Animal Diversity of Petroleum Exploration Project in Udonthani Province.

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This study was conducted to survey current status of the wildlife including animal species, population and ecological situation at Petroleum Drilling Exploration Using Seismic Operation sites during July to October 2007 in Si-That District,Kumpavapee District,Chaiwan District and Koo-Kaew District, Udonthani Province. The objective of this study was to survey current status of the biotic environment(wildlife) to identify animal species, conservation status and assess important levels of the wildlife in order to determine levels of impact to the biotic environment. This wildlife survey focused on birds diversity,other types of wildlife such as mammals, reptiles and amphibians were included (from relevant documents). Point counts were used for birds observation in 80 points on the 7 survey lines with the distance of 160 kilometers. 61 bird species were recorded with 49 resident species and 5 winter visitor species, and 7 resident/ winter visitor species. Endangered species is not found. Plain-backed Sparrow, Scaly-breasted Munia, Spotted Dove, Blue-tailed Bee-eater, Richard's Pipit, Pied Bushchat, Common Myna, Asian Palm-Swift could easily to observation and were abundant. Most of other birds species had small population. From secondary data , 9 species of reptiles, 5 species of mammals and 5 species of amphibians were recorded in the area and classified as a common species. According to the results, the importance of the wildlife at Petroleum drilling exploration sites was assessed at a slightly important level.

Key word : Animal Diversity, Petroleum Exploration

Contribution to ambient Benzene and Toluene from petroleum station in Khon Kean University

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The quantity of Volatile Organic Compounds of Benzene and Toluene was studied from surveying in bus terminal and air petroleum station in Khon Kean University. The study was found that they can be harm against the human health.The sampling was carried Active Sample and Passive Sample and analysed by gas chromatography (GC-FID) . The results also showed the quantity. Benzene and Toluene concentration Active Sample method was $2.49x10^{4}$ - $4.73x10^{4}$ppm, $6.97x10^{5}$ -1.01 X 1 0^{4} ppm respectively and Benzene and Toluene concentration Passive Sample method was $3.67x10^{4-}$ 4.17 x10 ppm , 7.90 $x10^{-5}$ -$8.80x10^{-4}$ppm respectively .

Key word : Contribution, Benzene and Toluene

Factors Influencing Business-owners' Participation in Environmental Management Khon Kaen University.

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This research project aims to survey business owners' participation in environmental management in Khon Kaen University (KKU). It is also to identify factors that influence their participation. Data were collected using self-administered questionnaires with accidental sampling technique. In addition, KKU administrative board member was interviewed for environmental management plans and policies. Data analysis includes descriptive statistics and Chi-square Test of Independence. In total, 180 business owners participated in the survey. The study shows that the majority of participants obtained a high level of knowledge and understanding regarding environmental issues (75%), agreed with current KKU environmental management (73.89%) and had a moderate level of participation (60%). The most severe environmental problem that needs an urgent management plant for is solid waste management, specifically insufficient waste containers. From statistical test of independence, none of the studied factors show significant association with business owners' participation. However, the survey results show that factors reported of having most influence on their participation include good image to their business (mean = 4.16 out of 5), ensuring life and property safety (mean = 4.03 out of 5), and environmental awareness and responsibility (mean = 4.16 out of 5).

Key word : Factors Influencing

Particulate Matter (P1\410 PM, $_5$) Concentrations in Ambient Air ; Khon Kaen University

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The objectives of this study was to determined 24 hr- average particulate matter (PK, , PM„) concentrations in ambient air , Khon Kaen University. The procedure on pollutant level collecting was untilized by Minivol Portable Air Sampler and Gravimetric method. The data was collected 13 times froni June to December 2007 at 2 stations : Complex garden and Pratu Srithan. The results show 24 hr- average $PM1_0$ level were measured at 4.2-118.7 µg/m^3 and average 47.2 µg/m^3 which was lower than the standard (120 µg/m^3). While PM_{25} level were measured at 4.2-85.5 µg/m^3 and average 30.8 µg/m^3. The level of PM_{25} exceeded the US. EPA. standard (35 µg/m^3) is Loi- kratong at Pratu Srithan stations , exceeding standard for 29 % of total collections.

