

A comparison study of electricity consumption between male and female students in the university dormitories, KhonKaen University.

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This study aimed to compare the electricity consumption of students in university dormitory at KhonKaen University and the amount of carbon dioxide emissions from the electricity consumption. The sample which have been used in this study is students in any accommodation which contain 2 students in one room. The sample size is 508 students. The questionnaire has been used to collect the data.

The results showed that the average of electricity consumption between male and female students is different. The average consumption of female students is equal to 594.33 kWh/person/year. The highest consumption level is the heating equipments which are electric iron and the electricity consumption for these equipment is 152.14 kWh/person/year, Follow by cooling equipments which are electric fan and the electricity consumption is equal to 142.13 kWh/person/year, The amount of carbon dioxide emissions from electricity consumption of female student is 0.395 tons/person/year. The average consumption of male students is equal to 524.99 kWh/person/year. The highest consumption level is the notebook and computer and the electricity consumption for these equipment is 133.42 kWh/person/year, Follow by cooling equipments which are electric fan and the electricity consumption is equal to 125.00 kWh/person/year, The amount of carbon dioxide emissions from electricity consumption of male student is 0.348 tons/person/year.

Key word : Electricity Consumption

A study in factor of clay house can save energy and save energy efficiency :Case study clay house Saitrie 4 South TambornBuengjareenBankruat District Burirum Province.

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This study was conducted at the clay house sample at Saitrie4 South Village TambornBuengjareenBankruat District Burirum Province. The objective was to study the characteristics and composition of clay house samples to study the factors that make clay home save energy and useful in various fields. The study collected data on clay home sample. The characteristics of clay house sample. Techniques used to build the house is raw clay bricks from the study the temperature of the clay house sample. The temperature inside the clay house is 29.58 °C and the temperature outside the clay house is 30.64 °C the main factor that makes the raw clay bricks the temperature inside the clay house and the temperature outside the clay house. The clay home doesn't keep heat in the walls however, there is insulation into the house. The results of this study should be encouraged to build clay houses because low-cost clay home using local raw materials such as straw, rice husk and soil. Reduce energy consumption Do not destroy the environment and natural resources.

Key word: Clay house, Save energy

Benefits from Biogas Production Case Study: National Starch and Chemical (Thailand)

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This paper was aimed to examine the benefits from UASB-based biogas production at a case company, National Starch and Chemical (Thailand) Co.,LTD. The data on power consumption in starch production process was collected to analyze the energy, financial, and environmental rewards. The results showed that the company produced biogas of 15,000cm³ /day which it could replace the 8,250 liter oven oil, generate the electricity of 18,000kw/hour, 9,000 liter diesel fuel, and 6,900kg cooking gas. Replacing oven oil with biogas could reduce cost totaled 207,120,070Baht from year 1995 to 2009 and payback period was 3 years and 6 months.

In regard of environmental analysis, if biogas produced was used as fuel for boiler in place of oven oil, the Co₂ emission reduced by 7720.57 tons/year. If biogas produced was used as fuel for electricity generation, equating to the coal Co₂ emission reduced by 2120.80tons/kW/hour/year, crude oil Co₂ emission reduced by 1698.34 tons/kW/hour/year, natural gas Co₂ emission reduced by 1169.46 tons/kW/hour/year. If the company employed biogas residues from production process to generate the electricity, the coal Co₂ emission reduced by 1,675.43tons/kW /year, crude oil Co₂ emission reduced by 1,341.69 tons/kW/year, natural gas Co₂ emission reduced by 923.87 tons/kW/year, respectively.

Key word : Biogas Production

Biomass energy production as a charcoal, in the area Nong Kung village, Nong Rua district, KhonKaen province

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The objective of this project was to study the production process, production quantity, and biomass sources that are used in the production of industrial charcoal production in households Nong Kung village, Rua district, KhonKaen province. The result showed that all of the biomass were used to be materials for charcoal production such as components of a tree, the most (*tamarindusindica*). 70.94 percent of the biomass in the community is from the wood's scraps and tips with trunks of wood. 88.46 percent is buy from the paddy field and plantation. How to burn charcoal used Clay oven. Used the wood as raw material for charcoal is wood that was cut from the paddy field and plantation, There was no cutting of trees from the forest community. This will impact the adoption of wood used in charcoal on the production of less than bringing wood from the forest to use. The need to encourage the planting of trees along with a replacement to ensure minimal impact and a source of biomass available as a Sustainable.

Key word : Biomass energy

Electrical Generation from rice husk energy MuangtounSubdistrictSuwannaphomDistrict Roi Et Province.

