Providing Comprehensive Environmental Solutions.

Thai Resources and Environmental Management Institute

TREMI AND ITS MISSION

Thai Resources and Environmental Management Institute (TREMI) is a private, non profitable and non political organisation, established under Thai Resources and Environmental Management Foundation (TREMF). TREMI was formed in September 2002, comprised with a group of competent and qualified professionals who are willing to share their knowledge and expertise to the younger generation. TREMI offer their services both in fundamentals appropriated to the interdisciplinary nature of energy and environmental problems. TREMI seeks to serve primarily the needs of public sector, city authorities, environmental agencies, community organization, NGOs, university and research institute.

TREMI is catered with competent and qualified professional staffs in the area of natural resources and environment at national and international levels. The objective of TREMI is to stimulate technology transfer activities with collaboration to academic and policy makers for the beneficial of the public and nations. Likewise, TREMI will serve as a bridge to linkage between government, private sector and the public for protection of the natural resources and environment as well as sustainable development.

A vision of TREMI is to encourage and support the best practice on environment, natural resources and renewable energy management on the basis of cooperation from multidisciplinary organisations, to enhance the quality of life of Thai people.

REGISTRATION:

Foundation Registered Number T. 450/2544
Consultant Service Registered Class A 1174

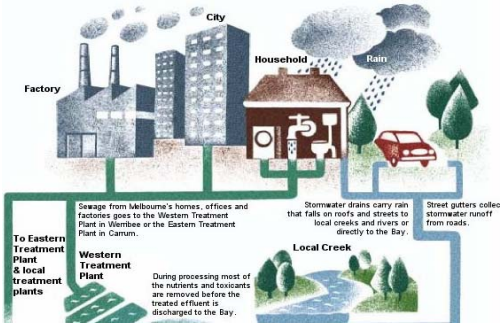
SCOPE OF SERVICES

1. Natural Resources and Energy Management Section

- Water Resource Management
- Forest Management
- Coastal Management
- Energy Conservation and Management
- Renewable Energy Management

2. Environmental Management Section

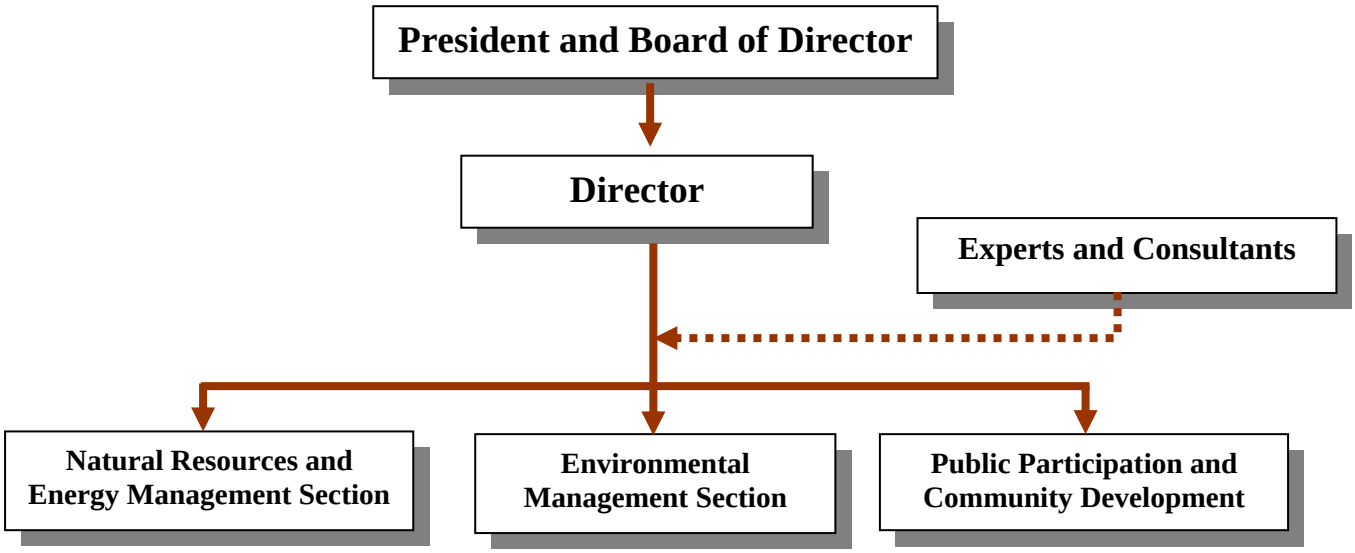
- Pollution Control and Management
  - Water Quality Management
  - Domestic and Industrial Waste Management
  - Solid Waste Management
  - Harzardous Waste Management
  - Air Pollution Control and Management
- Environmental Impact Assessment
- Clean Technology
- ISO 14000



3. Public Participation and Community Development

- Master Plan Preparation on Community Development
- Policy Research and Development
- Technical Field Visit and Trainings
- Seminar and Conferences
- People Participation Activities
- Cultural and Eco-Tourism Development

ORGANIZATION



- Water Resource Management|
- Forest Resource Management
- Coastal Resource Management
- Energy Saving and Conservation
- Renewable Energy

- Air Pollution Management
- Wastewater Management
- Wastewater Treatment Plant Design
- Solids and Hazardous Waste Management
- Clean Technology

- Environmental Education
- Community Development
- Public Participation
- Environmental Training

STAFFS

Many professional and project staffs are strongly involved in TREMI implementation and success in serving as a resource person, consultants, advisory body and experts. TREMI staff and professionals have an excellent working experience in Thailand at both national and grass-root level.

CONTACT ADDRESS

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E-Mail : Project@tremi.org

PROJECT REFERENCE

Feasibility Study for Oil Palm Cultivation in Southern Thailand and Optimization of Ripened and Crude Palm Oil Extraction

Owner: Thai Olefins Public Company Limited, Thailand
(Currently: Change to PTT Chemical Public Company)
Duration: 2002 – 2005

Introduction

Since 1979, TREMI's director, Prof. Samorn muttamara, had been studied various aspects of palm oil including cultivation, extraction, refinery, including by-product production and environmental management of the related products. In 2001, TREMI had further studied on proper area on oil palm cultivation in Thailand and neighboring countries as well as the novel extraction technologies. Moreover, the alternative varieties and seed selection also had been studied.