Keyword : Particulate Matter ,$PM1_0$, PI\4,

Quantitative Description of the Forest Community at Khaonoi-NapangCommunity Forest after 25 years Restoration , Phu Wiang District , Khon Kaen Province

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The project was aimed to study a quantitative description of the Forest Community at Khaonoi-Napang Community Forest after 25 years restoration, Phu Wiang District, Khon Kaen Province. Field surveys were conducted from June to September 2007. Twenty quadrat sampled plots were applied with a size of 40x40 meters. The result found that the forest has an open liked canopy called Dry Dipterocarp Forest with 3 strata. From the survey 80 identified species in 35 families and 3 unidentified species were recorded. The majority of identified species are in Dipterocarpaceae. *Shorea obtuse* has the highest density value 41.00 trees/Rai, *Dipterocarpus tuberculatus* has the highest dominance value 0.1636, *Shorea obtusa* . *Aporosa villosa* and *Casearia grewiifolia* have the same highest frequency values 1.00. And *Shorea obtusa* has the highest importance value 41.1839. From key-informant interviews, it is found that according to 25 years collective activities such as set up a community forest committees, fire protection groups, forest utilization regulations, forest guards and villagers patrol the forest etc., the forest is recovering. It can provide more water for the whole villages to use both as a water supply and for agriculture.

Key word : Quantitative Description, Forest Community

Solid Waste Management in Large size Offices Phase II: Office of the President, Khon Kaen University.

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The Objective of this study is to improve the solid waste management in Office of the President, Khon Kaen University. The data was collected during September to October 2007. Solid wastes was ed from the Office of the President and was analysed for quantity and some quality properties. The were interviewed for understanding the management process. The result showed that the quantity of solid waste was 13.98 kg/day and the generation rate was 0.08 kg/person/day. At present, the recycle wwte was sold to "Salang" about 4.57 kg/day (32.69%). Value of 415.36 baht/month. The decomposable waste and residual waste fraction were not separate. As the result of using a matrix method with economical evaluation, the proposed method was. The method included:separation at source, collected in a re and sold to a recycle shop every month. Type improving of the present process. The estimateddecomposable waste 5.66 kg/day (40.49%), recycle waste 5.79 kg/day (41.42%), residual waste 2.53 kg/day (18.10%). The income from selling recycle waste will be 780.34 baht/month and reducing of 127 3 8 kg solid waste per month.

Key word : Solid Waste Management

The Assessment of Effluent quality Situation of The Old Constructed Wetland, Khon Kean University.

Student : Mr.Chalremdate Rasongyang

Project advisor : Associate Professor Kitti Akamphon

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The objective of this study was to assess condition and beneficial usage of effluent from The old Constructed Westland, Khon Kean University. The classification of water quality level from this resource was done based on the pollution control Department's Surface Water Quality Standards using 9 parameters - i.e. color, odor, temperature, pH, DO, BOD, NO_3-N, NH_3 - N and coliform bacteria. The investigation was done in rainy and dry season during June 2007 - Janury 2008. In each season, water samples were collected at 3 designated sampling station once a week for 3 weeks. The result showed that in both rainy season and dry season the water quality were in class 5, Which was described by the pollution Control Department (PCD) as clean fresh surface water resources used for navigation. The most vulnerable parameters that are responsible for degrading class of water quality which in turn limits the beneficial usage of this water resource are DO , NO_3-N and BOD. Improvement of these parameters can promote a more desirable usage of this water resource.

Key word : Effluent quality Situation, Old Constructed Wetland

The Assessment of Water Quality Situation in New Constructed Wetland System Khon Kaen University.

Student : Miss Chor-uang Juttasing

Project advisor : Associate Professor. Kitti Akamphon

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The objective of this study is to assess condition and the beneficial usage of water at a new constructed wetland system at Khon Kaen university.The classification of water quality level was done based on the Pollution Control Department's Surface Water Quality standards, using 9 parameter: color, oder, temperature, pH, DO, BOD, NO_3-N, NH_3-N and Coliform Bacteria. The investigation was done during the rainy and dry season during September 2007 to December 2007. In each season, water samples were collected at 3 designated sampling station once a week for 3 weeks.The result showed that in both seasons the water quality was classified at class 5,which is described by the Pollution Control Department as "water resources used for navigation". The most important parameters responsible for the degrading of water quality, which in turn limits the beneficial usage of this water resource is BOD, DO,NH_3-N. Improvement of this parameters can promote a more desirable usage of this water body.

Key word : Water Quality Situation**,** Constructed Wetland System

The Assessment of Water Quality Situation of East Si-Tan Lake , Khon Kaen University.