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The objective of this research is to study quantity and quality of rice husk in order to predict the capacity of ElectricalGeneration from rice husk, and to study the way in using rice husk in MuangtounSubdistrictSuwannaphom District Roi Et province for guiding to plan and manage using of alternative energy in community. In addition field samplings and households interviewing by questionnaire were conducted and the studied secondary data had been used.

The study in term of quality was found that during 2009/2010 in MuangtounSubdistrict there were 12,727 rais of cultivated areas which produced 4,191 tons of rice, and could predict the amount of rice husk about 922 tons. Currently, there were 21 rice mills in the community, and rice husk from all of the rice mills were used in 3 main ways as follow; 1) using as the compost by 14.55% Of the total amount of rice husk 2) adding rice husk in the stables for protecting humidity by 18.50 % 3) the rest were purchased to be used for adjusting the soil condition in farmland by 66.95 %. According to the study, it was found that currently, rice husk in MuangtounSubdistrict was depleted in different ways. However, if these rice husks are used as fuel for electric current generation, they can produce electric current up to 101,420 KWh, and help to reduce 54,563.96 tons. of carbon dioxide from electrical generation.

Key word : Electrical Generation, rice husk energy

Factor affecting the selection of fuel type, KhonKaen University.

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This study is aimed to research the factors that influence of choice of fuel. According to the opinion of the Khonkaen University's student in 2010. In research, we use the questionnaires to obtain the qualitative data and analyze the data by descriptive statistic.

The data from 400 students' show that they use vehicles is approximately 69% , divide into motorcycle (58%) and automobile (11%). The fuel that they use the most is Gasohol91(51.81%) following *Benzene*91(34.42%), Gasohol95(7.61%) and *Benzene*95 (6.17% ,respectively. The factor that has the most influence on their decision to use fuel is the price/liter. The second factors are the effect on engine, the instructions in guide book, convenience (the amount of vending machine) and environmental impact. According to the result, if we want to support the renewable energy (Gasohol) campaign, the above factors are considered. Because the students are emphasize and think that these factors have an effect on choice of fuel.

Key word : Fuel Type

Fuel consumption of the population in the KHON KAEN province.

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The objective of this study were to type of fuel and knowledge about alternative energy of car.The primary data were collected by conducting a questionnaire survey among 400 car drivers in Muang District, KHON KAEN province with convenience sampling method. All parameters were analyzed by frequency and percentage. The results of the study were concluded as following :Majority of respondents were male whose age was between31 to 40 years old, and held bachelor degrees. Most respondents were government officials and had monthly incomes 10,001 to 20,000 baht. Most of their cars are TOYOTA brand, the engines capacity are more than 2000 CC, The age of the car is less than 3 years old and cars use diesel 45 % as fuel .The frequency refueling 1 time per week.The reasons for the respondents wereterms of cars and not change the type of fuel to use because fuel to use appropriate and good for the engine. Regarding the cognitive component, the respondents had knowledge of alternative energy used at good level.The information of gender, age, education level, occupation and income with the choice to fuel use. Found that the respondents are gender, education level, occupation and income can affect fuel consumption, age had no effect on fuel consumption.

Key word : Fuel consumption

Pattern of the trip of student in university's dormitory.

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The objectives of this research are to 1) study patterns of the trip of student in Khon Kaen University dormitory. The study targeted on the students who live in boys dormitory unit in 5, 6, 7, girl dormitory unit 4, Noppharat dormitory and Woraresident dormitory, study the student's understanding to the environmental problem and 3) predict the level of CO₂ emission from the vehicles that have been used by students by using the questionnaire. Results of the study show that there are 6 patterns of the trip of the student. Most of the students prefer to travel by motorcycle which is about 46.50 percent follow by shuttle bus 12.00 percent, motorcycle and shuttle bus 5.75 percent, motorcycle and walk 5.25 percent, shuttle bus and local transportation and walk 5 percent, shuttle bus and walk 5 percent, respectively. Result of the study also reveal that total carbon dioxide emission from all type of the trips is about 114.54 ton per year.

Key word : Trip of Student

Quality standard evaluation of the natural tourist destinations; cliff type in Phuphan National Park , Sakonnakorn.

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The purpose of this study was to evaluate the quality standard of natural tourist destinations; cliff type in Phuphan National Park , Sakonnakorn. Two cliffs were evaluated which are Nangmern cliff with Saw-Eh field and Saweay cliff. The quality standard of natural attraction of the office of tourism Development , Ministr of tourism and sport was used to evaluate the places. There were three major components in the evaluation process which are, value of natural resources and the risk of being destroyed, potential of tourism development and the management and there are 26 indicators .