The objectives of the study were to study the possibility area for palm oil cultivation, the following area were studied:

- Thasae district, Chumphon
- Eleven districts in Prachuapkhirikhan Province
- Eight districts in Krabi
- Thungyai district, Nakhonsithammarat
- Bungkarn district, Nongkai
- Brikamsai and Kummuan districts, Laos
- Connected area of Tha Sae district, Chumphon, Myanmar

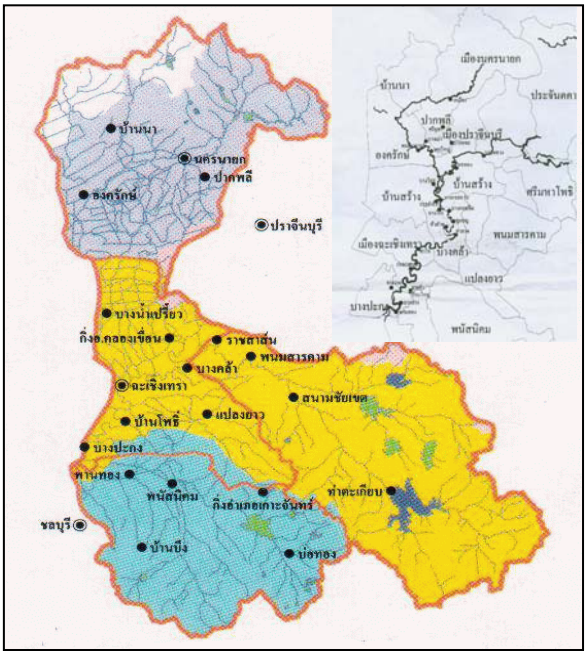
In addition, the appropriated route of biodiesel and by-product production from palm oil, starting from cultivation to the final process of biodiesel production was studied.

Achievements

Appropriated route of biodiesel and by-product production from palm oil in Thailand.

Community Water Quality Monitoring Networks Development in Bangpakong River Basin Area (Phase I)

Owner: Pollution Control Development (PCD), Thailand
Duration: April – December 2003



Introduction

Former unsustainable development practice led to the deteriorated environment, especially on surface water quality, which can substantially affected to human life, economy, social and culture.

Bangpakong river basin was one of those areas, that was affected from various activities, such as extensive pig farming, effluent from a factories and domestic discharge. To cope with those situation, an appropriated monitoring program, participated by a group of local people should be formed. It was expected that the local people could be an important mechanism and was a key role on effective water monitoring program to prevent the water deteriorated and maintain the sustainable development.

Service Rendered

The following tasks were established during the project implementations:

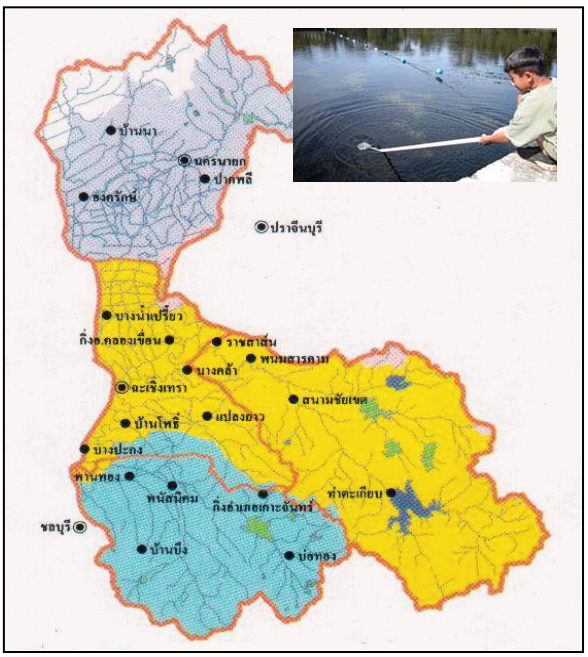
- Creating the participated activity between public and governmental sectors.
- Establishing the environmental network and initiating the environmental recovery plans.
- Promoting the environmental attitude to local community on water quality conservation by the encouraging measures.
- Developing the training courses to the established networks on environmental issues.

Achievements

- An effective group of environmental networks in Chachengsao province, that having a capability skill on inspection and monitoring of surface water quality.
- Environmental committee, consisted of representatives from each network, to manage and coordinate with other networks in the river basin.

Community Water Quality Monitoring Networks Development in Bangpakong River Basin Area (Phase II)

Owner: Pollution Control Development (PCD), Thailand
Duration: April 2003 – April 2004



Introduction

Resulting from a good outcome of phase I operation, the local communities were considered as one of a key role for environmental conservation and protection. The phase II operation was then expanded into other areas; Nakorn Nayok and Prachinburi province, where the communities of people living nearby Bangprakong river basin were located.

The objectives of the project were:

1. To enhance community participation in the water quality monitoring program

2. To form a local environmental networks in Nakorn-nayok and Prachinburi areas in order to monitor water quality in Bangprakong river basin areas

3. To strengthen environmental monitoring network among the various group in Bangpakong river basin

Service Rendered

1. Creating working groups who are public and governmental sectors in related regions
2. To enhance public participation and environmental attitude for river preservation by using proper activities
3. To increase efficiency of network groups by arranging field trips and training courses in water inspection and monitoring
4. To initiate information systems and activities for transfer data to public sector

Achievements

Local communities have environmental attitude and can take care of water quality themselves, continuously. Moreover, information sharing could lead to reduce the conflict of lacking of water supply in Bangprakong river basin area.

Environmental and Sanitary Management Measures for Petrol Station in Thailand

Owner: Department of Energy Business (DOEB), Thailand
Partnership: Mahidol University
Duration: October 2003 – December 2004

Introduction

Petrol stations in Thailand played an important role for various kinds of services and influent people lifestyle in various aspects. A lot of Thai people went to the station not only for gasoline filling, but also for receiving other lifestyle services such as Minimart, ATM, Food Service, Car-Washing, etc.

