Greenhouse gas emission reduction program

Indicator 1 Direct purpose of reduction of greenhouse gas emission

1.1 Policy of providing public transport by electric buses instead of diesel combustion engine vehicles to reduce greenhouse gas emissions

Figure 1 Transportation service of electric vehicles instead of diesel combustion engine vehicles

Kasetsart University has recognized the importance of climate change and is committed to being part of reducing greenhouse gas emissions to support Thailand's greenhouse gas emission reduction targets. Kasetsart University has established a public transport policy to facilitate the travel of students, staff, and the general public to promote the use of bicycles or on foot at a short distance within the University to reduce fuel consumption and reduce carbon dioxide emissions.

Public transport management within Kasetsart University is an effective use of resources within the University to limit the number of vehicles traveling within the university and reduce the amount of emissions from vehicles that will cause greenhouse gases, taking into account the convenience, safety and safety both inside and around the university.

1.2 Promote the use of zero greenhouse gas emission vehicle

Figure 2 Promote bicycle traffic

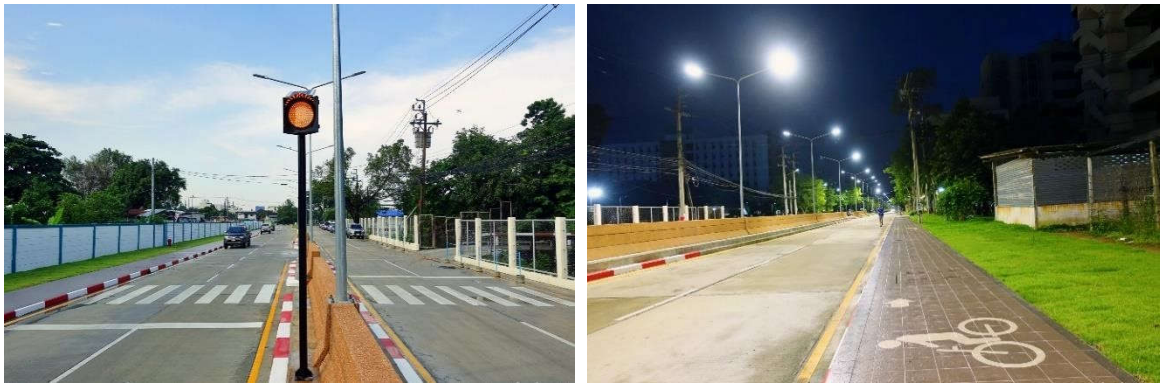


Figure 3 Adjust the landscape and expand the bike paths. as well as installing traffic signs electric lighting

From the past to the present, the University has a policy to encourage students, staff and outside visitors to travel within the university by bicycle, which is free of charge. The university has six bicycle lending points, making the use of bicycles an important symbol of Kasetsart University as well as a highly economical and safe travel vehicle. Kasetsart University has a dedicated bicycle commuter route and has continuous routes throughout the university.

The University has developed landscape adjustment and expanded bicycle paths, as well as installed traffic signs, additional lighting electricity for continuous transportation safety, public bicycle service points covering school buildings, dormitories, libraries, cafeterias, etc. under the university's physical development plan to cope with the changing environment within the university, helping to build urban society with environmentally friendly travel trajectories, being healthy and

mentally healthy for users. It also seeks to discipline bike users by parking their bikes in place, not blocking traffic or pedestrians, where responsible sharing of bicycles is important. The university has a policy of encouraging bike users to ride safely and happily at Kasetsart University to continue to be role models for urban society.

1.3 Non-CFC air conditioner's refrigerant usage

Figure 4 Cleaning air conditioner to reduce energy consumption

Maintenance of air conditioner for reduction of greenhouse gas emission and energy saving. There are steps of air conditioner checking as follows: air conditioner's refrigerant checking, high and low pressure checking and keeps the pressures in the standard level, and measure for electrical power consumption of air conditioners by checking of electrical current of compressor.

