

VRU GREENUNIVERSITY ROPORT 2022



VALAYA ALONGKORN RAJABHAT UNIVERSITY
UNDER THE ROYAL PATRONAGE

PREFACE

Green University driving for Sustainability University of Valaya Alongkorn Rajabhat University under the Royal Patronage, Action starting from formulating university policies leading to strategies for goals. Commitment for implementation of the Green University Criteria that consists of physical development, waste, water and energy management, teaching and research processes and other practices. The university operates with a commitment that emphasizes community engagement processes, leading to collaborative efforts from external agencies at all levels at local, national and international to become a **“Sustainable university by 2036”**.

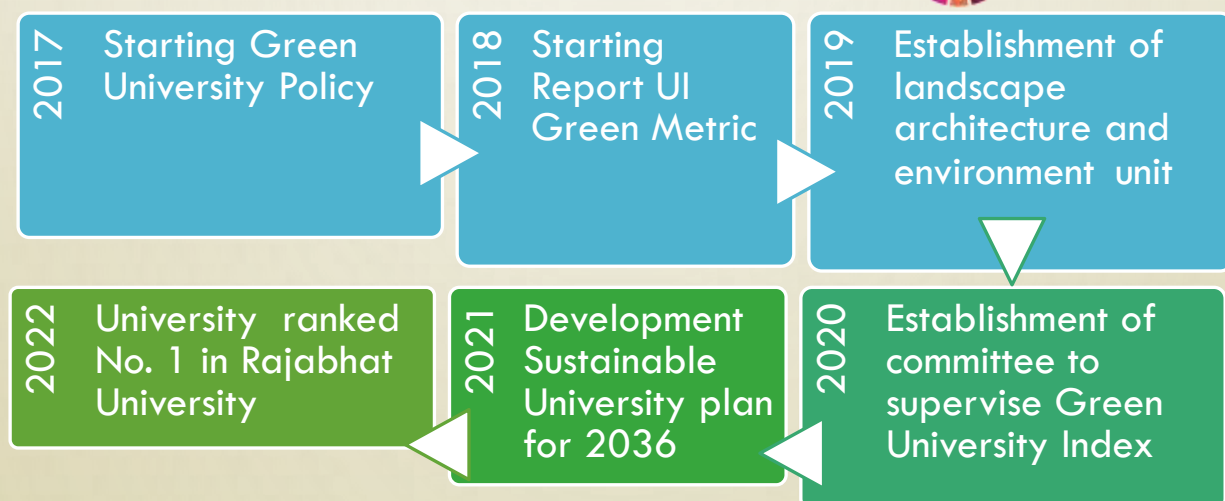




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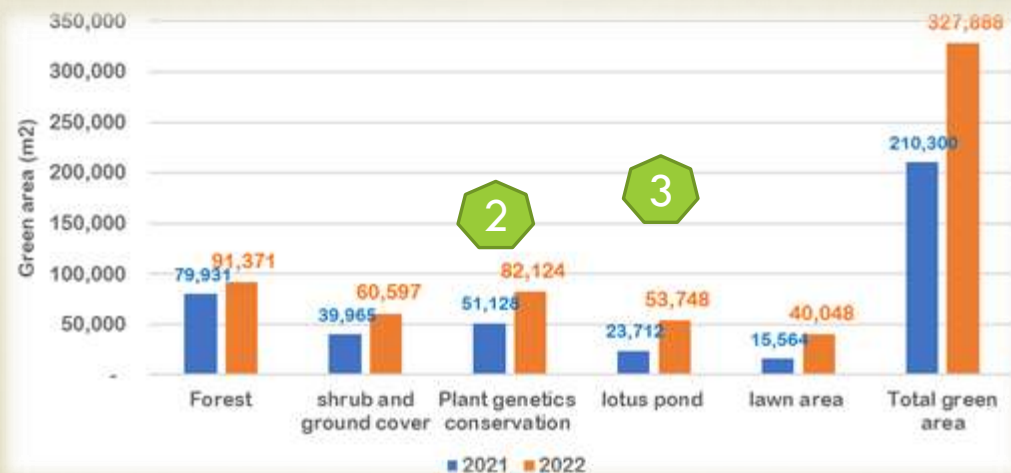