Because of rapid change in a pattern of service, that induced more people to the station, therefore, a safety measures and environmental condition especially the restroom and good sanitation need to be improved.

In addition, DOEB also had a policy to enhance petrol station's owner to deliver more "safe and clean" service to the general people. In the same time, it was considered as an one channel for local goods and products distribution outlet to promote local economics.

The ultimated aim of the project was to upgrade the "level of service" of the station in terms of safety, environment and sanitation via appropriated measures.

Service Rendered

TREMI, with the corporation with DOEB, and Mahidol University carried out a wide range of works, the major tasks included;

1. The research work for an appropriated sanitation and toilet system

2. The participation of petrol station owner to upgrade their service under the activity entitled "The Golden Petrol Station Award of 2005"

Achievements

- ✓ Improvement of petrol station services during the project periods
- ✓ Petrol station's owners had a positive attitude to make a good housekeeping and service to the client
- ✓ A guideline for a good sanitation and toilet management for a petrol station
- ✓ Appropriated wastewater management for petrol station

S&P Wastewater Treatment System Research and Design

Owner: S&P Syndicate Public Company Limited, Thailand

Duration: Nov 2004 – May 2006

Introduction

S&P Syndicate Public Company Limited and its group of companies operates a restaurant and bakery business, which includes the distribution of products under the "S&P" name. It's factory produces sausage and ham deli items; frozen food; pasta; colouring and essences used in the food industry; including flavourings and ready to eat jellies.

In a frozen food process of S&P at Lad-Krabang, due to a high variation of production schedule and type of products, wastewater characteristics were fluctuated, resulting in un-effective of the previous treatment system and the effluent BOD was higher than the industrial estate permission standard. In addition, the production process also incorporated with detergent (mainly, ABS form), which reduced the existing treatment efficiency during the regular cleaning periods.

Service Rendered

To cope with the above mentioned problems, TREMI carried out the research and feasibility study to design a suitable system for the company, based on the available area and cost effective approach.

The following tasks were carried out:

- Lab scale experiment for a treatability of wastewater
- Comparative assessment for a suitable system based on area and degree of treatment
- System preliminary design
- System evaluating after finishing the construction work

Achievements

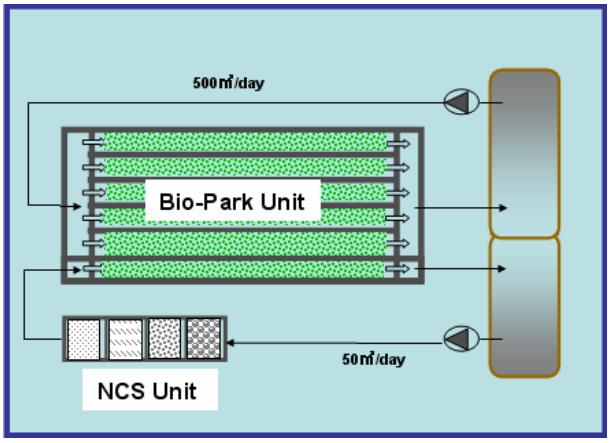
The system designed and the operating strategies by TREMI, showed the following successful:

1. Minimum area requirement compared to other process.
2. High treatment efficiency system was achieved (about 99% BOD reduction, from 1,500 mg/L to 15 mg/L)
3. The company can reduce both construction and operation cost of treatment.
4. The charging rate from IEAT to the company also reduced due to BOD reduction amount.

Pond Water Cleanup in Central Bangkok in the Kingdom of Thailand

Partnership: Bangkok Metropolitan Administration (BMA)
International Centre for Environmental Technology Transfer (ICETT), Japan

Duration: June 2004 – February 2005



Introduction

In the city of Bangkok, known as the "Venice of the Orient", there are many canals and ponds. Nevertheless, the number of small and medium enterprises and the population are all increasing, resulting in a large volume of wastewater from households and small industrial concerns. These conditions are having an adverse effect on the water quality.

To cope with that situation, on-site and low cost wastewater purification system was one of a suitable option and should be promoted.

Pond water purification system entitled Bio-Park and Natural Circulation System (NCS) was designed and operated at Lumpini Park in July 2004. The effectiveness of both Bio-Park and NCS system was investigated in terms of treatment efficiency and operating cost.

In addition, the public awareness was promoted via student and nearby people by on-site learning activities.

Service Rendered

TREMI, in corporation with MBA and ICETT carried out a wide range of works, the major tasks of TREMI included;

1. Carrying out the experiment on Bio-Park and Natural Circulation System (NCS) for Lumpini canal water purification

2. Determining treatment efficiencies and potentials of Bio-Park and NCS for wastewater purification.

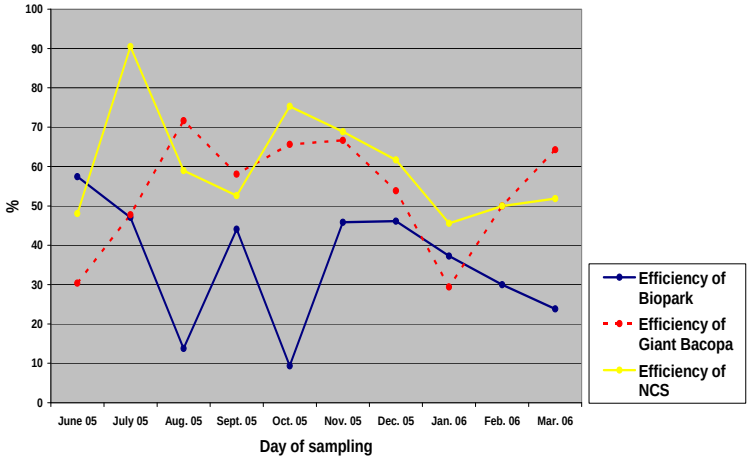
3. Organizing students and public awareness for water quality conservation.

