



Office Bangkok



Dear Readers,

Here comes our fifth e-newsletter about the progress of the Thai-German Programme for Enterprise Competitiveness. Managed by GTZ and Thai public and private partners, the programme focuses on sustainable economic development.

This issue contains several interesting stories such as Clean Development Mechanism, energy production from wastes in the Thai agro-industry, palm leaf analysis to increase yield, chemical risk management. In addition, we introduce CIM experts from Germany who can be hired by Thai organizations at local rates.

We hope you find this newsletter beneficial. For more information, please visit the programme's website at

www.thai-german-cooperation.info

Sincerely yours

Juergen Koch

Country Director GTZ Thailand

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Vichitbhan Put More Resources for Farmers Training to Promote Leaf Analysis Services

2008 Season for palm oil leaf analysis started again at Vichitbhan Palm Oil in Chumphon province. Five - batched training sessions, designed to guide the farmers through sampling procedures, were organized during 18-22 February 2008 by team of experts from Prince Songkhla University. 330 farmers attended the training at mills in Tha Sae and Thung Kha districts. On 21 February 2008, Mr. Manit Wattanasen, Governor of Chumphon Province, presided over the training and cordially provided opening speech.



The training not only provided comprehensive knowledge on testing benefits but also an on- field leaf selection demonstration where providing farmers a chance to try real practices. Mr. Krisada Chavananand, Managing Director of Vichitbhan Palm Oil, also made a short presentation emphasizing the importance of leaf analysis, which can improve the timing and quantity of fertilizer applications to ensure that they bring the maximum benefit in terms of crop yield. After the training, farmers were invited to send the leaf sample to the company's laboratory for testing.

Testing results and fertilizer recommendations will be returned within one month. It is expected that this year at least 250 farmers will send leaf samples in for analysis while in 2007, 179 farmers were actively involved.

Why is leaf analysis important and what is GTZ involvement in this activity?

Most palm producers are substantially under-fertilizing their plantations, resulting in significant losses in yield potential. Currently, most farmers base their fertilizer applications on previous usage or what their neighbor uses. Leaf testing makes it possible for farmers to assess the nutrient status of their palm trees, and apply fertilizers only when there is a deficiency to be corrected. This solves the problem of overuse, and means that the oil palms benefit from a balanced fertilizer management. The proper use of fertilizer, in turn, directly affects FFB production. There is limited availability of timely and accurate soil and leaf analysis services in Thailand. Most farmers do not do soil and leaf testing for this reason.

Leaf analysis activities, GTZ – Vichitbhan joined cooperation effort, started in mid 2006 when an existing 10 THB million-laboratory was visited and assessed by the GTZ team. This came after GTZ Lab improvement work plan was agreed by both parties which allowed further steps of actions needed to raise the quality of laboratory to an acceptable standard and prepare it to a level that can provide services on fee based scale to a wider range of customers. On a cost sharing scheme, GTZ was involved in launching the awareness raising campaign through different media

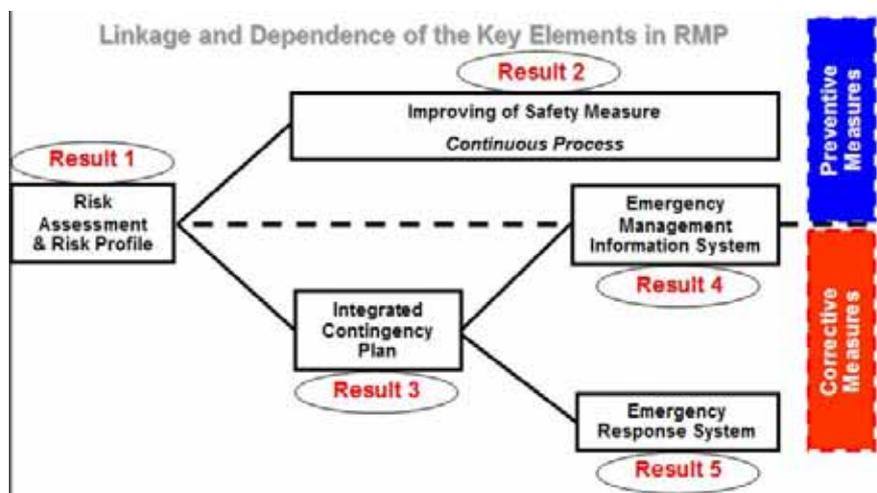


such as local radio programmes and agricultural magazines to promote the benefits of leaf testing to the target group in Chumphon area and also stimulate the demand for services in other areas. Now GTZ is trying to increase the outreach to other provinces, by linking other crushing mills to the current laboratory. So, they can provide the service to the farmers in their areas.

Chemicals Risk Management Improved Competitiveness of SMEs Dealing with Agro-Chemicals

In our Newsletter no. 3, the world competitiveness report demonstrated the relationship between competitiveness and occupational health and safety of selected countries. Thailand is listed in the range of one of the lowest competitive countries, and the need to improve this situation is obvious. Therefore, the Royal Thai Government requested to the German Government to implement a project on this issue.

One of the cross-sector projects, Risk Management for Handling of Hazardous Materials by SMEs in the Bangpoo Area (or Chemicals Risk Management Project), jointly implemented by GTZ and Industrial Estate Authority of Thailand (IEAT) together with Department of Industrial Works (DIW) of Ministry of Industry had worked from 2005-2007 on factories processing agro-chemicals. The project has focused on both preventive and corrective issues achieving the following 5 results.