Using of R-123 or HCFC-123 refrigerant

The R-123 or HCFC-123 refrigerant is a kind of Hydrochlorofluorocarbon (HCFC). It is low ozone depletion potential (ODP). R-123 has 0.012 or 1.2% ODP of R-11(CFC-11). It means that R-123 has lowest rate of ODP out of all HCFC. (Fig. 1 and 2)

Figure 5 Non-CFC refrigerant, HCFC - 123 liquid refrigerant

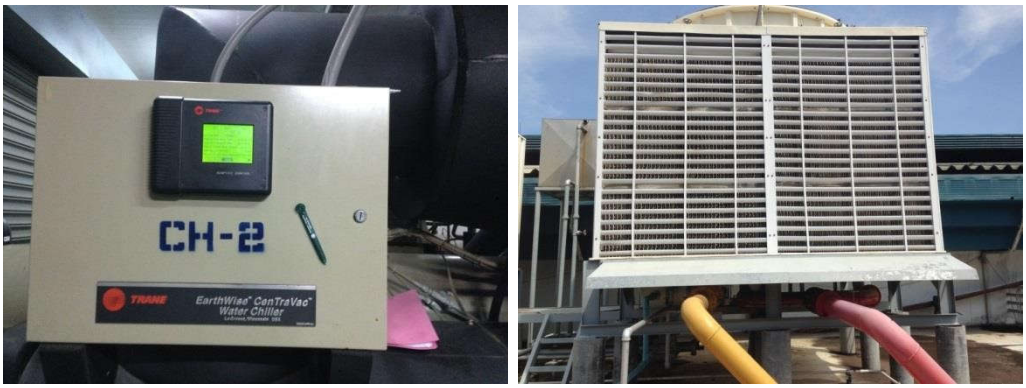


Figure 6 Cooling system which save more water

Indicator 2 Indirect purpose of reduction of energy emission

2.1 Explicit policy on energy management

The use of efficient energy saving appliances replacing conventional appliances Figure 7

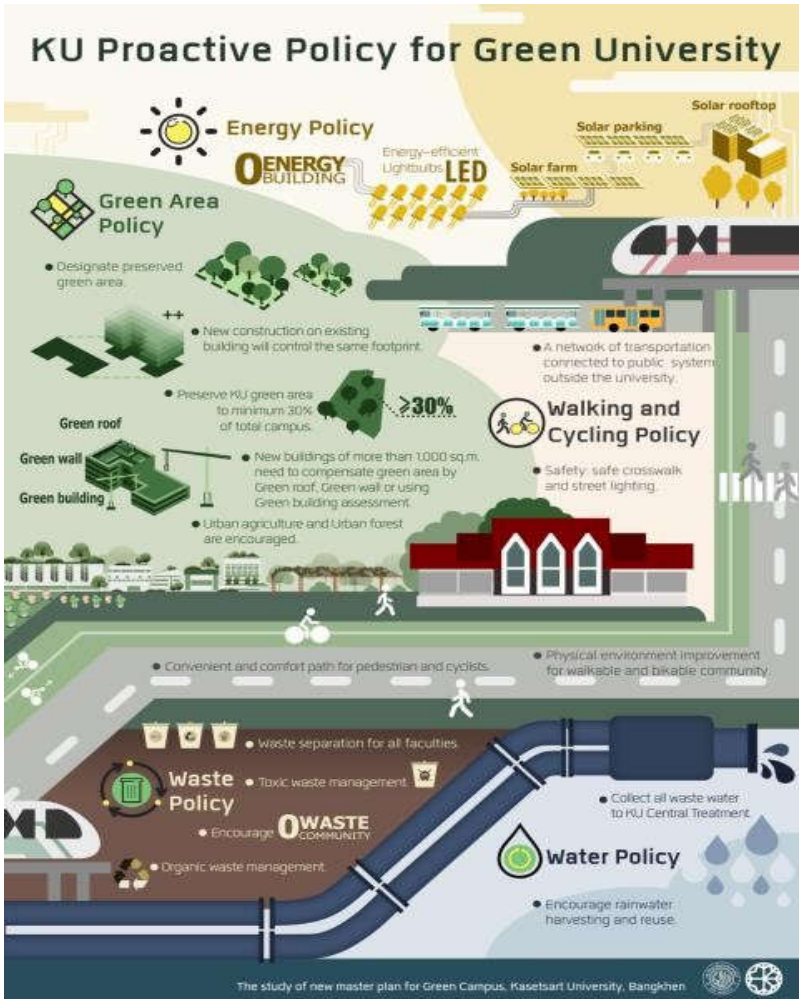


Figure 7 Proactive policy of approach on Green University

Kasetsart University sees the importance of energy, which the university has a policy on energy management, as well as providing training to educate people about energy management to personnel, including students, to be aware and to comply correctly according to the principles. As a result, the University has the highest energy efficiency, concrete and continuous efficiency.