Student : Netnapa Pongpetch

Project advisor : Associate Professor. Kitti Akamphon

Department of Environmental Science, Faculty of Science , Khon Kaen University. Thailand.

The objective of this study was to assess condition and beneficial usage of surface water in East Si-Tan Lake, Khon Kaen University. The classification of water quality level from this source was done based on the Pollution Control Department's Surface Water Quality Standrads using 9 parameters-i.e. color, Odor, temperature, pH, DO, BOD, NO,-N, NH_3-N and coliform bacteria. The investigation was done in rainy and dry season during June - December 2007. In each season, water samples were collected at 3 designated. Sampling stations once a week for 3 weeks. The result showed that in rainy season the water quality was in class 5, which was described by the Pollution Control Department (PCD) as clean fresh surface water resources used for navigation. In dry season, It was found that the water quality was in class 4. Class 4 used for (1) Consumption, but requires special water treatment process before using and (2) Industry. The most vulnerable parameter that is responsible for degrading class of water quality which in turn limits the beneficial usage of this water resource is BOD. Improvement of this parameter can promote a more desirable usage of this water resource.

Key words : The Water Quality in class 4 and 5

The Assessment of Water Quality Situation of Effluent From The Oxidation Pond System, Khon Kaen University.

Student : Miss Sukanda Rungroch

Project advisor : Associate Professor. Kitti Akamphon

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The objective of this study was to assess condition and the beneficial usage of effluent from the oxidation pond system, khon kaen university. The classification of water quality level from this source was done based on the Pollution Control Department's Surface Water Quality Standards using 9 parameters —i.e. color, odor, temperature, pH, DO, NO,-N, NI-1_3-N and coliform bacteria. The investigation was done in rainy and dry season during june 2007- January 2008. In each season, water samples were collected at 3 designated sampling stations once a week for 3 weeks. The result showed that in both season the water quality were in class 5, which was described by the Pollution Control Department's (PCD) as clean fresh surface water resources used for navigation. The most vulnerable parameters that are responsible for degrading class of water quality which in turn limits the beneficial usage of this water resource BOD and pH. Improvement of these parameters can promote a more desirable usage of this water resource.

Key word : Water Quality Situation, Oxidation Pond System

The Studies on Benthic Macroinvertebrates of Bioindicator in Integrated Fishery Pond, Faculty of Agriculture, Khon Kaen University.

Student : Miss Daoprasook Chaiyasat

Project advisor : Assist. Prof. Dr. Phenprapha Petcharaburanin

Department of Environmental Science, Faculty of Science , Khon Kaen University. Thailand.

The objectives of this study were to study on the diversity and number of Benthic Macroinvertebrates to analyze the physical and chemical quality of water, four parameters have been studied and to study the relationship between physical and chemical factors of Benthic Macro invertebrates in Integrated Fishery Pond, Faculty of Agriculture, Khon Kaen University The study was conducted once a month in rainy season, between July and August 2007 and dry season, between November and December 2007 Th^{e} results showed that? Orders, 13 Families of Macroinvertebrates were found in the study site. Order Hemiptera found the highest number of families, followed by Order Mesogastropoda, Order Odonata, Order Decepoda, Order Diptera, Order Basematophora, and Order Ephemeroptera, respectively. There were more Benthic Macroinvertebrates in dry season than in rainy seasonthe study on water quality found that the average BOD in both seasons is higher than 4 mg/1 , average BOD in rainy season is 9.48 mg/1 and average BOD in dry season is 16.58 mg/1 that water in the Integrated Fishery Pond can be classified as class 5 of water resources standard which was the clean fresh surface water resources used for navigation .The study of relationship between the physical quality of water and number of Benthic Macroinvertebrates in both seasons found that only temperature and pH have relationship with number of Benthic Macroinvertebrates.

Key word : Macroinvertebrates, Bioindicator

The Studies on Benthic Macroinvertebrates of Bioindicator in the Stabilization Pond,Khon Kaen University.

Student : Miss. Wilaiwan Phamanee

Project advisor : Assist. Prof. Dr. Phenprapha Petcharaburanin

Department of Environmental Science, Faculty of Science , Khon Kaen University. Thailand.

