(1) Basic Factor for Implementation of Project

■ Outline & Background of Proposed Project

This project aims to produce biodiesel (BDF) from sunflower oil in Loei province, Thailand. Sunflower as a source crop will be cultivated by contracted farmhouse in Phu Rua district, Midwestern of Loei. The unused land (22,500 ha) is utilized as farm land of Sunflower Plantation. The BDF production plant will be constructed in Loei city, about 50 km from Phu Rua. The BDF production capacity of this plant will be 15,000 t/year. The produced BDF will be sold to contracted oil company, and supplied to the consumers in gas stations in big cities (e.g. Bangkok). The use of BDF as an alternative to petroleum diesel fuel should lead to lower petroleum diesel consumption and reduced greenhouse gases (GHG) emission.

In Thailand, diesel fuel account for 46 % of petroleum products and 80 % of diesel is consumed as transportation fuel. Therefore, the Thai Government sets a policy objective to promote transportation fossil fuel that originated from indigenous biomass in order to contribute to energy security and environmental protection.

Bio-diesel fuels attracted interests with the Royal R&D project, a turning point which started in November 2000. In this R&D project, palm-diesel (blended palm oil with petro-diesel) was developed and noticed. Such trend slowed down due to the circulation of inferior quality fuels. The Thai Government revealed, however, that it would continue its effort for penetration of bio-diesel. However, BDF (methylester based bio-diesel fuel), which is of higher quality than the mixture type palm-diesel, has not been sold in Thailand to date. This is because of its higher production cost and technology.

■ Information on Host Country

The information on Thailand for the implementation of the project is shown below.

Agriculture

Agriculture is one of major industries supporting Thailand's economy. Half of the work force is engaged in agriculture. Rice is Thailand's major product and its export alone amounts to 30 % of the world's rice production.

The central field region in Thailand is a grain belt of advanced irrigation. In the southern region, primarily natural rubber and palm have been cultivated. On the other hand, in the northern and northeastern regions, agriculture is not favorable due to poor water resource and soil erosion. Hence, productivity and income from the agriculture sector have been relatively poor in these regions. In spite of this, agriculture remains to be the leading industry.

The agricultural policy is very important for national economic growth. In the Ninth National Economic and Social Development Plan (2002 – 2006), Prime Minister Thakshin Shinawatra instituted the agricultural development plans to improve the quality and productivity of agricultural products, and to develop high value products by the institution of the "One Village, One Product" policy. The policy will create new job opportunities, too.

Energy

Thailand's energy consumption has been increasing because of rapid industrial development. Thailand has to rely 85 % of the country's petroleum supply and more than 65 % of total energy consumption on imported fuel. On the other hand, more than 75 % of the country's natural gas supply is produced locally.

Diesel fuel used in transportation constitutes 46 % of the total refined crude oil in Thailand. This amount contributes 80 % of the transportation fuel of the country because of the significantly higher popularity of diesel fuel over gasoline in running vehicles. Moreover, 90 % of energy used in the agricultural sector is petroleum diesel.

Natural gas is a major domestic energy in Thailand. To decrease the dependence on energy import, the government recommends enhancement of natural gas consumption. This has been used mainly for generation of electricity, and more than 70 % of fuels for electricity generation are dependent on natural gas.

Renewable energy has been used for commerce and industry. In 2002, energy from renewable resources attained almost 20 % of the final energy consumption, which mainly come from wood, bagasse and rice husks.

For sustainable development, it is essential that energy is available in reasonable and competitive price without sacrificing the environment. Prime Minister Thakshin made a policy speech in 2001 that outlined the important tasks of energy enhancement the natural gas consumption, R&D and utilization of renewable resources. Against the recent inflating oil prices, the Government has taken measures to secure energy by controlling the local petroleum prices by using "Oil Fund". The amount of debt of Oil Fund in 2004 is supposed to run up to 70 billion baht.

■ The Host Country's Policy and Situation on CDM/JI (the Criteria for Approval of CDM/JI Project and the Establishment of DNA)

Thailand ratified the United Nations Framework Convention on Climate Change (UNFCCC) in December 1994, and entered into in March 1995. Thailand also signed the Kyoto Protocol (KP) in February 1999, and ratified it in August 2002. Thailand is a non Annex-I country, meaning it is not required to reduce its carbon emissions below 1990 levels by 2008 – 2012.