- Result 1** – Risk Assessment & Risk Profile: This is the first step for chemical safety management in order to identify the chemical inventory, occupational health and safety, fire prevention, evacuation and environmental care.
- Result 2** – Improvement of Safety Measures: Based on the outcomes from the assessment and analysis, improvement measures have been implemented in order to fill the gaps and minimize the risks in the handling of chemicals. This result is classed as a preventive measure.
- Result 3** – Integrated Contingency Plan: Forward planning is necessary to know what to do by who and when and how in case of emergency to minimize impacts from accidents.
- Result 4** – Emergency Management Information System: Emergency responders need technical information on how to tackle chemical substances in case of emergencies.
- Result 5** – Emergency Response System: The system has been set up in order to manage and control emergency situations in industrial estate areas to minimize or avoid any impact to the public and surrounding communities. The linkage and dependence of the key elements in chemicals risk management are shown as a diagram below.

After 24 months, signs of impact can be observed either on policy level, service level or target group level. Naturally the best sign of impact would be if nothing happens at all! But when welding works has caused a fire at one of the companies, it was effectively extinguished by a trained staff with a newly installed fire extinguisher system before it got out of control. Before joining the project, that company was hardly prepared for such emergency situations: no fire hoses nor functional sprinklers, outdated fire fighting equipment, not to mention the exposure of chemicals to the workers and environment.

The project's expert team members, both international and local, provided comprehensive advisory and consultancy services on several issues covering Occupational Health & Safety (OHS), Fire Protection (FP), Evacuation and Environmental Care (EC), which was followed and implemented step-by-step by the companies. Recently, the above mentioned company received many orders from European based companies. This obviously shows that not only the control of avoidable losses helps the companies, but being in compliance with international requirements and criteria for safety measures helps gains acceptance on international markets.



Knowledge dissemination: training course to about 50 government officials on Chemical Safety Management



The project currently is in its exit/transition phase to disseminate successful cases and experiences to other industrial areas covering 7 industrial estates and 9 provincial industrial offices with dense processing of agro-chemicals. The “GTZ Chemical Safety Management Guide” drafted by the international consultants together with the local expert team focusing on four key issues for safety management in the factories: Occupational Health and Safety, Fire Prevention, Environmental Care and Evacuation. It is intended that industrial estates and provincial inspectors use this guideline as a tool for providing advisory services for improvement of chemicals management to SMEs. An introductory course, kick-off training and networking among the inspectors was successfully organized by DIW together with GTZ and IEAT as co-organizers in August 2007. This will ensure the sustainable capacity building and development of the chemicals risk management issue in Thailand country-wide.

Energy- and Eco-Efficiency: Huge Potential for Savings and Income for Thai Agro-Industry



GTZ and the Department of Alternative Energy Development and Energy Efficiency (DEDE) launched the project *Energy and Eco-Efficiency in Agro-Industry* (E3Agro) in July 2004. After only few weeks a concept has been worked out on how to make use out of the huge amount of wastes in the Thai agro-industry. Palm oil has been chosen as the pilot sector. In its last year the project became an international showcase for energy- and eco-efficiency.

Dr. Rudolf Rauch, principal advisor of E3Agro, recalls the initial phase: *“In mid 2004 there was only one pilot biogas plant which emitted methane unused into the air”*. Since then six large biogas plants have been put into operation to clean the highly polluted waste water and burn methane emissions to produce electricity which then is fed into the grid.

The feed-in-tariff plays a crucial role in allowing the biomass surplus in the agro-industry to be used for energy generation. Without the regulations, enterprises would be unable to dispose of their waste or would burn it inefficiently. Therefore, E3Agro has also contributed to the improvement of the framework conditions of using renewable energy resources.

In 2004 only few small projects were registered under the Very Small Power Producer Act (VSPP). They supplied a few hundred KW from photovoltaic plants. The approval procedures were long and complicated and the grid feed-in was limited to 1 MW only. Now the procedures have been simplified and feed-in amount increased to 10 MW with 0.3 THB per kWh in addition to the normal price. This resulted in the break-through of biogas power plants and energy-efficient production processes because enterprises could also sell each kWh they saved.

A better framework alone would not have been sufficient for a change as palm oil mill owners understood themselves only as oil producers. In cooperation with the Palm Oil Crushing Mills Association (POCA), E3Agro, therefore, started a benchmark program involving 18 mills in its first phase. Together with the enterprises Key Performance Indicators (KPIs) have been defined, which cover all costs and environmental related production factors, such as oil loss, energy consumption and waste streams.

The data was collected by the mills and sent regularly to E3Agro for further analysis and anonymous comparison. Each company received a quarterly report about its performance compared to the competitors. Every quarter the benchmark teams of the companies conducted site visits in different regions and exchanged ideas and experiences on the developments. At the end of 2006 the participating enterprises have gained a total benefit of increased productivity of about EUR 10 Mio. per year from reduced oil loss, reduced energy consumption, and electricity sales from biogas plants, and many more are in the planning phase or under construction. A higher price for “green electricity” would have an even more positive effect on income. One single palm oil crushing mill could produce 10 MW out of its solid and liquid wastes.

While energy is produced, waste water is treated, which avoid the discharge of climate-damaging methane. This makes biogas projects interesting for CDM (Clean Development Mechanism) in order to generate additional income from sales of so- called Certified Emission Reductions (CERs). While few CDM projects have been approved already, eight applications from the palm oil industry have been submitted.

The positive experiences from the benchmark program in the palm oil sector are now being transferred into other energy-intensive agro-industries, e.g. in the tapioca starch and shrimp industry, the two areas in which Thailand is export world champion. The focus in the tapioca starch industry is on efficient production and utilization of biogas substituting grid electricity and fuel oil in the production process.

In the shrimp sector energy efficiency is the main issue. 500,000 engines for the paddlewheel aerator are operating in over 30,000 shrimp farms, in order to provide oxygen in intensive shrimp farms. Half a million engines with an electric power of 2 Kw each sum up to 1 GW, which is approximately the production power of a large coal-fired or nuclear power plant.