2.2 Campaign on energy saving for reducing of electricity consumption

Figure 8 Sticker campaign on switch off the light when not in use, It is electrical energy- saving and reduce greenhouse gas emission.

Daily activities such as electricity, water supply, burning of fossil fuels such as oil, natural gas, each of which often contributes to greenhouse gas emissions that cause global warming.

Kasetsart University recognizes the importance of saving energy, reducing electricity consumption, water supply, fuel, office supplies, reducing wasteful energy consumption, as well as reducing greenhouse gases caused by activities within the office. Therefore, the University has created energy reduction, cost-cutting, and awareness of participation in energy consumption while caring about the environment by using energy-saving lamps and electrical appliances with energy saving labels, turning off unused lights, unplugging electrical appliances every time they are discontinued, choosing air conditioning to suit the room size by setting a temperature of about 25-27 degrees Celsius, should not leave the air conditioner on, or may use the timer to turn off and on, regularly check and clean the air filter to save energy.

2.3 Encouragement on renewable energy consumption

Biogas production station

Kasetsart University has established biogas and bio-fermented water from fresh waste to reduce the amount of fresh waste and utilize fresh waste by producing biogas, bio-fertilizers and bio-fermented water. This brings benefits to effectively reducing energy and environmental management costs within the University. Biogas production station of Kasetsart University produced gas from food waste 400 kg./day and converted into heat energy from a gas tank of 15 cubic meters to use in the canteen.

Usage of wind power

Solar Cell Panels 9 Kilowatts.

The Library has a solar cell panel with a size of 9 kilowatts installed at the Green Pavilion, 4th floor, Theparat Wittayachot Building, the Library's Office. This power generation system will have solar panels for generator Supply power to grid-tied inverters convert from direct current is alternating current connected to the electrical system inside the building together with the electrical system There will be a label explaining how to convert solar energy into electrical energy. for interested parties to study information and there is a demonstration panel for converting solar energy into electric energy.

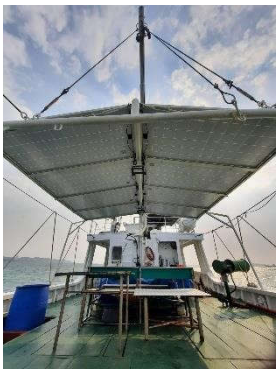
The Library has renovated electric golf carts to solar cell golf carts. To save energy and promote learning on energy conservation as a model for promoting and raising awareness of renewable energy among students and staff.




Clean energy power generation projects coupled with aquaculture

The Fisheries Faculty has produced two floating solar locations: the Natural Museum of Natural History, a greenhouse gas-free fisheries, and a restaurant that prefers greenhouse gas-free chum fish to install a water-mounted solar power system, a capacity of 39.06 kW peaks (53.1045 hp) and 27 kW at a well in front of the fisheries faculty. The objective is to study, train and experiment with the Zero Emission Building in conjunction with aquaculture, as well as commemorate King Bhumibol Adulyadej's visit to the Father of Thai Energy.





Solar panel project to generate electricity on the Kasetsart One research vessel

Kasetsart University undertakes non-stop renewable electricity projects by attaching solar panels to generate electricity on the Kasetsart One research vessel, which will help save fuel and reduce greenhouse gases. It is the only marine research vessel of Thai higher education institutions, has the potential to research in the Gulf of Thailand and throughout the EEC area, it is utilized both in the country and internship projects, training students for specialized activities, etc. In addition, all educational institutions are available.

Electric Mopeds

Kasetsart University focuses on environmental conservation, reducing emissions, and supporting alternative energy consumption to create a good environmental society. The company has adopted an eco-friendly electric moped, supporting the use of floating solar electricity for operational activities. In addition to reducing costs in the agency, it is also the conservation of energy and natural resources in the field of sustainable clean and environmentally friendly energy (BCG).

Indicator 3 Other indirect purpose of reduction of greenhouse gas emission from all activities of the University

3.1 Various form of waste management such as recycle and fertilizer production

Kasetsart University has focused on and continuously implemented waste management by adhering to the waste management guidelines. To reduce environmental impact due to waste disposal and towards the goal of continuously bringing waste from the production process to zero landfill. The University focuses on minimizing the amount of waste delivered and considering potential management methods to make the most of resources.