Achievements

- ✓ Efficiency of Bio-Park and NCS for pond water purification.
- ✓ Potential plant to be used with Bio-Park in Thailand.
- ✓ The awareness of student and local people for water quality conservation.

Pond Water Cleanup Survey in Central Bangkok in the Kingdom of Thailand (2nd Phase Monitoring)

Partnership: International Centre for Environmental Technology Transfer (ICETT), Japan
Duration: June 2005 – March 2006



Introduction

Resulting from a good outcome of the experimental research under the project *"Pond Water Clean up survey in Central Bangkok in the Kingdom of Thailand"*, the efficiency of Biopark and NCS was realized. Since, the previous experiment covered only half year monitoring; therefore, the seasonal effect was not completed and additional one more year monitoring was carried out in order to investigate a seasonal effect to the system.

Another aspect of interesting issue was that the water quality in the treated canal. The data from previous experiment show that canal water quality was significantly improved. BOD concentration in the experimental canal reduced from about 20-25 mg/l to about 4-5 mg/l. Again, a doubt on seasonal effect was raised, in order to guarantee the effectiveness of the system, additional 1-year data collection was carried out.

Service Rendered

TREMI, in corraboration with ICETT and Bangkok Metropolitan Administration (BMA), carried out water quality monitoring for both Biopark and NCS systems (influent and effluent) to investigate their efficiency at Lumpini site. In addition, water quality in the treated canals were also observed in terms of BOD, SS, T-N, T-P and Transparency on monthly basis for about one year. In summary, the tasks of TREMI during one year follow up monitoring included;

1. Wastewater sampling at the designed point (Influent, Effluent, Surface water)
2. Treatment efficiency determination of both Biopark and NCS
3. Surface water quality monitoring for a treated canal and great pond

Achievements

The successful of the experiments was indicated by the following phenomena:

1. High BOD and SS removal efficiency of both Biopark and NCS were observed. The siasonal variation had direct effect to Biopark system, due to the surface run off.
2. Water quality in the treated canal was significantly improved. The trasparency of water increased from about 6-11 cm. to 34-60 cm. at the last month of monitoring; which was higher than the guidline value of 30 cm.

Environmental Impact Assessment of the Olefins Expansion Project

Owner: Thai Olefins Public Company Limited, Thailand
(Currently: Change to PTT Chemical Public Company)
Partnership: Macro Consultant Co., Ltd
Duration: June 2004 – March 2005

Introduction

Because of increasing in the demand of olefins; a raw materials for plastic and fiber production, the Thai Olefins Public Company Limited (TOC) planed to expand it's production capacity by construction a new plants. Since the production of olefins was considered as a petrochemical industry, which had to be approved from the Office of Natural Resources and Environmental Policy and Planning (ONEP) for the Environmental Impact Assessment (EIA) study, the project was established in order to comply the regulation.

Objectives

The aim of the project was to investigate the potential negative impact to the environment from the olefins expansion process, in order to develop a pollution reduction and mitigation measures, including appropriated monitoring system.

Service Rendered

TREMI and Macro Consultants Company, a partnership, carried out the study tasks followed the EIA process developed by ONEP. The roles of TREMI were in the section of wastewater management and public participation.

Achievements

The study was approved by ONEP in the early of 2005. The expansion phase (the 2nd and the 3rd plant) could be proceeded and the appropriated environmental monitoring and mitigation measures were set up.

Environmental Clinic

Partnership: The Office of Natural Resources and Environmental Policy and Planning
Bangchak Petroleum Public Company Limited

Duration: Since June 16, 2005 - Present

Introduction

Environmental Clinic is a cooperation of The Office of Natural Resources and Environmental Policy and Planning (ONEP), The Bangchak Petroleum Public Company and TREMI. The purpose is to provide the environmental consulting services to the entrepreneurs without any charge.

The objectives of the clinic are to facilitate a chance for the entrepreneurs and the business owner to consult with the experts in the specific environmental issues.

Service Rendered

The clinic provides the following services:

- Consultancy service on technical and environmental management for the entrepreneurs to control and resolve environmental problems in their business.
- Promoting an appropriated and effective pollution prevention measures for the business and local sectors.
- Serving as a bridge between a group of the expert, the source of information and the entrepreneurs
- Supporting the environmental technical know-how on for the general people.

Target Group

- The business owner, engineer, scientist, and technical operator, who involved in environmental protection, including the general interested people.

For more information, please contact:

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Environmental Clinic
Office of Natural Resources and Environmental Policy and Planning
60/1 Soi Pibulwattana 7, Rama VI Rd.,
Phraya-Thai, Bangkok 10400

Tel: 02-271-4232-8 ext 154, 156

Fax: 02-298-6079-80

E-mail: mnet@onep.go.th

Web: http://monitor.onep.go.th/clinic

Environmental Impact Assessment of Methyl Ester and Fatty Alcohol Production

Owner: Thai Oleochemical Ltd.
Partnership: Macro Consultant Co., Ltd
Duration: 2005 – 2006

Introduction

Methyl ester (or 100% biodiesel) is a major composition for biodiesel blended. It also can be used as a raw material for fatty alcohol, which will be further used in cosmetic industry. Because of the increasing in fuel price and a growth of cosmetic industry, the demand of this substance was also increased. The project was initiated to reduce the imported value and enhance our internal economics. In addition, it's expected to raise the revenue of local people from selling their agricultural product (palm oil) at a higher price.

Objectives

The aim of the project was to investigate the potential negative impact to the environment from the methyl ester production process, in order to develop a pollution reduction and mitigation measures, including appropriated monitoring system.

Service Rendered

TREMI and Macro Consultants Company, a partnership, carried out the study tasks followed the EIA process developed by ONEP. The roles of TREMI were in the section of water and wastewater management and public participation.