Results of the study show that, Nangmern cliff with Saw Eh filed was classified at the third standard level which is “ good ” and the potential of tourism development is the strongest indicator. Saweay cliff was classified in the first standard level which is “ low ” due to lack of participation of the community and the proper management of the tourist destinations. The encouragement to local organization and community to participate and preserve their natural resources and the better management system will increase the standard of these two tourist destinations.

Key word : Natural tourist

Response of Khonkaen University Students to Electricity Conservation Campaign.

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Response of Khonkaen University Students to Electricity Conservation Campaign has been done to learn about comprehension of Electricity saved , behavior of Electric used and opinion about the campaign.

The result showed the majority of students was familia with saving electric campaign (80.2%) by signboard (63.8%). and most student agree with the campaign that using the best media is advertisement (63.6%) follow by signboard (39.5%). In comprehension and behavioral response, the majority of students was in moderate but the lowest was rather high when compare to the well understood.

Pattern of behavioral response in electricity utilization showed the different when compare to statistically in male and female.

Majority of students agreed and recommended that the electricity conservation campaign should be going on. And the students opinion onelectricity conservation campaign was well recognized.

Key word : Electricity Conservation

Solid Waste Management in Ba Kham, Muang district, KhonKaen province.

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The objective of this study was to investigate the mechanism of solid waste management in the community and the attitudes of local community to the solid waste management and the environmental issue at Ba Kham, Muang District, KhonKaen. The study was conducted by the interview with 2 local leaders and the questionnaire for local community. Descriptive statistics was applied for the analysis data processing which result of 2 local leader and sample of 232 people, it's found that the main factors contributing to the successful result in solid waste management caused by 4 factors: 1) Vision of their community leader 2) Community's activities are scheduled for the waste management is clear and effective 3) Local participation of local people 4) The monitoring activities in a systematic manner.

From the survey's used by questionnaire, found that the majority sample had the better own understanding of waste management at well level. The participation of local people in community's activity to solid waste management system was at the moderate level. And environmental problems caused by solid waste in the community where it was at most common sources of waste near local home areas or other places of its local events. 96.55 per cent was satisfied with the waste management system and needed the project has been continued for their community. 3.45 per cent disagreed to the community's waste system and needed more adding garbage in any way disposing of its. The main problem encountered was any bins located nearly home area among with smelly garbage disturb people who live nearby from some residual waste that has not been disposed.

Key word : Solid Waste Management

The production of briquetted fuel using glycerin : by product from biodiesel production of used oils, as an adhesive.

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The objectives of this study are to find the suitable agricultural residues to produce the briquetted fuel which was adhered by glycerin. The proper conditions and properties of briquetted fuel were also studied. Five types of biomass were used in this study, which are chaff, bagasses, saw dust, corncob and charcoal (from mixed wood). Glycerin which is a by product from the production of biodiesel from used oil was used as an emulsifier.

Results of the study show that when glycerin was used as the adhesive, only corncob can produce briquetted fuel, while the mixtures of other biomass and glycerin can't form the briquetted fuel in the hydrolic-press machine.

The efficiency of three combinations of briquetted fuel from corncob (4:7, 4:8, and 3:7) is not different. However, since the properties of briquetted fuel at the ratio of corncob: glycerin equal to 4:8 is not too wet and too dry, therefore this mixture is suitable to produce the briquetted fuel.

The briquetted fuel is in the cylindrical-blind shape with the length of 11-15 cm, diameter is 4 cm and weight is 170-180 gram. The average density is 0.88 g/cm^3 , the acceptable average pressure is 95-128 N while the speed of pressure is at 100 mm/s^2 . After the burning process found that the average ash value of the briquetted fuel is 0-0.0038%, average volatile matter is about 10-12%, average fixed carbon is about 73-74% while the heating value is about 19,666.67-20,607.21 J/g

การผลิตเชื้อเพลิงชีวมวลอัดแท่งโดยใช้กลีเซอรินที่เหลือในกระบวนการผลิตไบโอดีเซลจากน้ำมันใช้แล้ว
เป็นตัวเชื่อมประสาน

นักศึกษา : นางสาวฐิติรัตน์ อัครมงคลศิริ

อาจารย์ที่ปรึกษาโครงการวิจัย : ดร. วรทรง มงคลธรรม

ภาควิชาวิทยาศาสตร์สิ่งแวดล้อม คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น