Kasetsart University has organized activities or projects to change a habit of carelessly consume materials or resources. The purposes of the activities or projects are to reduce energy consumption and create environmental friendly behavior of student and staff. These activities will be least cost or free of charge. In addition, Kasetsart University has also pushed 'the Zero Waste Society' program to reuse waste or leftover material by these following policies:

Avoid: avoid using of material which difficult to eliminate.
Reduce: reduce purchasing or using material which cause waste.
Reuse: bring back used material or thing to be used again.
Recycle: processing or transformed leftover material and use again.

separation bins

A table made from Industrial waste

Remove worn out tires Used as a pot for growing vegetables in the kitchen garden.

Bring a glass of water that is not used to plant ornamental plants.

And bring vinyl labels to make tote bags.

Biological fermentation obtained from the fermentation of plant residues, animal remains or various organic substances.

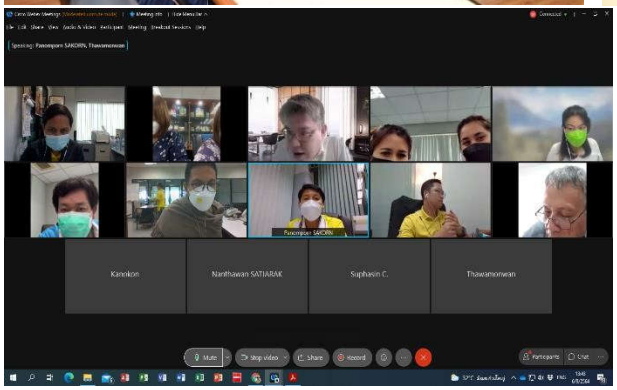
Production of liquid fertilizer from pig manure

3.2 Water purchasing reduction such as self-production of tap water and campaign on water saving

Kasetsart University has a policy to organize activities or projects to conserve energy, water use in the workplace, public relations within department and through the website

3.3 Adequate nearby accommodation for student and staff in order to reduce commuting

3.4 Reduction of air travel by teleconference between the 4 campuses and online meetings.



3.5 There is a park-and-go building service to reduce travel.

Public service : At present, climate change is an important issue to be aware of as it is the main reason for the change in the earth's atmosphere as a whole. The cause is the concentration of greenhouse gases in the atmosphere that continues to increase. As a result, global temperatures have risen due to greenhouse gas emissions from various activities. Greenhouse gases are known to be able to stay in the atmosphere and keep heat from going out of the world for decades. It recognizes the importance of reducing greenhouse gases caused by activities by creating activities to promote campaigns from individuals to the organizational sector, as well as developing to the public society, such as organizing campaigns labeled as reducing energy consumption within the agency to raise awareness of students and personnel in the field of energy conservation. The establishment of bicycle stops to support the use of bicycles within KU areas instead of cars, the choice of solar power sources in various areas, infrastructure planning in response to long-distance travel reduction policies, etc., with the aim of reducing greenhouse gas emissions, divided into direct, indirect, and energy emission reduction, which activities and projects, as well as innovations, have been extended to provide knowledge for publicity to those interested in aiming for wider effect, from household level to international level.

Social engagement : Kasetsart University recognizes and cares about global warming, is committed to sustainability for the world by promoting solar energy consumption, replacing clean energy in the office, and continuing other activities. The university has set policies to reduce greenhouse gas emissions, save energy, and reuse resources to reduce energy consumption and create environmentally friendly behavior. Students and university staff are continuously cooperating, understanding energy conservation, being able to use it properly, efficiently and costeffectively, positively for the whole agency, and furthering the household sector for broader effect.

However, in some conservation activities, there is support for public and private organizations with the intention of reducing greenhouse gas emissions, to cooperate in the establishment of projects and campaigns to empower and increase the efficiency of Kasetsart University to implement the project well.

Remark : All activities in 2.10 refer to the Sustainable Development Goals (SDGs), otherwise known as the global goals, especially relating to Goal 13 : Take urgent action to combat climate change and its impacts. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning. And relating to Goal 7 : Increase share of renewable energy. Ensure universal access to affordable, reliable and modern energy services.