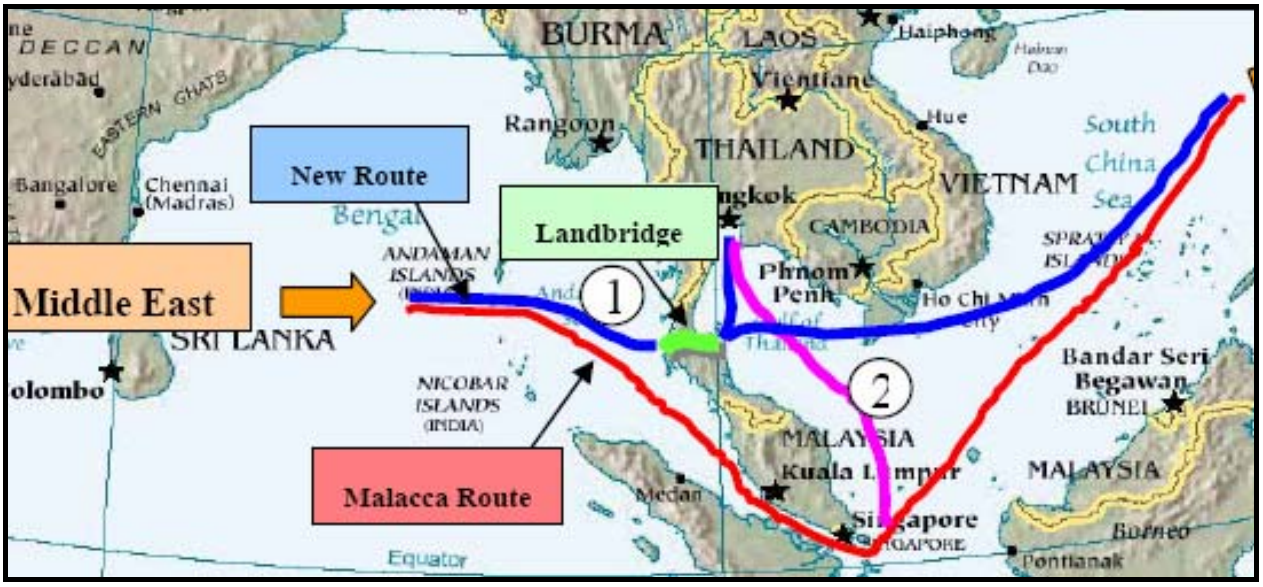
Achievements

The study was approved by ONEP in February 2006. The project was already constructed and expected to start operation within 2007.

Improvement of Oil Spill Response Preparedness for Sriracha Hub and SELB Project Area

Owner : Ministry of Energy

Duration: January – September 2005



Introduction

The study was established according to the government energy strategic policy of the Carbinet's Resolution on September 2, 2003. The policy aims to develop Thailand into oil trading hub of the South East Asia region. Although the National Oil Spill Response Plan has been stated and plays and important role in protecting the environment through prevention of preparation for, and response to oil spill, on site operations still have various problems and obstacles, including insufficient preparedness and ineffective cooperation among organizations. Therefore, the purpose of the study was mainly to enhance the capability and maximize efficiency of teamwork by providing guidance on reorganization for relevant government and non-government sectors, the management of existing resources and equipments, and future requirements as well.

Service Rendered

The group of expertise team, leading by TREMI carried out wide range of works, the major tasks were:

- Reviewing the existing situation of Oil Spill response in Thailand
- Assessing the problems and obstacles
- Propose the structure of the oil pollution preparedness and response parties

In addition, the related aspects to the project, such as the safety and environmental issues, organization structure, including many field trips were arranged.

Achievements

The study provided the guideline for improving the oil spill response preparedness plan for Sriracha Hub and Strategic Energy Landbridge (SELB) project base on current National Oil Spill Response Plan (2004). The study also presented suggestions of re-organization, management, relevant laws and regulations, as well as number and types of oil spill response equipments.

The recommendations in the study should be used for oil spill response and preparedness policy making.

Technical Training Program on Environmental Management (Executive Level)

Owner : Department of Environmental Quality Promotion (DEQP), Thailand
Duration : Dec 2006 – Feb 2007
Participants : High Ranking Officials from Local Administration, Thailand
No. of Participants: 300

Introduction

The training program was developed under DEQP strategy for a Group of Chief Executive of Local Administration Offices on environmental management issues. The ultimate goal of the project was to enhance visions and provide necessary experiences to the executive officials on creating an environmental action plan and relevant policies to cope with their problems properly. In addition, many field visits were proposed as a case study to increase their experiences to manage their own environmental problems effectively.

The objectives of the project were:

1. To develop the visions of participant through an understanding the role of environmental management in contributing to public welfare.

2. To broaden participants' perspective through an understanding of the case study on environmental issues and the encounter measure.

Service Rendered

The training activities were primarily comprised of lectures and field visit. For the lecture section, TREMI invited a wide variety of speakers from universities, local authorities, NGOs and relevant government organizations to share their specialized knowledge on environmental management issues. The environmental case studies were also served to improve participants' problem-solving skills.

Many field visits were arranged both inside and outside Thailand. For domestic case, the site-visit at an effective municipal wastewater treatment plant and solid waste facilities were arranged. The case of solid waste management in Singapore and urban management in Malaysia were scheduled and carried out.

Achievements

- The participants showed an extremely interested and awared of their role on environmental management.

- The positive response was achieved from the participants, especially from the practical experiences in wastewater and solid waste management.

- The environmental networks among their group were established.

Demonstration of Jatropha Curcus Cultivation and Community Participation in Rayong Province, Thailand

Introduction

Jatropha Curcus was introduced to Thailand around 300 years ago and used as a local source of energy such as natural lighing in Northern and Northeastern region. Although, it was widely used in local communities where the electricity was not accessible, we still did not aware it's potential at a national scale for long time. The increasing of fozzil fuel price in the world market in 2005 was not only directly impact to our economic, but it also indicated the "unstability" of energy source that lead us to think about alternative energy. Jatropha Curcus is our choice because of the following sound feathers:

- It has very high oil content
- It is a permanent, uncomplicated growing crop, can last for many decades
- It requires only moderate rainfall
- Low demand of soil fertility
- It is not competing with a food grade oil
- The extracted oil is easy for further processing into biodiesel
- The residues of plants has a large potential for further application

Jatropha Curcus is not only has a potential for replacing of fozzil fuel, but it usefulness also coincide with our new economy concepth, the *Sufficiency Economy* which will strengthen our economics and people wellfare in the long term. In addition, it's also be beneficial in terms of environmental protection, both in local and global scale.