CHAPTER I

SETTING AND INFRASTRUCTURE

VALAYA ALONGKORN RAJABHAT UNIVERSITY UNDER THE ROYAL PATRONAGE HAVE 3 CAMPUSES CONSISTS OF PATHUM THANI CAMPUS, BANGKOK CAMPUS AND SRA KEAW CAMPUS. THE UNIVERSITY HAS A POLICY "SUSTAINABLE UNIVERSITY" DEVELOPED FROM "GREEN UNIVERSITY", COMMITTED TO IMPROVING ENVIRONMENT AND FACILITIES FOR ALL. MAIN CAMPUSES LOCATED IN PATHUM THANI PROVINCE, TOTAL OF MAIN CAMPUS AREA: 560,800 M². THE TOTAL CAMPUS BUILDINGS AREA 186,059 M², FIRST FLOOR 40,965 M², AS WELL AS INCREASING GREEN AREAS AND PRESERVING BIODIVERSITY!

$$\text{OPEN SPACE AREA} = ((560,800 - 40,965) / 560,800) \times 100 = 92.69 \%$$





SETTING AND INFRASTRUCTURE

The covered of planted vegetation area in VRU 236,517 m²
(42.17 %).



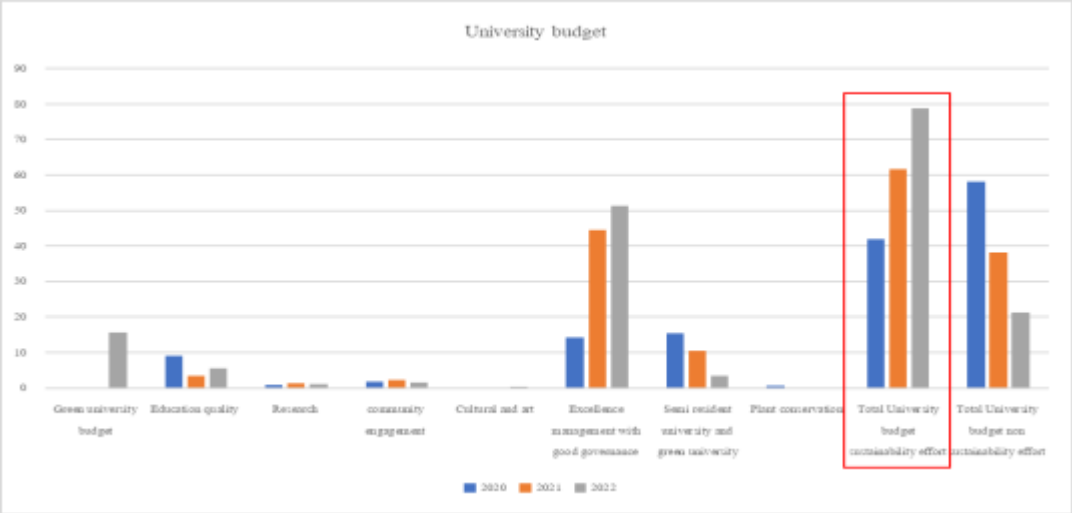
The covered water absorption area in VRU 90,137 m²





SETTING AND INFRASTRUCTURE

PERCENTAGE OF UNIVERSITY BUDGET FOR SUSTAINABILITY EFFORTS



CAMPUS FACILITIES FOR DISABLED OR SPECIAL NEEDS





SETTING AND INFRASTRUCTURE

SECURITY AND SAFETY FACILITIES



HEALTH INFRASTRUCTURE FACILITIES





SETTING AND INFRASTRUCTURE

CONSERVATION: PLANT (FLORA), ANIMAL (FAUNA), AND WILDLIFE, GENETIC RESOURCES FOR FOOD AND AGRICULTURE SECURED IN EITHER MEDIUM OR LONG-TERM



Conservation of plant genetics and biodiversity has been fully utilized with 100% responsibility. Biodiversity conservation is carried out throughout the supply chain. There is research on the conservation of birds and squirrels on campus.