A systematic study by E3Agro about the operations and efficiency of the aerators has revealed that although not all of them are working at the same time, a high amount of energy are literally paddled into the air. The saving potential is huge. The engines work at only at 60-70% efficiency. Another 30% gets lost during the mechanical transfer onto the paddlewheels, and even here, depending on the types and parameter settings (submersion depth and frequency) of the paddlewheels, a difference of over 50% in efficiency could be observed.

Pilots in two selected shrimp farms are now being implemented to demonstrate the saving potential. It is a co-operation with Siemens Thailand, who provides efficient engines, while state-of-the-art data collection system and water sensors are being provided by the Wissenschaftlich-Technische Werkstätten (WTW). Important parameters such as the oxygen content in water can be monitored over a period of 4-5 months of a shrimp culture. Flowmeters from the company Ott had been used in laboratory tests of the aerators.

The work of E3Agro does not only receive high attention in Thailand, where the project hardly could cope with the many requests to give presentations on seminars, but also on the international stage. For example IFOAM, the International Federation of Organic Aquaculture Movements, has invited E3Agro to present its results on the Organic World Congress which will be held from June 18-20 2008 in Modena, Italy.

GTZ Joining with PTB (National Metrology Institute of Germany) to Develop Globally Recognized Good Agricultural Practice (GAP) “ThaiGAP”



In the past, exporters of fresh fruit and vegetables have faced numerous problems to access higher value markets that require certain standards. The main entrance criterion to these markets is food safety and quality; and the best path towards achieving and ensuring this is to implement and manage internationally recognized transparent food safety and quality standards. The GLOBALGAP standard is quickly becoming the main standard in Asia, Europe, Latin America and Africa. In Thailand a few farms have achieved this standard, but for Thailand to improve Good Agriculture Practice for the domestic market as well as to remain competitive in the fresh food export market, more and more producers will need to be certified.

GTZ and PTB (National Metrology Institute of Germany) recently invited Chairman of GLOBALGAP Mr. Nigel Garbutt to provide the recommendation on ThaiGAP Governance Plan and strategic next steps to benchmark ThaiGAP with GLOBALGAP to the executives from the related Thai organizations including ThaiGAP, Ministry of Agriculture and Cooperative, Department of Fisheries, Kasetsart University, Thai Retailer Association represented by TescoLotus, Tops Supermarkets and fruits and vegetable exporters. His recommendations included the set-up of the ThaiGAP governance and legal structure and national technical working group, critical success factors for ThaiGAP, step for benchmarking process, and development of national interpretation guideline of the standard for farmers and exporters.

Through the combined efforts of both public and private sectors in supporting and developing ThaiGAP standards, the project aims to be extended to livestock and fisheries sectors which will positively impact on a large number of Thai farmers, enabling them to improve their ability to comply with specific food safety requirements and participate in export opportunities.

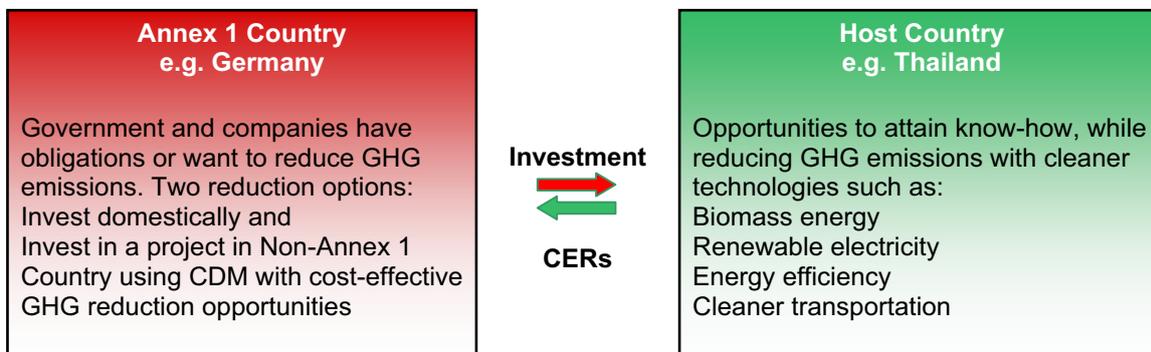
CDM – Additional Funding for Energy-Efficiency and Renewables for Thai Agro-Industry

Under the 1997 Kyoto Protocol, adopted to the United Nations Framework Climate Change Convention (UNFCCC, 1994) and entered into force in 2005, industrialized countries are subjected to binding greenhouse gas emission reduction targets. The Protocol requires that overall emissions have to be reduced by 5 percent from a 1990 baseline in the period from 2008 to 2012. To allow cost-effective compliance with this commitment, emissions can be reduced where this can be done at lower cost. This is realized under the so-called Clean Development Mechanism (CDM) which allows industrialized countries (called Annex 1 countries) to invest in projects that reduce emissions in developing countries as an alternative to more expensive emission reductions in their own countries - and as a supplement to their own domestic reduction measures.

Objectives of CDM

- to contribute to sustainable development by encouraging sustainable energies and clean technologies in less industrialised economies;
- to contribute to the absolute mitigation of greenhouse gas emissions;
- to enable industrialized countries to meet part of their GHG emission reduction commitments abroad in a cost-effective manner.

The most important factor of a project is that it would not have occurred without the additional incentive provided by CDM.



The basic idea of CDM

- Industrialized countries - either the state or private companies - invest in projects in developing countries that contribute to the reduction of greenhouse gas emissions. The amount of reduced emissions (CO₂, CH₄, N₂O) are valued as Certified Emission Reductions (CER).
- Developing countries - either the state or private companies - are allowed to implement such projects on their own.
- Through these projects, not only will the respective sector in this developing country be modernized, but also a contribution will be made to global climate protection.