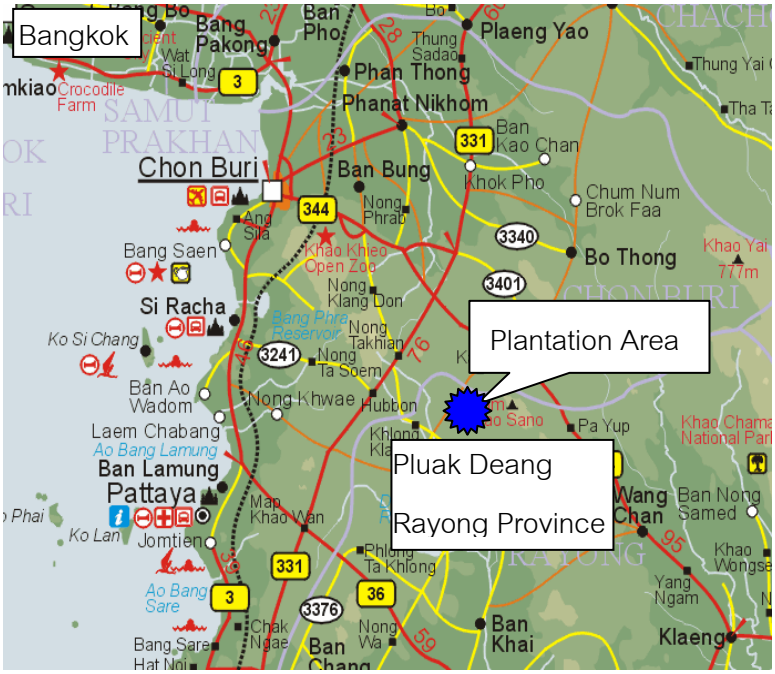
Expected Results

The ultimated aim of the project are to:

- Study and evaluate the life cycle of Jatropha Curcus at the actual site conditions and find a stregies to increase it's productivities
- Promotion of Jatropha cultivation and relavant technology transfer to a nearby communities for their sustainable development

Project Location

The project site is located in *Pluak Deang* District, *Rayong Province*, about 200 km. from Bangkok. The demonstrated cultivation area covers about 6.4 acres (16 Rai, Thai Domestic Unit).



Young Plant Jatropha Cultivation Area at the Project Site

Life Cycle

Jatropha curcus has approximately 50 years life span. The seed can be gained at the first year of planting and gradually increased to the steady state at about 5th year. After that the fruits can be continuously harvested until 50th year or more.

Starting
Planting

0th-4th month:
Vegetative Development

5th month
Start Flowering

7th month
Fruiting

8th month
Maturation

Ready for Harvesting

Seed after cracking

the plant can last for more than 50 years

Yield & Revenue

Expected Yield of Jatropha Seed (kg/Acre)

Year	1	2	3	4	5-50
Low Rainwater Area	500	885	1,260	1,800	2,000
High Rainwater/ Irrigated Area	1,250	1,800	2,300	2,800	3,000

Note: 1 Acre = 2.53 Rai (Thai Domestic Unit)

Investment and Revenue

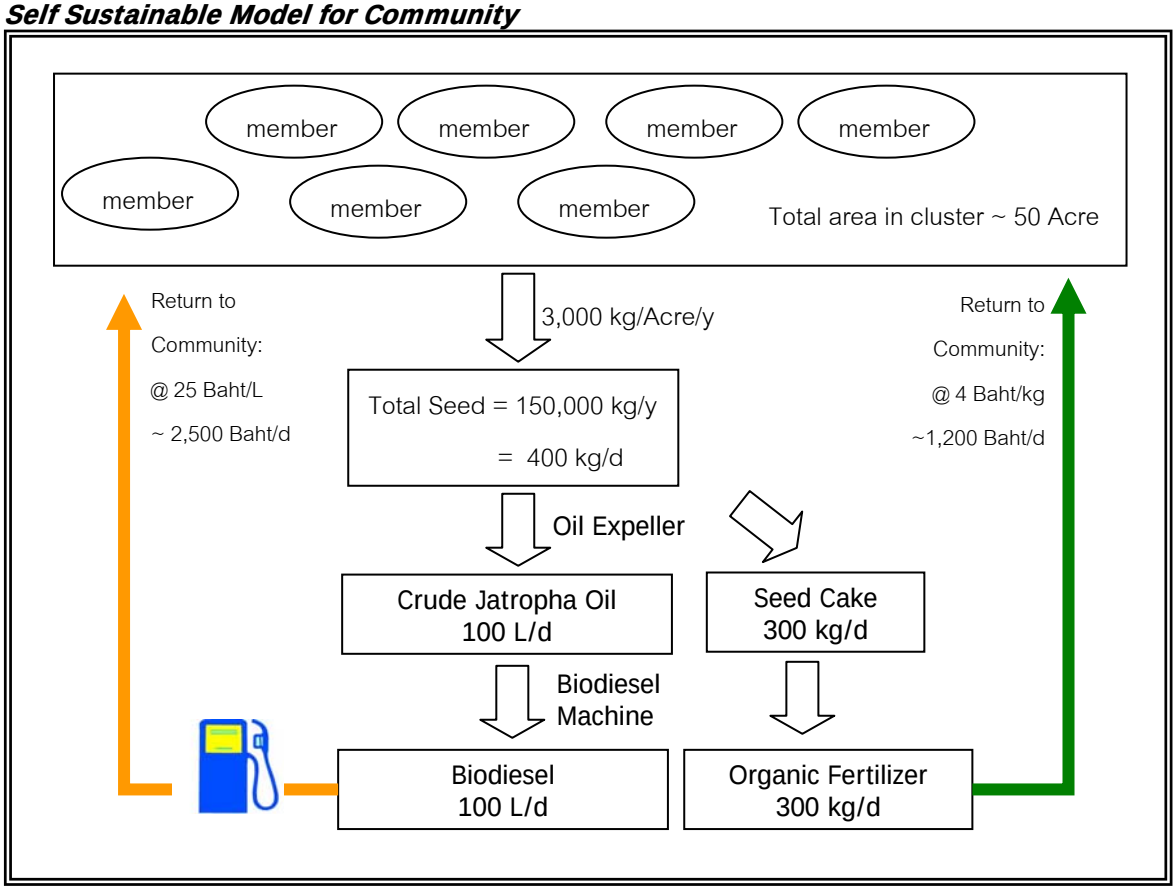
Descriptions	Year 1	Year 2	Year 3	Year 4	Year 5
Investment Cost (Baht/Acre/yr)	30,000	6,800	6,800	6,800	6,800
Benefit *(Scenario1:seed price=5 B/kg)* Revenue (Baht/Acre) Net Return (Baht/Acre)	 6,250 -23,750	 9,000 2,200	 11,500 4,700	 14,000 7,200	 15,000 8,200
Benefit *(Scenario2:seed price=7 B/kg)* Revenue (Baht/Acre) Net Return (Baht/Acre)	 8,750 -21,250	 12,600 5,800	 16,100 9,300	 19,600 12,800	 21,000 14,200