The Thai Government announced the principles of CDM in January 2003. Thailand's basic policy in addressing climate change is the recognition of the guiding principles of UNFCCC and KP. Following the principles, Thailand reaffirms its position that Annex-I countries must adopt domestic actions as the main approach in emission reduction. Mechanisms allowed in KP are supplementary and should be viewed as main instruments to reduce its GHG emissions.

A preliminary study of CDM options in Thailand suggests that the energy sector is the most feasible sector in terms of economic and other sustainable development conditions. The national energy policy has recognized the importance of renewable energy and has emphasized its development over the next decade. CDM could contribute to renewable energy development in Thailand. Based on these points, the profiles of promising project could be summarized as follows; biomass renewable energy, biogas renewable energy, afforesting abandoned agricultural land, etc.

The MONRE (Ministry of Natural Resources and Environment) was assigned as the CDM designated national authority (DNA) in July 2003, and addressed the principles and approval system of CDM project. However, the DNA was suddenly moved from MONRE to OEPP (Office of Environmental Policy and Planning) on July 2004. It takes Thailand a long time to approve project, though the OEPP has worked on the making of its system.

■ Partnership of Feasibility Study (Japan, Host country, others)

This feasibility study was done by following partnership.

Japan: PowwowPool Co., Ltd. (the main entity), Sun Care Fuels Co. , Tsukuba University

Thai: UTIC FOODS (THAILAND) Co., Ltd., Kasetsart University

The New Methodologies of Baseline & Monitoring (NMB & NMM) and PDD have been prepared with the support of Dr. Naoki Matsuo, Climate Experts Ltd.

(2) Project Planning

■ Project Activity

The target of this project is biodiesel (BDF) production from sunflower oil cultivated in Loei province, Thailand. This project can be categorized into three stages.

Sunflower Cultivation

The sunflower as raw material of BDF will be cultivated in Phu Rua district, Midwestern of Loei. In this area, the principal crops are rice, ginger and vegetables (carrot, cabbage, onion). Income for farmers is very low (annual revenue per one family: 10,000 baht). The monks in this area have been trying to increase income up to 8,000 baht/month (US$200/month, average level in Thailand), but no substantial income sources have been found to date. Villages with similar situations are located around the village. Idle land area spreads, which have not been used after reclaim. Such idle area (22,500 ha) will be used for the sunflower cultivation.

BDF Production Plant

The BDF production plant will be located in the industrial site in Loei city, which the Loei local government specifies for use. There are no residences located nearby. The BDF production capacity of this plant will be 15,000 t/year (52 m^3/day, 335 days/year).

Sales of BDF

The produced BDF will be sold to contracted oil company, and supplied to the consumer in gas stations in big cities (e.g. Bangkok). The BDF produced in this project can be used as B100 (no need to mix with petro-diesel). If the oil company desires, BDF can be mixed with diesel and used as a commercial product.

■ Project Boundary・Baseline Scenario・Additionality

Baseline Scenario

The baseline scenario is identified to continue current practice, because the following are applicable to this project according with NMB “Baseline methodology for transportation bio-fuel production with LCA” prepared by the support of Dr. Matsuo.

<Applicability Conditions>

(a) Plantation of sunflower for the project does not lead to decrease of forest, or does not constrain the afforestation/reforestation activities;
(b) There are no other plans to utilize the area for other exclusive GHG emission reduction activities;
(c) The project is the optimal solution in its scale in the project participants’ decision making considering several barriers with economical consideration, if a BDF production plant by using sunflower is invested;
(d) The project participants do not have any plans to implement other biomass based fuel production projects with different type of production process;
(e) The project plant cannot be attractive economically without the CER revenue, even if some subsidies and sales revenue of by-products are included at the planning stage of the project or some prohibitive barriers to implement the project exists;

(f) BDF shall be consumed as to replace petro-diesel.