- The investing industrialized country can credit the emissions reductions achieved through its investment in the developing country towards its own emissions commitment.
- The developing country can sell the emissions credit generated to industrialized countries.

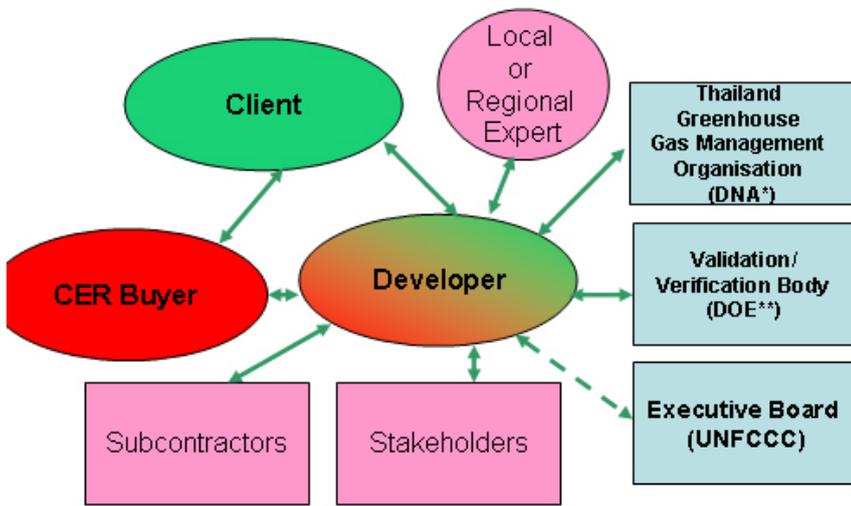
What contribution can CDM make to sustainable development?

The CDM opens up the opportunity of mobilizing additional funding for investment in developing countries, emphasizing renewable energies and energy efficiency. For this to take place, there must be an effective national institutional structure for the approval of CDM projects, framework contracts must be negotiated and agreement must be reached on which project types are to be given priority. Public participation is also essential, as is the integration of different interest groups.

When criteria are defined for sustainable development, care should be taken that they are not too narrow. Otherwise potential investors will not have enough choices. Possible criteria may be in the following categories:

- Environmental (local environmental protection)
- Social (employment, impacts on low-income groups, regional and sectoral integration, no resettlement and no destruction of the habitat of the local population)
- Economic (balance of payments, cost efficiency, maximization of positive effects on the host country)
- Technological (contribution to self-sufficiency, innovation and replicability)

Organization and CDM Project



* Designated National Authority ** Designated Operational Entity

CDM Project Cycle



How does CDM works?

1. A CDM project usually starts with an idea which can be developed by a potential investor, an economic actor, the host country government, or by third parties (service providers, consultants). Existing technology in many cases will be comparatively inefficient and lead to unnecessarily high greenhouse gas emissions. The CDM now allows the creation of another product - the emissions credits - by introducing a more efficient, often more expensive technology.
2. The national CDM authority of the host country – the so-called Designated National Authority, (DNA) – i.e. here it is the Thailand Greenhouse Gas Management Organisation (TGO), checks whether the project fulfils national sustainability criteria. The process usually includes an environmental impact assessment of the planned project. As in all other steps of a CDM project, sustainability is assessed on the basis of detailed project documentation with the following crucial elements: a technical project description, a baseline (to compare the emission reduction) and a monitoring plan to assess project emissions. Project lifetime can be either three times seven years with update of the baseline or one lifetime of ten years.
3. The project documentation then has to be checked by an independent, officially accredited verification body before the application for project registration can be submitted to the international CDM Executive Board. After the project - possibly after review - has been approved and thus registered by the Board, it can be implemented. The verified data on baseline and project emissions will be submitted to the CDM Executive Board from time to time. The Board then issues the respective emissions credits to the project participants.

CDM Potential in Thai Agro-Industry: Samples Cassava and Palm Oil

CASSAVA starch

CO₂ reduction potential in 2000, 2007 and future (from bio digester)

Year	Potential CO ₂ reduction (CO ₂ eq per year)	CO ₂ eq per year per factory (48 factories)
2000	1,149,916	23,956
2007	1,431,991	29,833
Future (47.93 percent increasing)	2,118,344	44,132

CO₂ reduction potential 2007 (biogas to electricity)

Type	Energy (TJ)	Per factory (MWh/y)	CO ₂ red. (tCO ₂ eq/factory/year)
Tapioca starch factory	3,990	23,090	12,538

CO₂ reduction potential 2007 (biomass power generator)

Type	Energy (TJ)	Per factory (kWh/y)	CO ₂ reduction (tCO ₂ eq/factory/year)
Total Tapioca residue	12.57	72,743	39.5
Tapioca residue from starch factory	6.285	36,371	19.7

Cassava:

Approved methodologies for CDM projects in the Cassava sub-sector are:

- Biomass power plant
[ACM 0006]
- Methane capture on waste water
[ACM 0014]
- Electricity generated from Biogas
[ACM 0002]

PALM OIL

Energy source from palm oil residues in Thailand, 2000

Type	Yield per year (t)	Residues	Amount of residues already used for energy generation (t)	Amount of unutilized biomass residues (t)	Heat value (MJ/kg)	MJ	MWh
Palm oil	3,256,000	Empty Fruit Bunch	42,000	814,000	17.86	14,538	51.92
		Fiber	411,000	64,000	17.62	1,128	4.03
		Shell	94,000	6,000	18.46	111	0.40
		Branches	0	8,479,000	9.83	83,349	297.67
		Flower	0	759,000	16.33	12,394	44.27

Palm oil:

Concerning biomass (palm oil residues) in the palm oil industry, it can be assumed that these resources are used already - as "business as usual" (see below picture). CDM potential lies in the energy production from waste water by utilizing digester system (70% efficiency) with reduction potential of approximately 360,000 tons CO₂ equivalent emissions per year. In addition biogas can generate electricity therefore reducing grid emission (depends on the Thai mission factor, 0.543 kg CO₂eq/kWh).