Note: 1. Estimation is based on high rainwater/irrigated area

2. Investment cost in the first year include land preparation, plant stock, fertilizer, pesticide, labor cost,
management, etc.

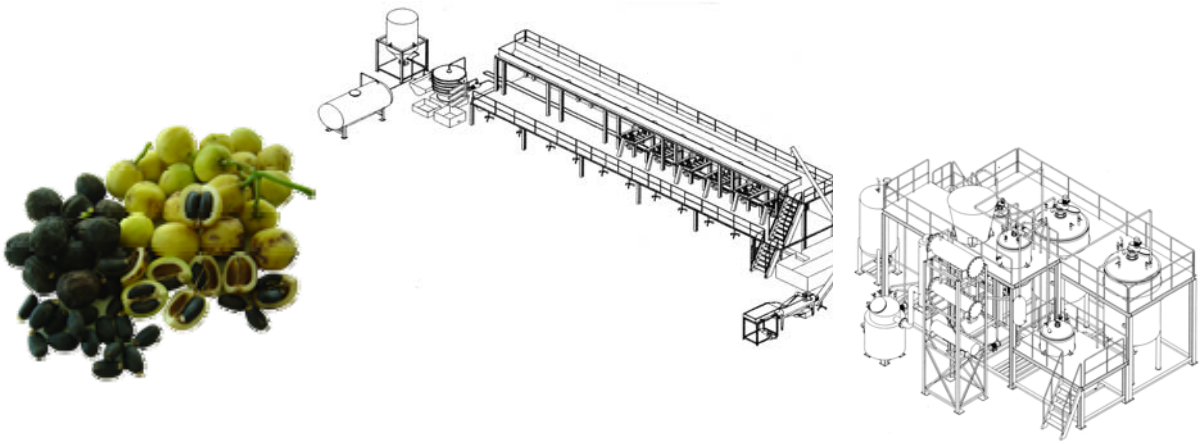
Network Establishment Community

Self Sustainable Model for Community



Biodiesel Production from Jatropha Curcus

Owner: PTT Chemical Public Company Limited.
Duration: 2007 – 2008



Introduction

This project is a continuing study to the previous research work on the most effective way to cultivate the jatropha plant, which has a goal to develop a simple and economical process for converting the raw seed to crude oil and a high-quality biodiesel fuel. A prototype of both jatropha oil extraction and biodiesel production machine will be developed and installed for further research and applications.

Another important aspect of the work is to make useful of their by-products from the process such as seed cake, oil cake and glycerin, which has very high energy content and nutrition value. Nevertheless, because of it's toxicity, one must be very careful to use it effectively to prevent any hazard that might occur to human and environment.

The ultimate goals of the project are to propose the prototype machine for biodiesel production from jatropha and to use of their by-products effectively.

Project Tasks

The major tasks of the project include;

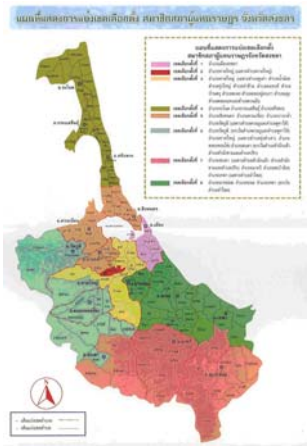
1. Research on appropriated technology and process for Jatropha seed extraction and biodiesel production
2. Develop the prototype machine for jatropha oil extraction and biodiesel production machine
3. Investigate the alternative choices to make useful of by-products from the processes, such as press cake, oil cake, glycerin, etc.

Expected Results

- An appropriated technology and prototype machine for jatropha seed extraction and biodiesel production
- Alternative methods to make useful of Jatropha by-products that will not affect to human health and environment
- A technology transfer to a related parties and communities

Feasibility Study on Construction of Integrated Solid Waste Management

Owner : Songkhla Provincial Administration
Duration : June 2007 - Feb 2008



Introduction

Because of a rapid economics expansion in Songkhla province, the environmental problems, especially from solid waste generated had been increased and become a big issues that need to be encountered properly. Although there were various kinds of technology to manage solids waste, the related factors such as waste compositions, climatic conditions, logistic management, geographic area, including the potential to make usefule from those waste needed to be considered. The so called "Integrated Solids Waste Management (ISWM)" for Songkhla was initiated and the feasibility study was essential to justify the possibility of the project.