CHAPTER II

ENERGY AND CLIMATE CHANGE

ENERGY-EFFICIENT APPLIANCES USAGE



SMART BUILDING IMPLEMENTATION





ENERGY AND CLIMATE CHANGE

RENEWABLE ENERGY SOURCES ON CAMPUS



TOTAL ELECTRICITY USAGE DIVIDED BY TOTAL CAMPUS' POPULATION (KWH PER PERSON)



In 2022, Electricity consumption 5,299,951.02kWh. Number of Staff and students 1,070 and 8,419 peoples. Total electricity consumption 558.54 units/person/year.



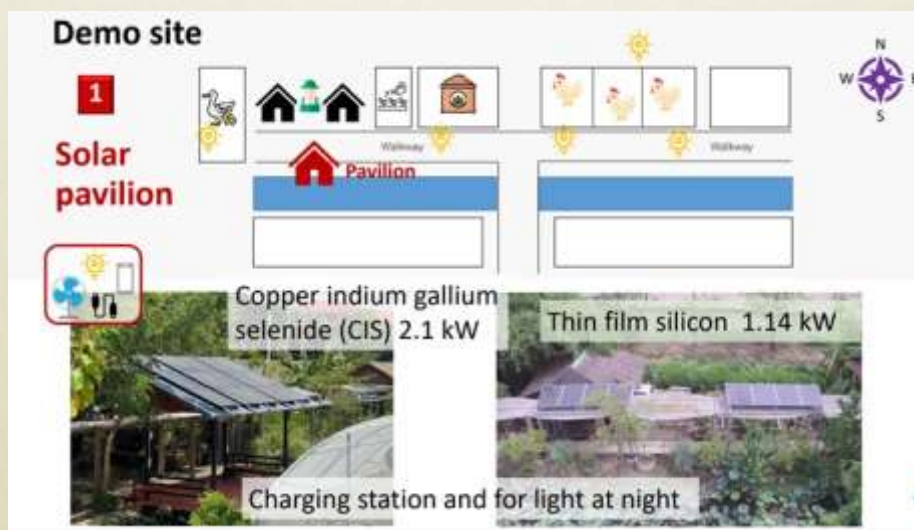
ENERGY AND CLIMATE CHANGE

RENEWABLE ENERGY

VRU have Energy Sustainability Environmental Action Plan in 2022, Start a project to establish a hybrid renewable energy innovation learning center to promote sustainable learning potential in Pathum Thani Province, and a project plan to establish a learning center Integrated waste management. Solar power system consist of illuminating roads and pathways, academic Building, plant genetic conservation building, solar water treatment, charging station and for light, solar water pumping in rice field, and solar pumping for water circulation. Project to manage electricity from a rooftop solar power generation system in the form of ESCO Model (Guaranteed Rebate) with an installed capacity of not less than 1,205.54 kWh. Biogas production system (22,695 KWH). Wind power generation system (1,460 KWH).

The ratio of renewable energy production divided by total energy usage per year 10.76%

$(570,118.25 \text{ kwh of renewable energy} / 5,299,951.02 \text{ kwh}) * 100\%$





ENERGY AND CLIMATE CHANGE

GREENHOUSE GAS EMISSION REDUCTION PROGRAM

VRU activities to reduce the carbon footprint of the university have developed a policy to reduce greenhouse gas emissions. Each year, there are more than three elements:



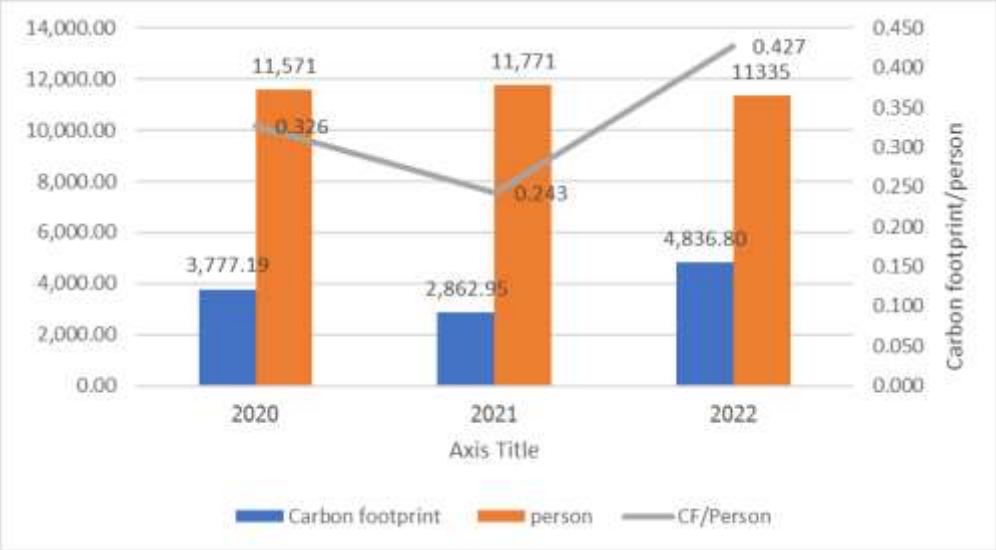
Scope 1 Mobile combustion

Scope 2 Purchased electricity

Scope 3 Waste: “Recycle Bank” and reduce the use of single use plastic

Scope 4 Renewable Energy

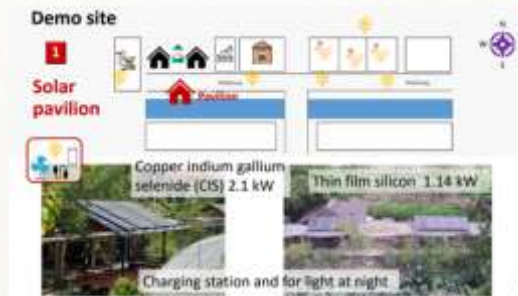
TOTAL CARBON FOOTPRINT (METRIC TONS PER PERSON)





ENERGY AND CLIMATE CHANGE

NUMBER OF THE INNOVATIVE PROGRAM(S) IN ENERGY AND CLIMATE CHANGE



IMPACTFUL UNIVERSITY PROGRAM(S) ON CLIMATE CHANGE



APEC BCG Economy Thailand 2022 Tech to Biz “Circular Solar Modules” Exhibition. Recycling and utilization of secondary materials from end-of life solar modules. VRU was selected as the installation site. In addition, the university also provides training to educate farmers and interested in farming that reduces GHG.



CHAPTER III

WASTE

RECYCLING PROGRAM FOR UNIVERSITY'S WASTE

VRU has organized the activities to change the habits of using materials or resources of staffs and students. The purposes of the activities are created environment friendly behavior of staffs and students to reuse waste or leftover the materials by the following 3Rs.

Reduce: reduce using materials which cause the wastes.

Reuse: bring back the used materials to be used again.

Recycle: processing the leftover materials and used again.

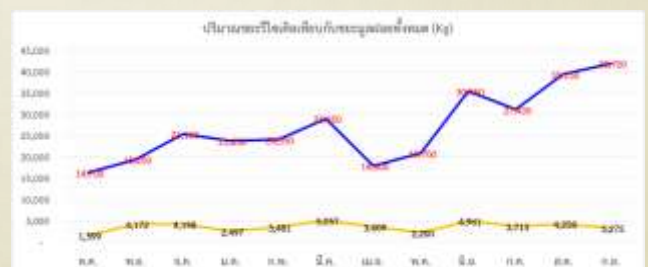


The "Recycle Bank"



The campaign for promoting waste separation.

The total amount of recycling waste of the university is 43,020 kg, accounting for 15% of the total waste.





WASTE

PROGRAM TO REDUCE THE USE OF PAPER AND PLASTIC ON CAMPUS

VRU has implemented the policies and methods for reducing paper and plastic usage for the goal that is to create a friendly living environment by inviting to do many relevant activities



Reduce paper and plastic Program

Say no to foam program



E-Office Program

ORGANIC WASTE TREATMENT





WASTE

INORGANIC WASTE TREATMENT

VRU has a plan to eliminate inorganic waste to reduce the amount of inorganic waste.



TOXIC WASTE TREATMENT

VRU divides the hazardous waste into 3 categories such as General waste, Chemical waste and Infectious waste.



SEWAGE DISPOSAL

VRU attaches great importance to the treatment of sewage from toilets in every building. The building is treated by the sewage going through the sewage treatment tank from the toilet.



WATER CONSERVATION PROGRAM & IMPLEMENTATION

VRU water conservation project as follows: water treatment to improve effluent, natural principle, filter water.