วัตถุประสงค์ของงานวิจัยนี้คือ ศึกษาชนิดของชีวมวลที่เหมาะสม สภาพที่เหมาะสม และคุณสมบัติในการผลิตเชื้อเพลิงชีวมวลอัดแท่ง โดยใช้กลีเซอรินที่เหลือในกระบวนการผลิตไบโอดีเซลจากน้ำมันใช้แล้วเป็นตัวเชื่อมประสานซึ่งในการศึกษาครั้งนี้ใช้วัสดุชีวมวล 5 ชนิด ได้แก่ แกลบ , ชานอ้อย , ชี้อเลื่อย , ชังข้าวโพด และถ่านไม้รวม

ผลการศึกษาพบว่า มีเพียงชังข้าวโพดที่สามารถนำมาผลิตเป็นชีวมวลอัดแท่งโดยใช้กลีเซอรินเป็นตัวเชื่อมประสานได้ เนื่องจากชีวมวลชนิดอื่น เมื่อผสมกับกลีเซอรินในอัตราส่วนต่างๆ แล้วนำไปอัดด้วยเครื่องอัดไฮดรอลิกที่ควบคุมแรงดัน ไม่สามารถอัดเป็นแท่งได้

จากการทดสอบประสิทธิภาพของชีวมวลอัดแท่ง จากชังข้าวโพดต่อกลีเซอรินทั้งสามอัตราส่วน ได้แก่ 4:7,4:8,3:7 มีประสิทธิภาพไม่แตกต่างกัน แต่ที่อัตราส่วน 4:8 พบว่าชีวมวลอัดแท่งที่ได้ มีลักษณะไม่แข็งและเปื่อยกินไป จึงมีความเหมาะสมสำหรับการผลิตเป็นเชื้อเพลิงชีวมวลอัดแท่งต่อไป

ชีวมวลอัดแท่งที่ได้จากชังข้าวโพด มีลักษณะเป็นรูปทรงกระบอกตัน ยาว 11-15 เซนติเมตร เส้นผ่านศูนย์กลาง 4 เซนติเมตร หนัก 170 -180 กรัมมีปริมาณเถ้าเฉลี่ยต่ำ(ต่ำกว่าร้อยละ 0.004)สารระเหยเฉลี่ยต่ำ(ต่ำกว่าร้อยละ 12) และคาร์บอนเสถียรเฉลี่ยสูง(สูงกว่าร้อยละ 73)ค่าความร้อนเฉลี่ยอยู่ในเกณฑ์ปานกลาง(19,666.97 - 20,607.21 J/g)

The evaluation of quality standard of natural tourist destinations; waterfall in Phuphan National Park ,Sakonnakorn.

Student : Miss Choltiroat Boonlab

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The quality standard of natural attraction of the office of tourism Development , Minister of tourism and sport was used to evaluate the quality standard of waterfall in Phuphan national park ,Sakonnakorn. Three major components were considered in the evaluation process which are, value of natural resources and the risk of being destroyed, potential of tourism development and the management. Forty two indicators were studied and scored.

Results of the evaluation showed that the quality standard of the Kamhom waterfall was classified at the good standard level. While the Prechasuksun waterfall was classified at the moderate level. To increase the level of the quality standard of these two waterfalls, the improvement of some indicators such as the participatory of local people to manage the tourist destinations are required.

Key word : Natural tourist

The format and behavior of electric power, KhonKaen University students live in university dormitories and private dormitories .

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This study aimed to compare models and electric power behavior of female, KhonKaen University students .Accommodation in the dormitory of the university dormitories and private dormitories .And compare the amount of carbon dioxide emissions. From the electrical.The sample used in this study is student accommodation in the dormitories of the university is a dormitory14 and private dormitories is a Noparut dormitoryby questionnaire.

The results showed that students stay in private dormitories used electricity is the average amount of electricity consumption per capita is equal to114.9 kWh/month , the devices that use the maximum amount of light is 54.82 kWh/month , secondary areas include general cooling volume using 25.48 kWh / month,and the amount of emissions CO₂ is 1.27 tons / person / year. And University dormitories electricity usage per person is equal to 113.86 kWh / month,The devices that use the maximum amount of light is 53.59 kWh / month, secondary areas include general cooling volume using 42.44 kWh / month and the amount of emissions CO₂ is 1.24 tons / person / year.