Sub-sectors	tCO ₂ /year			Thailand potential [tCO ₂ /year]
	small	middle	large	
LONGAN	no potential			1,374
MULBERRY	479			95,837
CASAVA				
Methane capture	29,833			1,431,984
Biogas to electricity	12,538			601,824
Biomass to electricity	59			2,832
PALM OIL	no potential	no data	24,000	360,000
SHRIMP				
diesel-RE	14	83	144	959,376
electricity-RE	25	153	265	1,769,082
10% efficiency (de.to el.)	1-3	8-15	14-27	137,945
TANGERINE	no potential			no potential
RUBBER	no potential		60,000	611,752

CDM Potential in the agro-sub sectors of the Thai-German Programme for Enterprise Competitiveness

The study CDM Potential for Thai Agro-Industry can be downloaded at:

<http://www.thai-german-cooperation.info/news-events/news/cdm-in-thailand.html>

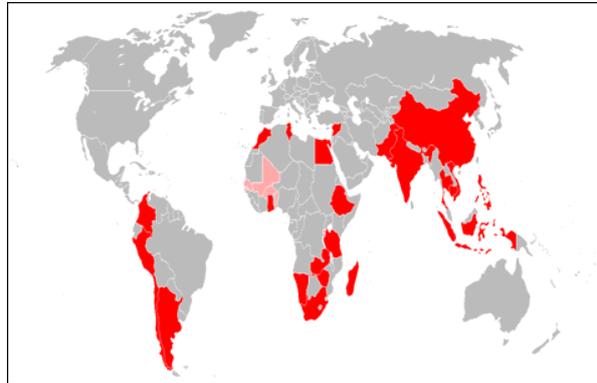
CDM Advisory, Capacity Building and Consulting Services by GTZ

By joining the Framework Convention on Climate Change, countries have committed themselves to protecting human society and ecosystems against human-induced climate change – industrialized and developing countries alike, each according to their respective capabilities. In order that poorer developing countries can join this effort, they are supported by the industrialised countries: In that endeavour, GTZ has been running the Climate Protection Programme (CaPP) since 1995 as the key contribution within the context of German technical cooperation.

GTZ advisory services include

- CDM Strategy Studies
National policy, CDM project portfolio, market potential
- Institution Building
Institutional arrangements of DNA (Designated National Authorities); CDM capacity building centre, national approval procedures
- CDM Capacity Development
General information, sector specific workshops, legal aspects, further CDM development
- Facilitation of CDM Project Development
Availability of data for baseline, methodology development

CDM Activities by GTZ worldwide



Further information on Climate Protection Programme:
www.gtz.de/climate

GTZ IS Carbon Procurement Unit - www.gtzis-cpu.com

Established in 2005, it offers realistic solutions for developing and supporting GHG emissions reduction projects. The services include:

- Identification of eligible CDM Projects
- Assisting Project Developers to prepare the necessary steps and documents (PDD, PCN, ERPA), examinations, meetings and approvals in regard to the CDM / VER project development cycle
- Facilitating Upfront Project Financing for eligible GHG emission reduction projects in a transparent environment
- Facilitating Technology transfer
- Introducing sellers to highly qualified Buyers
- Facilitating Buyers with time-bound and assured delivery of carbon credits



Monthly Newsletter "CDM Highlights" can be subscribed to by email to climate@gtz.de

Remember: CDM means "Clean Development Mechanism", not "Complex Development Mechanism"!

KOH Process Turning Untreated Wastewater to Fertilizer

After several commercial trials of environmentally friendly saa pulp production technology had been carried out with satisfactory results in Chiang Mai, Chiangrai and Phrae, where a large volume of saa pulp is produced, a request for this clean technology was made by the saa paper factory of Mr. Manut and Mrs. Pranee Kantaprom, currently facing a serious problem in treating polluted wastewater generated from cooking saa bark. Each day they produce more than 150 kilograms of pulp, and this requires about 1,125 liters of water. After learning of this clean production process from a seminar on standards for environmentally friendly saa paper, convened in November 2007 in Chiangrai by the Department of Environment and Quality Promotion under the Ministry of Natural Resources and Environment, the owners became interested in finding alternative solutions to their wastewater problems. It is impossible for their small scale factory to treat this polluted wastewater with a complicated and expensive wastewater treatment system.



In responding to the request of Mr. Manut and Mrs. Pranee, the Thailand Institute of Scientific and Technological Research (TISTR) and German Technical Cooperation (GTZ) demonstrated how to apply the KOH process/clean technology to saa pulp production on February 27th, 2008 at Mr. Manut and Mrs. Pranee's factory in Doi Saket, Chiang Mai. In order to maximize the effect of this demonstration, 12 small sized saa paper producers from Sanpatong, where heavy production of pulp takes place, and 5 from Tonpao, community leaders and public health officials from Doi Saket, who are concerned the impact of wastewater produced from the saa paper

factories on the quality of life of people in their community, were invited to observe the demonstration. A similar demonstration, with the participation of 4 entrepreneurs, also took place on February 13th, 2008 at Mrs. Lumduan's saa paper factory in Phrae.