The objectives of this study were to study on the diversity and number of Benthic Macroinvertebrates, to analyze the physical and chemical quality of water , 6 parameters have been studied, and to study the relationship between physicaland chemical factors of Benthic Macroinverebrates in the Stabilization Pond, Khon Kaen University. The study was conducted once a month in rainy season season, between July -and August 2007 and dry season, between November -and December 2007. The results of the study showed that there were 9 Orders, 14 Families of Benthic Macroinvertebrates. The order which found the highest numbers of Benthic Macroinvertebrates was Order Decapoda followed by Order Hemiptera, Order Diptera, and Order Odonata, Order Mesogastropoda Order Ephemeroptera Order Basommatophora Order Lepidoptera and Order Coleopter, respectively. The study of water quality found that the water quality passed the industrial factory and industrial settlement waste water standard quality. Family Chironomidae and indicated the low DO (Dissolved Oxygen) but high BOD (Biochemical Oxygen Demand) while family Palaemonidae indicated the high DO but low BOD conditions.

Key word : Macroinvertebrates, Bioindicator

The Study on Benthic Macroinvertebrates of Bioindicator in Western Sritarn Pond, Khon Kaen University.

Student : Miss. Madsamon Khumpong

Project advisor : Asst. Prof. Dr. Penprapha Phetcharaburanin

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The objectives of this study were to study the diversity and number of Benthic Macroinvertebrates, to analyze the physical and chemical quality of water, 4 parameters have been studied, and also to study the relationship between physical and chemical factors of Benthic Macroinverebrates in the Western Sritarn Pond, Khon Kaen University, Khon Kaen. The study was conducted in rainy season betweenJuly and August 2007 and dry season between November and December 2007. The results showed that 7 Orders and 13 Families of Benthic Macroinvetrebrates were found which consist of Order Hemiptera, Order Diptera, Order Odonata, Order Decapoda, Order Mesogastropoda, Order Ephemeroptera and Order Basematopoda. Order Hermiptera found the highest numbers of Benthic Macroinvertebrates which is 374.. Water quality of Western Sritarn Pond was classified as Class 5 of the natural water resources standard. The study of relationship between the physical and chemical quality of water and Benthic Macroinvertebrates found that Family Thiaridae can be used as the Biotic Indices to classify the water quality.

Key word : Macroinvertebrates, Bioindicator

The Water Quality of west Si-Tan Situation Assessment, Khon Kaen University.

Student : Miss Orawan Aunjai

Project advisor : Associate Professor Kitti Akamphon

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The objective of this study was to assess condition and beneficial usage of surface water in West Si-Tan Lake, Khon Kaen University.The classification of water quality level from this source was done based on the Pollution Control Department 's surface water quality Standards using 9 parameter-i.e.color,odor,temperature,pH,DO,BOD,N0,NH_4 and coliform becteria. The investigation was done in rainy and dry season during June2007-January 2008 .In each season water samples were collected at 3 designted sampling stations once a week for 3 weeks. The result showed that in rainy season the water quality in both seasons were in class 5,which was described by the Pollution Control Department (PCD) as clean fresh surface water resources used for navigation. The most vulnerable parameters that are responsible for degrading class of water quality which in turn limits the beneficial usage of this water resource are BOD and pH .Improvement of these parameters can promote a more desirable usage of this water resource.

Keyword: water quality was in class 5, Si-Tan lake

Utilization and Economic Valuation of Community Forest: A case study of Khaonoi-Napang Community Forest, Phu Wiang, Khon Kaen.

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This study aims to explore community forest management at Khoanoi-Napang Community Forest, Phu Waing district, Khon Kaen province. The study includes a survey of forest utilization and current management practice, and economic valuation of direct benefits derived from non-timber forest products (NTFPs). One hundred and fifty four household representatives were randomly selected for interviews, following a semi-structured questionnaire that covers forest use and harvesting of NTFPs. Khoanoi-Napang Community Forest is currently managed under community rules and regulations in which harvesting of all trees is prohibited, while NTFPs collection remains open to all users. Fire prevention and tree plantation are the major projects implemented to improve forest conditions. Overall use of the Forest is for NTFPs collection (75.32%) with primary purposes for household consumption and income generation. Twenty four types of NTFPs, classified into seven groups, including mushrooms, ;ild vegetables, insects and animals, ant's eggs, honey, fuelwood, and medicinal plants, were identified being harvested by local people. Net economic value of NTFPs was estimated 903,011.76 Baht or 4.777.84 Baht/household in 2007, accounted for 14.42% of an average annual household income.

Key word : Economic Valuation, Community Forest