%
Wastafel	150	100	66%
Etc.	…	…	…
		Average Percentage	**63%**

5

Transportation

Vehicle Population

Picture A	Picture B
	

Description:

The number of vehicles both cars and motorbikes based on campus population at esa unggul University

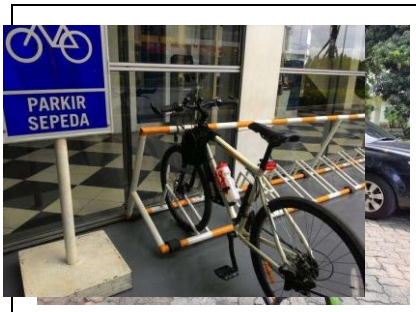
Shuttle Services

Shuttle Service (Universitas Esa Unggul)

Description:
The location of the university in and around Kebon Jeruk, West Jakarta is very well served by campus internal buses, with the Kebon jeruk route to Citra Raya campus, and Kebon jeruk to Harapan Indah Bekasi campus

Additional evidence link:
https://www.esaunggul.ac.id/universitas-esa-unggul-tambah-bus-kampus/

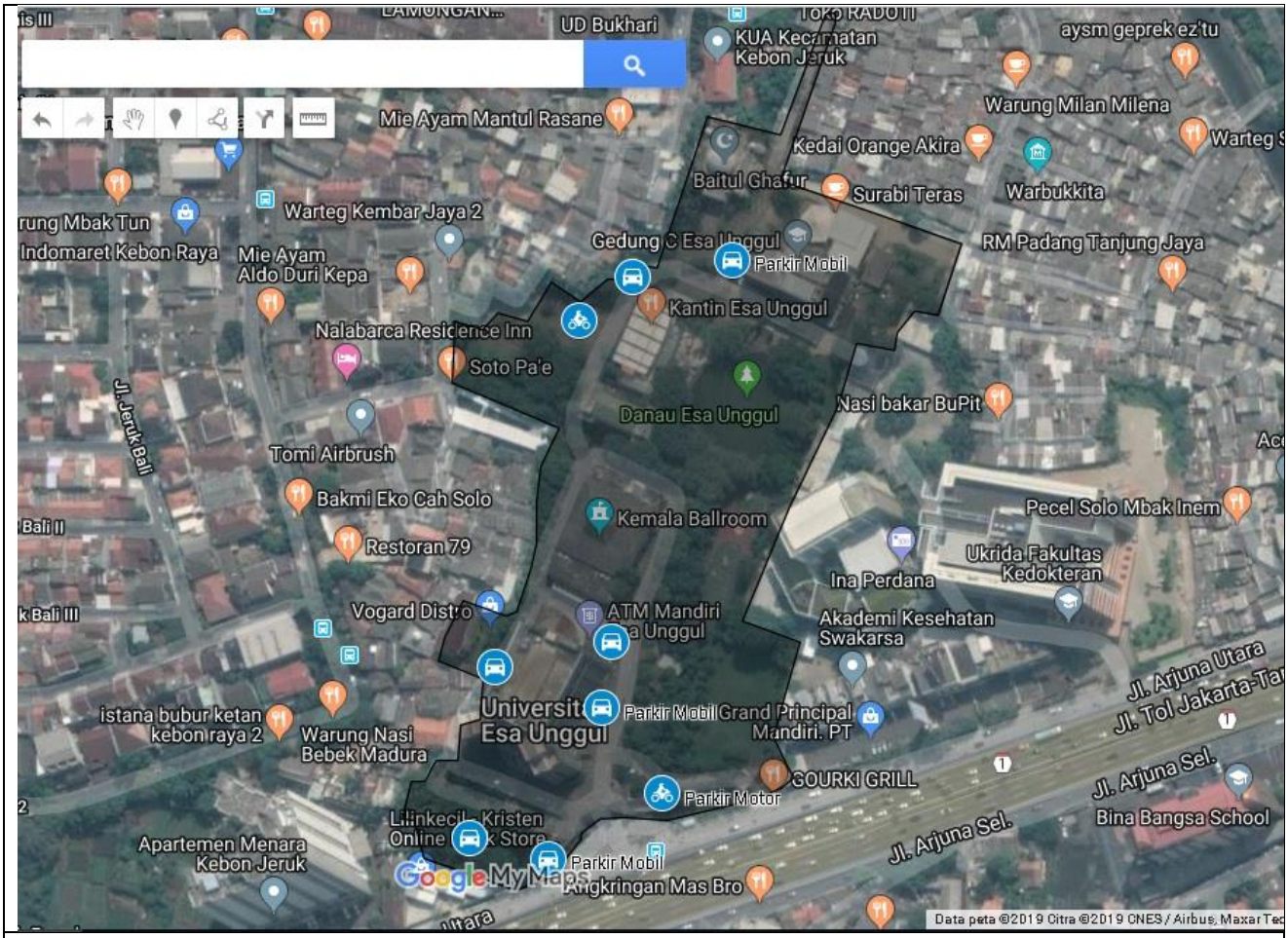
Zero Emission Vehicles (ZEV) Policy on Campus

	
Campus Bikes (University Esa Unggul,Indonesia)	Pedestrian Path

Description:

All Esa Unggul University sites are cyclists and pedestrian-friendly. Many have vehicle free lanes for these users. There is a 5 mph speed limit on all internal roads, and bicycle lanes on public roads.

Ratio of Parking Area to Total Campus Area



Parking Area to Total Campus Area (Universitas Esa Unggul, Jakarta)

Description:
Total main campus area: 40.497 m^2
Total parking area = 420m^2 (200 Motorcycle , 100 Car).