This clean technology is simple and straightforward and does not require much technical knowledge. The process involves the substitution of polluting sodium hydroxide (NaOH) with potassium hydroxide (KOH) during the cooking stage of production. The pH value of polluted wastewater generated from the saa bark boiling process can then be adjusted to neutral with sulphuric acid; then, after this it becomes fertilizer which can be used for agricultural purpose. A study conducted several years ago by TISTR on the utilization of wastewater generated by the KOH process, revealed that rice, green bean and cassava trees watered with potassium based



fertilizer can grow well. Through this unsophisticated technology, the unbleached pulp yield has increased 9%; and bleached pulp is whiter than the that cooked with NaOH. In addition, human labour, energy, and chemicals used in both cooking saa bark and bleaching pulp processes have been significantly reduced. This more than compensates for the cost of potassium hydroxide which is twice as much as that of sodium hydroxide. With the numerous advantages of KOH process, particularly the elimination of wastewater, Mr. Manut and Mrs. Pranee have decided to apply this clean technology to their pulp production immediately after the

demonstration took place at their factory site. This can be recorded as the first business case in Thailand in the saa paper industry that has produced environmentally friendly saa paper. As a result of this successful experiment, on March 27th, 2008, an outreach to saa paper producers in Tonpao, financed by the Industrial Promotion Center, Region 1, Chiang Mai took place at Ban Hattakam Saa Paper Factory in Tonpao. The owner of this factory was the main resource person with a backstopping of TISTR. In the meantime, DEQP will carry on with the dissemination of this process across the whole country during 2008.

Cooperation between GTZ, Technology Management Center (TMC) and the Universities under the “Mapping and matching innovation in selected agro sub sectors”



Technology Management Center of National Science and Technology Development Agency together with German Technical Cooperation (GTZ) aims to promote the regional innovation system of Thailand through cooperation with universities under the “Mapping and matching innovation in selected agro sub sectors” project. The cooperation agreements with Silapakorn University, King Mongkut University of Technology and Prince of Songkla University were recently signed.

The cooperation with the universities arose from the TMC and GTZ’s joint initiative on the call for intervention proposal extended through Industrial Technology Assistance Program (ITAP) network during August 2007. Prince of Songkla University (PSU) through the Business Incubator Center and Faculty of Agro Industry; Silapakorn University (SU) through Faculty of Engineerin and Industrial technology and King Mongkut University of Technology (KMUT) through Thai Industrial Technology Integrating Center as lead partner of each team form the consortium teams comprising representatives from academic, public and private sector i.e. University’s research and development, technology licensing and business incubator offices, ITAP regional networks, The Federal of Thai Industries, Nakornpathom and Songkla Province. The region intervention consortium teams submitted the proposals to the project. Detailed planning workshops were conducted during October 2007 with the regional teams to arrive at the final work plans.

Over the two year period, the project (TMC and GTZ) will support the four pilot regional teams in a systematic approach to tapping the region innovation potentials. The support includes capacity development of the regional teams through methodology workshops, hands on support, networking events and co-financing funds. Prince of Songkla University team will be responsible for the mapping and matching of the innovation in rubber, palm oil and shrimp industry. King Mongkut University of Technology team will work on the mapping and matching of the innovation in fruit industry focusing on mango and coconut and Silapakorn University team on the fruit and vegetable clusters focusing on the fruit and vegetable processing innovation and technology. The regional teams will act as the region initiators / drivers of the more systematic link between adopters of research, technology development and innovation (RTDI) and providers of RTDI. Through this a wider and more sustained impact on regional innovation system and enterprise competitiveness is anticipated.

Scaling-Up and Export of Thai Organic Shrimps

During the past two years, GTZ has worked with Sureerath Farm, one of the few remaining black tiger prawn producers in Thailand. Last year, Sureerath Farm succeeded in becoming the first organic black tiger prawn farm in Thailand to be certified by Naturland, which is one of the world's most well known organic certification agencies. Being one of the few organic shrimp farms in the world, Sureerath Farm has received attention and interest both domestically and overseas.



It is expected that in year 2008 Thailand will be able to produce 200 metric tons of organically certified shrimps coming from Sureerath Farm alone. Through GTZ support Sureerath Farm is in the process of concluding sales agreements with major buyers in Germany and Switzerland. Although most of the output is targeted for the export market, "Sureerath Organic Prawns" or "SOP" has also been marketed in Tops Supermarket Chain in Bangkok since October 2007.



At the same time GTZ is also assisting Sureerath Farm in developing a sustainable business model in order to scale-up on organic shrimp production. With Sureerath Farm playing the role of lead firm, they have already enticed fourteen other shrimp farms in Chantaburi province to join the newly formed "Eastern Organic Prawns Alliance" which aims to produce organic certified shrimps to serve the export market. A holistic strategy will need to be established in order to build up organic value chain and sufficient production volumes which covers the areas of quality assurance, marketing and capacity building. It is expected that by the year 2011

the production of organic certified shrimps in Thailand will at least triple in volume, which should place Thailand at the forefront of organic shrimp farming.

CIM - High Qualified Integrated Experts at Local Cost for Thai Institutions



What is CIM?

CIM (Centre for International Migration and Development), the human resources placement organisation for German Development Cooperation, is operated jointly by GTZ and the German Federal Employment Services and implements the Integrated Experts Programme. Following the approved request by host organizations CIM placed German and other European experts at the organization that play a role in development in developing countries, the countries of Central and Eastern Europe and the successor states of the former Soviet Union. CIM assigns the experts and provides topping-up payments to supplement the remuneration paid by their employer at the customary local rate. This allows employers to recruit and hire highly qualified experts with specialised know-how. An integrated expert may only be placed if there are no experts available on the local labour market and the employers make a special contribution towards the economic and social development of the host country.