รูปแบบและพฤติกรรมการใช้พลังงานไฟฟ้าของนักศึกษาหญิงมหาวิทยาลัยขอนแก่นที่พักในหอพักมหาวิทยาลัยและหอพักเอกชน

นักศึกษา : นางสาวมะลิวัลย์ สว่างเนตร รหัสประจำตัว 493020295-8

อาจารย์ที่ปรึกษา ดร. วิรงรอง มงคลธรรม

ภาควิชาวิทยาศาสตร์สิ่งแวดล้อม คณะวิทยาศาสตร์ มหาวิทยาลัยขอนแก่น

การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อเปรียบเทียบรูปแบบและพฤติกรรมการใช้ไฟฟ้าของนักศึกษาหญิงมหาวิทยาลัยขอนแก่นที่พักในหอพักของมหาวิทยาลัย และ หอพักเอกชน รวมทั้งปริมาณเปรียบเทียบ การปล่อยก๊าซ คาร์บอนไดออกไซด์ จากการใช้ไฟฟ้า โดย กลุ่มตัวอย่างที่ใช้ในการศึกษาครั้งนี้ คือ นักศึกษาที่พักในหอพักของมหาวิทยาลัย คือ หอพักที่ 14 และ หอพักเอกชน คือ 9 หลัง ทำการเก็บรวบรวมข้อมูลโดย แบบสำรวจและสอบถาม

ผลการศึกษา พบว่า นักศึกษามหาวิทยาลัยขอนแก่นที่พักในหอพักของมหาวิทยาลัย และหอพักเอกชน มีปริมาณการใช้ไฟฟ้าในหอพักแตกต่างกัน โดยหอพัก 9 หลังมีปริมาณการใช้ไฟฟ้ามากกว่า หอพักที่ 14 คือ มีปริมาณการใช้ไฟฟ้าเฉลี่ยต่อคน เท่ากับ 114.9 kWh/ เดือน โดยอุปกรณ์ที่ให้แสงสว่างมีปริมาณการใช้สูงสุด คือ 54.82 kWh/ เดือน รองลงมา ได้แก่ อุปกรณ์ทั่วไปด้านความเย็น มีปริมาณการใช้ 25.48 kWh/ เดือน และมีปริมาณการปล่อย CO₂ 1.27 ตัน /คน / ปี ในขณะที่หอพักที่ 14 มีปริมาณการใช้ไฟฟ้าเฉลี่ยต่อคนเท่ากับ 113.86 kWh/ เดือน โดยอุปกรณ์ที่ให้แสงสว่างมีปริมาณการใช้สูงสุด คือ 53.59 kWh/ เดือน รองลงมา ได้แก่ อุปกรณ์ทั่วไปด้านความเย็น มีปริมาณการใช้ 42.44 kWh/ เดือน และปริมาณการปล่อย CO₂ เท่ากับ 1.24 ตัน /คน / ปี

The study of biodiversity of birds and the habitat in the Ubonratana Dam.

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The objective of the study was to survey the biodiversity, subsistent condition, habitat, and relative abundance of birds at UbonRattana Dam, KhonKaen Province. In the study, point count surveys were conducted between July and December 2009. The results of the surveys showed that the birds in the area were in 48 types and 27 families which were 4.87 percent of the bird population found in Thailand. Among these types of birds, there were 35 types of local birds, 6 of immigrant birds, 6 of both local and immigrant birds, and 1 of immigrant and passing-by birds. As for the habitation of the surveyed birds, it was found that 48 percent of them lived in Deciduous Dipterocarpforests: 11 percent lived under bushes: 6 percent lived around swamps and on the dam: 34 percent lived in agricultural areas: 4 percent lived throughout villages. Also, the study of the relative abundance of the types of birds showed that there were 10 types of the highest, 10 types of high, 12 types of moderate, and 16 types of low relative abundance.

Key word : Biodiversity of Birds

Using of Agricultural Residues : Case Study Ban Kokkee District

BuaYaiAmphoeNampongKhonkaen Province.

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Project advisor :Dr. WirongrongMongkonthum

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This research is conducted for purpose of eliminate agriculture residue and possibility in turning agriculture residue into replacing energy of Kokkee village Bua-yaisubdistrict Nam-pong district KhonKaen by using survey on villagers that practice agriculture for career . From the observation and study secondary information , the study shows Kokkee village has 122 families that practice . agriculture for main career and has 1,806 rais and the agriculture activities of two are Farm and Livestocks . The farm agriculture residues are rice hay nad rice stubble which are the most surplus residue from harvesting . For rice hay , most of them are not use for anything , farme usually burn or bury . For the use of agriculture residue (pigs excrement) , usually the farm will use as fertilizer . The usr of renewable energy it should no use but has potential of renewable energy.

Key word : Agricultural Residues