WATER RECYCLING PROGRAM IMPLEMENTATION



VRU wastewater treatment systems have two systems that are oxidation pond and activated sludge. Afterwards, the influent is drained to 16 stabilization ponds around the university.



WATER

WATER-EFFICIENT APPLIANCES USAGE



. VRU, Office of Academic Resources to improve bathrooms Sensor use Reduces water approximately 1-25%. Toilets Faculty of Humanities and Social Sciences. There are water saving devices as follows: sensor urinal systems, center system sinks, automatic hand washing system

CONSUMPTION OF TREATED WATER

Water resource management activities, rainwater, water tanks, wells. There are 16 natural water sources within the university.



CHAPTER V

TRANSPORTATION



THE TOTAL NUMBER OF VEHICLES

VRU has activities and projects for count car and motorcycle assess to university: 38 central cars, cars entering the university is 566 cars/day, and motorcycles entering the university is 668 vehicles/day.

$$= (38+566+668)/11,335 = 0.1122$$



SHUTTLE SERVICES

VRU has provided a shuttle bus service. Projects for arranging transportation within the university for substitute private vehicles. These are free service to avoid using private vehicles of staff, instructors and students.



ZERO-EMISSION VEHICLES (ZEV) POLICY ON CAMPUS



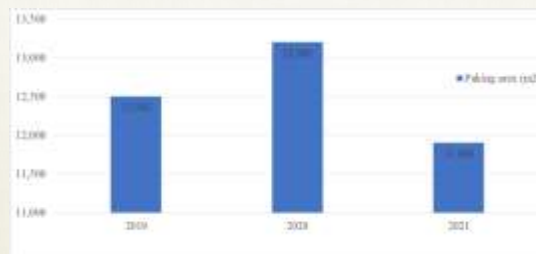


TRANSPORTATION

THE TOTAL NUMBER OF ZERO-EMISSION VEHICLES (ZEV) DIVIDED BY THE TOTAL CAMPUS POPULATION

VRU encourages to use bicycles, with 120 registered, 20 electric motorcycles and 20 free bicycles. There are 8 more electric car in free service. The total number of Zero Emission Vehicles (ZEV) divided equal to 168 vehicle. Total campus population 11,335 persons
 $= 168/11,335 = 0.0148$

THE RATIO OF THE GROUND PARKING AREA TO THE TOTAL CAMPUS' AREA



Ratio of parking area $= (11,900/560800) * 100 = 2.12\%$

PROGRAM TO LIMIT OR DECREASE THE PARKING AREA ON CAMPUS FOR THE LAST 3 YEARS (FROM 2019 TO 2021)

Transportation program designed to limit or decrease the parking area on campus for the last 3 years. Designed for parking spaces will have a restriction policy for parking to include points at the parking building.





TRANSPORTATION

NUMBER OF INITIATIVES TO DECREASE PRIVATE VEHICLES ON CAMPUS

VRU has a policy of providing zero-emission vehicles and can transport large numbers of people to reduce the use of personal vehicles. In addition, there is also a way to change travel behavior to be the same way together..

THE PEDESTRIAN PATH ON CAMPUS



VRU has Pedestrian is developed that can walk along the building. Separator between road for vehicle and pedestrian path. Street lamp for pedestrian in night use solar energy by focusing on safety and orderliness.



CHAPTER VI

EDUCATION

THE RATIO OF SUSTAINABILITY COURSES

GOAL	Number (subjects)
GOAL 1: No Poverty	227
GOAL 2: Zero Hunger	184
GOAL 3: Good Health and Well-being	551
GOAL 4: Quality Education	1,752
GOAL 5: Gender Equality	365
GOAL 6: Clean Water and Sanitation	111
GOAL 7: Affordable and Clean Energy	65
GOAL 8: Decent Work and Economic Growth	458
GOAL 9: Industry, Innovation and Infrastructure	429
GOAL 10: Reduced Inequality	340
GOAL 11: Sustainable Cities and Communities	145
GOAL 12: Responsible Consumption and Production	218
GOAL 13: Climate Action	83
GOAL 14: Life Below Water	100
GOAL 15: Life on Land	144
GOAL 16: Peace and Justice Strong Institutions	511
GOAL 17: Partnerships to achieve the Goal	326