The experts sign a contract of employment with the employers in the host country directly and are thus answerable to him or her and subject to local labour laws. As a result of experts being integrated in this way, the employer remains completely self-reliant: He or she retains the overall responsibility and determines the objectives and anticipated results.

The following employers in developing countries are entitled to request personnel:

- governmental or semi-governmental organisations in the relevant countries;
- non-governmental organisations in the relevant countries,
- regional organisations concerned with promoting economic development between developing countries and the countries of Central and Eastern Europe,
- private-sector organisations or companies based in the host country.

The CIM programme in Thailand

Currently there are 9 CIM experts working in different public and private institutions like Universities, Federation of Thai Industry, Thai German Chamber of Commerce, the Population and Community Development Association and the Phuket Marine Biological Center. The CIM experts promote and support various aspects of the Thai-German Technical Cooperation.

CIM Sample 1: Advisory in the research fields of energy and environmental technology

For almost four years Prof. Dr.-Ing. Christoph Menke has been working as an advisor and professor at the Joint Graduate School of Energy and Environment, King Mongkut's University of Technology, Thonburi, (JGSEE/KMUTT). For almost two years Dipl.-Ing. Werner Siemers has been working as an advisor for sustainable bioenergy as well at the JGSEE. The JGSEE is a consortium of five leading universities in Thailand and offers as a post-graduate school an English PhD and Master program for energy subjects and its related environmental topics. In addition to teaching, the JGSEE has 10 research focus areas from sustainable biomass utilization to combustion technologies and climate change policy. A third focus is the outreach program, which is especially supported by the CIM expert.



A few examples about the achievements of this CIM – JGSEE cooperation are:

- Education: Introduction of a professional-oriented Master program at the JGSEE, with clear orientation towards industry and internships.
- Outreach: A business and market oriented annual international exhibition and conference on “Renewable Energy Asia”. The next one is in June 4-7, 2008. In May 2009 there will be the “World Renewable Energy Conference – Asia Region” being hosted in Bangkok.
- Market development: Revitalisation of the solar thermal market (solar collectors for hot water production) in Thailand and setting up a Solar Thermal Association of Thailand <http://www.soltherm-thailand.net>
- Advisory service: Development of a co-generation (CHP, Combined Heat and Power) strategy and potential assessment for Thailand, which identified more than 2000 MW of natural gas based CHP. Revision of the SPP (Small power producer)

regulation for the Energy Policy and Planning Office (EPPO) and introduction of a new effective criteria for the promotion of CHP: Primary Energy Saving criteria and CHP adder.

- Advisory service: Development of sustainable bioenergy policy tools for planning of the bioenergy strategy in Thailand.

CIM Sample 2: Integrated Rehabilitation Advisory to PDA

After the Tsunami disaster, CIM expert Wolfgang Frank assisted staff of the Population and Community Development Association (PDA) within a wide range of activities such as “cash for work”, “boat banks”, psychological rehabilitation camps, scholarships, school lunches and school farms.

PDA, as one of Thailand’s leading NGOs, has been a partner of German Development Cooperation for decades in fields such as rural development, water resources, AIDS prevention, democracy, SME and CSR promotion. This cooperation still seems timely and mutually beneficial for interventions that require flexibility, speed and outreach to poorer target groups in rural areas, as apparent from the support to PDA’s ‘New Lives After the Tsunami Program’, one of the more ambitious non-governmental initiatives with regard to budget and concept.



Wolfgang Frank mainly focussed on the establishment and/or improvement of village development banks (VDB) in more than 50 tsunami affected communities. VDBs provide loans to members to establish new businesses and rebuild destroyed ones. VDBs mobilize savings, as the absence of which made the damage of the tsunami even more severely. VDBs, however, have a wider scope than just savings/credit operations. They also funnel donor funds into special activities, such as women economic empowerment, mangrove reforestation, water supply and other community investments. VDBs have decreased the dependence on moneylenders who charged very high interest

rates and have already improved the livelihoods of thousands of members and their families.

Complementing the Thai-German Programme for Enterprise Competitiveness, villagers were encouraged to establish or improve organic aquaculture ventures. As to agro-based renewable energy, trial programs for bio-diesel production from jatropha and palm oil were also initiated, the latter now being a booming, large-scale business.

The tasks of Mr. Frank include project cycle management, training and counseling as well as to obtain financial support from various organizations such as EU and Deutsche Bank. The future still holds exciting challenges. One is the further strengthening of VDBs as vital community institutions in the target area and beyond. The other is a new voluntary or verified emission reduction (VER) CDM initiative which will build on PDA experiences with mangrove planting in the tsunami area and ‘carbon banks’ in the Northeast, combining environmental protection with SME promotion and micro-finance.



CIM Sample 3: Development of a Service Provider in Knowledge and Technology Transfer

Dr. Astrid Faust has been assigned since August 2003 as Technology Transfer Advisor to the Institute of Science and Technology, Research and Development (IST) of Chiang Mai University (CMU).



IST initiates, coordinates and supports multi-disciplinary research in science and technology. It establishes linkages with external funding agencies and the private sector and disseminates research results to end users in Thailand and South-East Asia. IST maintains seven research centers corresponding to development priorities of the Northern region and important cross-cutting themes. The two transfer units of IST are targeting productivity and performance improvements of SME in highly revenue and employment relevant local sectors, such as agro-business, ceramics, and textile. All operations are based on the principles of sustainable production and consumption.