Service Rendered

TREMI carried out the following tasks to fulfill the project required by Songkhla provincial administration:

- Preliminary design model of ISWM for Songkhla province
- Feasible study of the project on construction of ISWM regarding to waste to energy concept
- Develop an Initial Environmental Examination of the project (IEE)
- Design the construction plan and develop the draft tender and related documents

Expected Results

<u>To the Provincial Administration:</u>

- A suitable ISWM management system was proposed to encounter the problems cum energy recovery
- Revenue from selling of energy and by-products
- Reduction in environmental impairment from solid waste

<u>To local people:</u>

- Poverty Reduction
- Career promotion
- Quality of life of local people was improved

Technical Training Program on Wastewater Management

Owner : Wastewater Management Authority (WMA), Thailand
Duration : August 2008 – September 2008
Participants : WMA Officials
No. of Participants: 30

Introduction

In Thailand, Wastewater Management Authority (WMA) plays major value on management and maintenance municipal wastewater treatment plants (WWTPs). Unfortunately, several problems were struggling with resulted from improper design in the past. A training program was proposed for WMA staff's in order to give the experiences and suitable measures to encounter coming problems. In addition, fields visit were also provided to increase their experience and apply with their actual sites.

The objectives of the training were:

1. To transfer knowledge, practical and skills on wastewater management for WMA staffs'.
2. To give the other interesting issues on wastewater management which will properly be involved in the future, such as CDM, 3Rs, and the integrated development concepts.
3. To arrange fields visit to an effective WWTPs as well as to establish linkage with other professionals in the fields.

Service Rendered

The training activities were mainly comprised of lectures, computer laboratory, environmental laboratory and field visit. TREMI invited a wide variety of speakers from universities, NGOs and relevant government organizations to share their specialized knowledge and technique. The actual case studies were also served to improve participants' problem-solving skills.

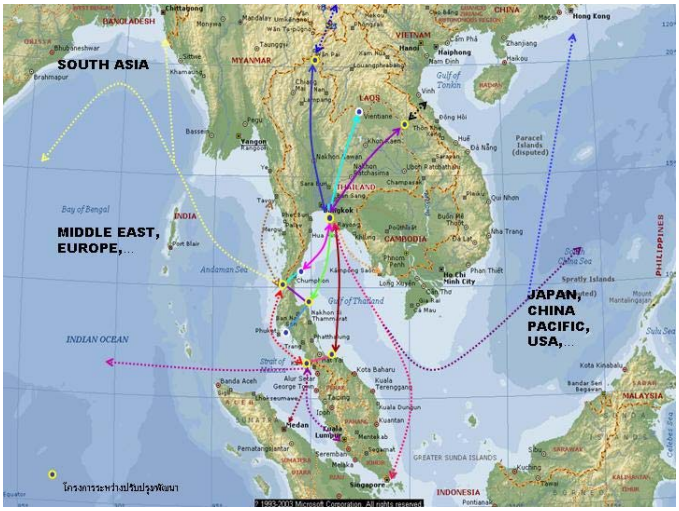
Fields visit were arranged to Pathaya and Chonburi municipal wastewater treatment plant, which showed the effectiveness in operation and maintenance.

Achievements

- The participants showed an extremely interested and satisfied for this training and all activities. Useful workshops on actual programs were solved together with the instructors, which had a tendency to apply in their routine works.
- The participants had more understanding and skills including the awareness of their roles to the other aspects such as CDM, 3Rs, and the intergrated wastewater management concept.

Southern Land Bridge Development Project: The Site Selection

"Methodology and selection process in preparing proof of concept for southern land bridge development"



Introduction

The Southern Land Bridge Development Project would have a significant effect on trade and investment due to Thailand's geographical would be a gateway to Europe, the Middle East and Africa on the Andaman side and the link to China, Japan and Korea on the Gulf of Thailand. In such a major developments, Strategic Environmental Assessment (SEA) is required as a tool to addressing problems and depth understanding of specific application impact.

Site Selection Process is count as a priority part in SEA for this project. Hence, the integrated transport corridor system and facilities, likes deep seaport, light industries, supporting utilities system and property development at both ends of the land bridge are sooner happen, and it is a big change of environment and social factors in Satun and Songkhla province. Therefore, each alternative locations has to be crystal evaluate to minimize the negative effects.

Objective

The main objectives of the study are as follows;

1 To identify the most suitable location and route for the connection between Satun and songkhla

2 To provide the recommendations of relevant aspects in each alternative.

Service Rendered

The Multi Criteria Analysis (MCA) has been use to evaluate the alternatives possible sites around the proposed areas for the project. Scoring of advantage and disadvantage issues are use to compare their relative merits

- The evaluation focusing on 4 majors aspect; technical (fatal flaw analysis), economical (land price), environmental and social factors.

- The recommendations are point out the location with lowest environmental impacts, which will meet all the environmental regulation in Thailand

Achievements

The conclusion of the site selection study provide the benificial information for SEA study in the next step. With a clear comparision of the loactions among esch site by using technical ,economical, environmental and social aspects leaded us to get a most suitable project area

Investor : Dubai World
Duration: November 2008 – March 2009

Training Course on "*Rapid Analysis Methods of Water*" for Metropolitan Waterworks Authority (MWA)

Owner: Metropolitan Waterworks Authority (MWA)
Duration: 29 Jun – 23 July, 2010

TREMI offered a training course on "***Rapid Analysis Method"*** to 33 staffs of Metropolitan Waterworks Authority (MWA), in order to strengthen the competency of advance technology about analytical skill

Background

MWA's, mission is to provide good quality water supply to the residences and business sector. On treatment process; start from quality of raw water through the treatment procedure and finished water to compare the water quality with WHO standard. Therefore, analysis process is very important and cannot be avoided. Following standard method takes time and expensive, beside need a professional staff. By using ***Rapid Analysis Methods*** and correlation coefficient (r) between all parameters will provide an easy and rapid monitoring of water quality. The correlation provides and excellent tool for the prediction of parametric values within a reasonable degree of accuracy.

Objective

1) To introduce a rapid methods and statistical analysis for water
2) To understand the statistical relationship between all parameters
3) The correlation and regression coefficients of the quality parameters not only help to assess the overall water quality but also provide necessary cue for implementation of rapid water quality management programmes.

Results

The benefits from training are as follows;

1) Strengthen the competency of water analyst (MWA staff)
2) Cost and time reduction in monitoring of water quality
3) Useful tools for the prediction of water quality analysis
4) Confident in finished water quality

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