THE RATIO OF SUSTAINABILITY RESEARCH FUNDING TO TOTAL RESEARCH FUNDING



VRU, averaged annum last 3 years of research fund dedicated to sustainability research 1,476,315 US Dollars



EDUCATION

NUMBER OF SCHOLARLY PUBLICATIONS ON SUSTAINABILITY

No.	Sustainable Development Goals	Total
1	No poverty	1
2	Zero hunger	4
3	Good health and well-being	51
4	Quality education	81
5	Gender equality	1
6	Clean water and sanitation	3
7	Affordable and clean energy	14
8	Decent work and economic growth	21
9	Industry, innovation and infrastructure	10
10	Reduced inequality	6
11	Sustainable cities and communities	6
12	Responsible consumption and production	25
13	Climate action	8
14	Life below water	3
15	Life on land	9
16	Peace, justice and strong institutions	2
17	Partnership for the goals	0
	Total	237



NUMBER OF EVENTS RELATED TO SUSTAINABILITY

VRU, total number of events related to sustainability 43 events, and 55 student organizations related to sustainability. Number of cultural activities on campus 5 activities





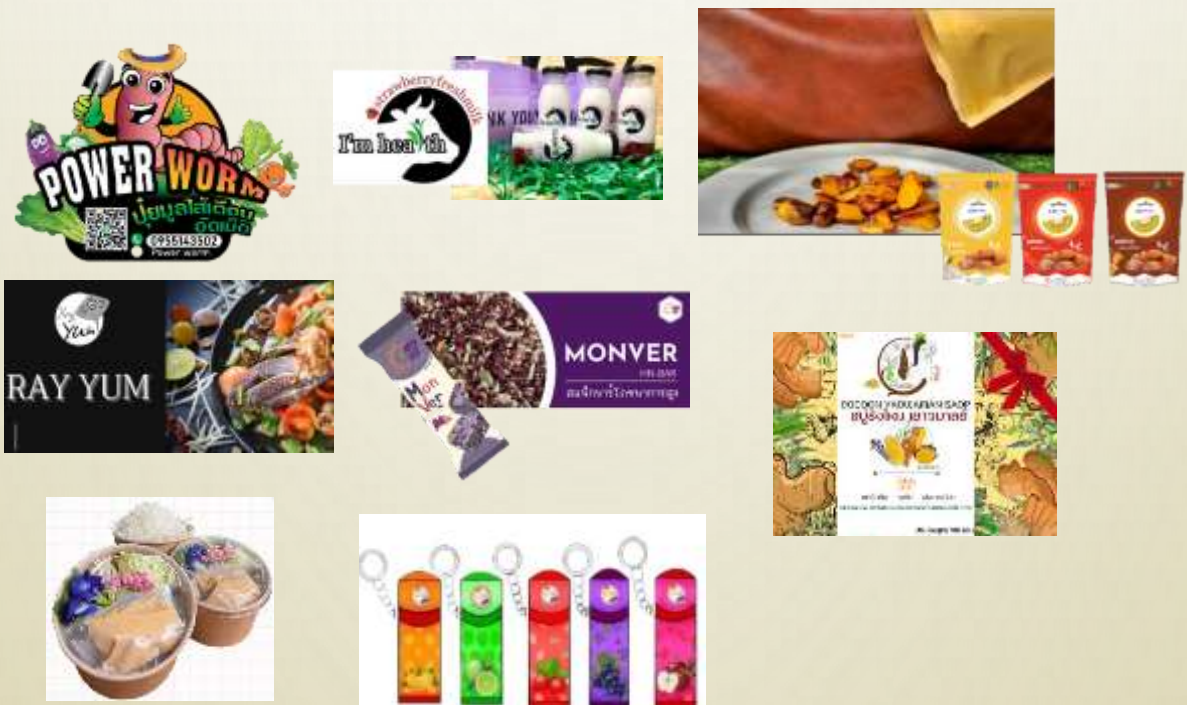
EDUCATION

UNIVERSITY-RUN SUSTAINABILITY WEBSITE



VRU Website : available, accessible, and updated regularly At “<https://sdg.vru.ac.th>”.

NUMBER OF SUSTAINABILITY-RELATED STARTUPS



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