The main results of the cooperation between CIM and IST are

- (1) restructuring of the research landscape at CMU into demand oriented research centers
- (2) capacity building of IST's transfer unit to deliver services to third parties: consultancy, training/HRD measures, value chain analysis and development, impact assessment
- (3) R&D breakthroughs in the scope of integrated supply chain management of exotic fresh fruit (integrated pest management, certification, advanced post harvest technologies, cool chain integrity, comprehensive logistic solutions, innovative marketing approaches with partners in Europe)
- (4) EU market tests, competitiveness assessment and strategies for Thai Eco textiles concept development for generating significant outreach at sector level (agro-industry, eco-textile) with Thai and regional partners.



Further Information:

<http://www.cimonline.de>

<http://www.jgsee.kmutt.ac.th>

<http://www.pda.or.th/>

GTZ promotes Sustainable Consumption and Organic Products at BioFach 2008



GTZ was part of the BioFach's Thailand Pavillion, cooperating with the Thai Organic Trade Association (TOTA) and enterprises, which offer organic products and want to develop towards sustainable consumption and production. The BioFach 2008 held from 21 – 24 February 2008 in Nuremberg, Germany is the world's largest organic trade fair under the International Federation of Organic Agriculture Movements. At the fair, GTZ supported Thai producers to introduce their organic products and open-up the business relationship to wholesalers and importers. Dried longan and bio-degradable packaging were the most popular products among those from Thailand. Attracting over 45,000 trade visitors from 110 countries, the BioFach fair

offered the Thai producers a unique chance to know more about market trends and technology, as well as to establish new partnerships. In addition to the fair, GTZ also organised for the Thai participants site visits to various best practice organic farms and institutions in Nuremberg region. The visits will give an insight not only into the practice of organic production, but also into the implementation of principles of eco-efficiency and consumer awareness promotion.

Delegates from Lao PDR Visited Thai Saa Paper Production

During 2007, under the "Promotion of Environmentally Friendly Saa Paper" project, GTZ in collaboration with relevant Thai and Lao PDR government offices implemented several interventions to develop collaborative paper mulberry trade between Thailand and Lao PDR and to mutually share experiences and perspectives. Interventions included a study on paper mulberry trade route between Thailand and Lao PDR, training on grading and stripping of paper mulberry to improve the quality of paper mulberry and the pilot trade between Thai and Lao. Recently, during February 5-10, GTZ (Lao PDR and Thailand) collaboratively organized a study trip for a team of 15 delegates from Lao PDR,



comprising government officials, Ngeun governor and paper mulberry traders from Ngeun and Hongsa to visit and observe saa paper production in northern Thailand. The objectives of the field trip were to learn about problems and obstacles of paper mulberry trade between Thailand and Lao PDR and to share experiences with Thai saa paper producers. The team visited Siamphom Company Limited, the major producer of saa paper and saa paper products and the northern OTOP trade centre. A meeting with the Ton Pao saa paper producer network in Chiang Mai was organized to establish future collaborative paper mulberry trade. The team then traveled to Phrae and Nan to visit paper mulberry cultivation fields, observe environmentally friendly saa paper production and organic saa paper production at the Phufa Development Center Project. This study trip enabled the Lao PDR delegates to envision the potentials of paper mulberry quality improvement and the approaches to strengthen paper mulberry trade between Thailand and Lao PDR and to gain useful information for future intervention development to strengthen the paper mulberry trade.

DEQP Granted Environment-Friendly Award to Qualified Saa Paper Producers

Department of Environmental Quality Promotion (DEQP), Chiang Mai University, Thai Industrial Standards Institute, Regional Environment Office 1, Industrial Promotion Region 1, Provincial Office of the Ministry of Natural Resources and Environment, Provincial Industrial Office and GTZ have collaboratively implemented the “Promotion of Environmentally Friendly Saa Paper” project since 2005. The objective of the project is to persuade saa paper producers to improve the production process standards by adopting clean, environmental-friendly production process. The project has provided consultations on the improvement of the production process, conducted monitoring and evaluation of saa paper producers to select the establishments that meet the



environmental-friendly criteria and awarded environment-friendly product labels, which they can use to market their products. During 2007, more than 30 saa paper producers participated in the project. Monitoring and evaluation of these establishments revealed that 6 saa paper producers in Chiang Mai, Phrae and Lampang met the environmental-friendly criteria. Consequently, DEQP awarded them with plaques and certificates on January 16, 2008. The “Promotion of Environmentally Friendly Saa Paper” project took the opportunity in the award presentation ceremony to publicize its workplan for 2008 to promote adoption of environment-friendly production process and to establish an implementation network to share knowledge and experiences among project participants.

GTZ Shared Knowledge in Biofuel Technology Forum



On February 13, 2008 the National Innovation Agency (NIA), Alternative Energy Sector of the Federation of Thai Industries (FTI) and the MFC Asset Management Public Company Limited collaboratively organized a forum on “Innovation on Biofuel in Thailand”. The objectives of the forum were to provide a venue for knowledge and technology transfer and develop a network for collaborative biofuel technology development among researchers, investors and industrial sectors, which would lead to future investment in innovation on biofuel in Thailand. Mr. Daniel May, a biofuel expert from GTZ headquarters in Germany, gave a keynote lecture on “Global Market and Trend on Biofuel Technology” in the forum attended by more than 100

participants. The morning briefing on biofuel trends and the supporting government policy was followed by the afternoon session on “Biofuel Technology – a choice or the only option” focusing on relevant biofuel production technology using agricultural products, e.g. oil palm, algae, physic nut (*Jatropha curcas*) and used cooking oil as raw materials.

Upcoming Events

04-07 June 2008

Entech Pollutec Asia and Renewable Energy Asia 2008, BITEC, Bangkok

<http://www.thai-exhibition.com/entech/>

21-25 May 2008

THAIFEX World of Food Asia 2008, IMPACT Muangthong Thani, Bangkok

<http://www.worldoffoodthailand.com/>

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