Number of Transportation Initiatives to Decrease Private Vehicles on Campus

	
Campus Bus (Universitas Indonesia, Indonesia)	Free Bicycle for rent (Universitas Indonesia, Indonesia)

Description:
(*Please describe the transportation initiatives to decrease private vehicles on campus and specify detail of data, e.g. campus bus, free bicycle, etc. The following is an example of the description. You can describe more related items if needed*.)

1. Shuttle/bus campus inside campus
2. Free to rent bicycle on campus

Additional evidence link:

Pedestrian Path Policy on Campus

Pedestrian (Universitas Esa Unggul, Jakarta)

Description:

1. Separator between road for vehicle and pedestrian path.
2. Ramps and guiding blocks which have suitable design for pedestrian having physical disabilities.
3. Street lamp for pedestrian in night.

6

Education and Research

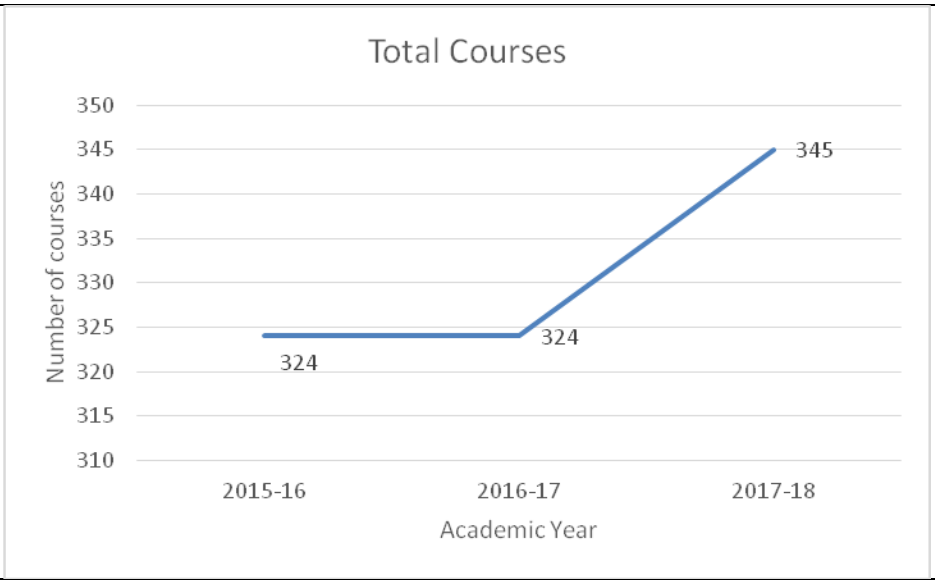
Number of Courses/Subjects Related to Sustainability Offered

No	Program Studi/Jurusan	Mata Kuliah	Keterangan
1	**Perencanaan wilayah kota (Urban Planing)**	Infrastruktur wilayah dan kota	
		Perencanaan wilayah	
		Tata guna dan pengembangan lahan	
2	**Bioteknologi (Biotechnology)**	Fisiologi hewan dan tumbuhan	
3	**Kesehatan masyarakat (Public Health)**	Dasar – dasar kehatan lingkungan	
		Pengelolaan limbah lingkungan	
		Pencemaran lingkungan	

Description:
The above is a list of programs that have undergone changes approved through the Curriculum program which aims to instill sustainability in all course content and modules offered by the University.
The list also includes courses with sustainability that are already embedded, and which include a Certificate of Sustainability in Practice as part of the core curriculum.

Total number of courses with sustainability embedded for courses running in 2018

Total Number of Courses/Subjects Offered



Example of Total Courses Offered in 2015/16 – 2017/18 (Nottingham Trent University, UK)

Description:
(*Please describe the total of courses/subjects offered on your campus. The following is an example of the description. You can describe more related items if needed*.)

Total number of courses offered in 2017/18 = 345 courses (not modules)

Additional evidence link:

Total Research Funds Dedicated to Sustainability Research (in US Dollars)

Research Title	Name Of Researcher	Research Time	Research Fund
Kloning gen cryIII dari Bacillus thuringiensis Isolat Lokal Untuk Produksi Tanaman Ubijalar transgenik Tahan Hama Boleng	Dr HENNY SARASWATI S.S.I, M.Biomed	3	$14,769.57
VALIDASI DAN EKSPANSI PENGGUNA AKHIR ELECTRONIC INTEGRATED ANTENATAL CARE (e-iANC)	Dr HOSIZAH S.KM, M.KM	3	$12,781.82
MODEL MEDIA KIE (komunikasi, informasi, edukasi) PADA PENCEGAHAN HYPOHIDRASI KEHAMILAN DI WILAYAH PUSKESMAS KECAMATAN KEBON JERUK, JAKARTA BARAT	Dr. ERRY YUDHYA MULYANI S.Gz, M.Sc.	3	$21,143.60
PENGEMBANGAN DAN IMPLEMENTASI GPS TRACKING MOBILE ON-BASE IOT UNTUK MENINGKATKAN DAYA GUNA DAN SAING EKSPEDISI	Ir Ir NIZIRWAN ANWAR M.T	3	$11,221.88

Number of Events Related to Sustainability

Events Related to Sustainability (Universitas Esa Unggul, Indonesia)

Events Related to Sustainability (Universitat Esa Unggul, Indonesia)

Description:

Example of events related to environment and sustainability hosted or organized by the UPV in the academic year 2017-2018.
Total number of sustainability/environment related events in:
2015/2016: 98
2016/2017: 103
2017/2018: 122