Condition (f) will be attained if the sub-conditions below are met;

i) The BDF produced by the project is sold through an ordinary sales channel, used in-house, or used to specific purpose as an alternative to petro-diesel,

ii) The penetration rate of the bio-fuels, which can be alternative to, and whose biomass-ratio is above the BDF produced by the project, is less than 70 % in the host country,

iii) Supply of the petro-diesel, which the BDF displaces, has excess supply capacity in Thailand, therefore the project does not create new/hidden demand of the petro-diesel,

iv) The petro-diesell, which the BDF is going to replace, is not banned to use legally or substantially in Thailand,

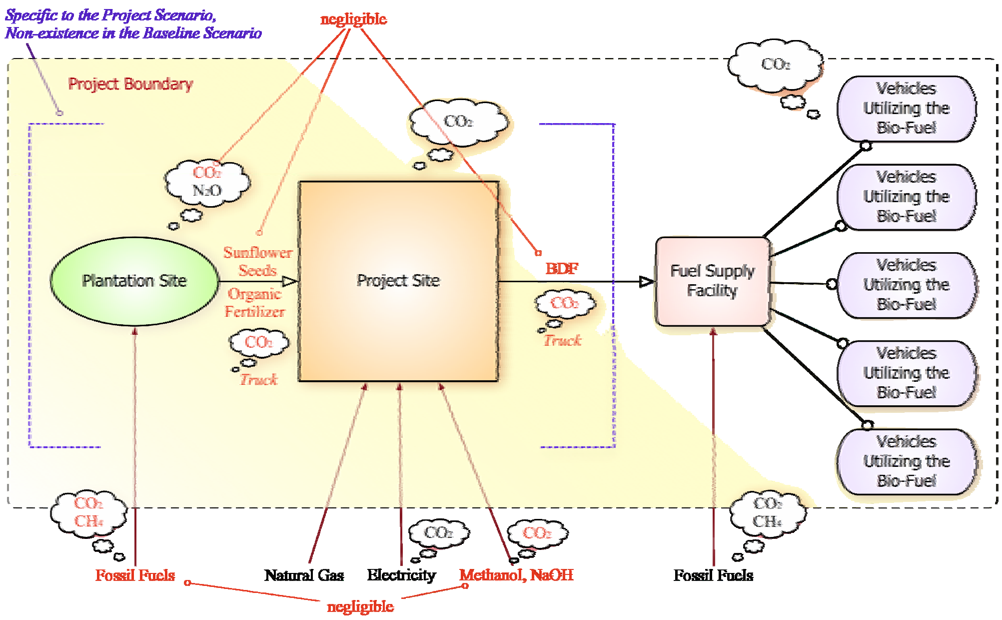
v) The same BDF type is not required to use by some mandatory regulation in Thailand.

Additionality

From baseline scenario identification, the baseline scenario is not identical to the project scenario. It is obvious that the emission in the project scenario is less than those of baseline scenario. Therefore, the project is additional.

Project Boundary

The project boundary is assumed as follows;



■ The GHG Emissions Reductions from Project Activity

Baseline Emissions

The baseline emissions BEy within in the boundary in a certain year y is given by;

$$BE_y = BF_y \times COEF^{FF} \times (1+\delta)$$

where BF_y: BDF sold or utilized in a certain year [GJ/yr]

$$= BF^{vol}_y \times Density_y \times HV_y$$

where BF^{vol}_y: volume content of BF_y [m^3/yr]

Density$_y$: mass density of the BDF [ton/ m^3]

HV_y: thermal content of the BDF per unit of mass [GJ/ton]

$COEF^{FF}$: life-cycle CO_2 equivalent emission factor of petro-diesel, which the BDF substitutes [tCO_2/GJ]

δ: adjustment factor related to the difference of fuel efficiency for km drive per GJ

= [$L_{biofuel}$/L_{fossil}] - 1

where L_{fossil}: mean mileage of the petro-diesel to be replaced per GJ [m/MJ]

$L_{biofuel}$: mean mileage of the BDF to be replaced per GJ [m/MJ]

In a year when BDF is produced 15,000 [t/yr], baseline emissions are estimated as;

BE_y = 15,000×10^3 [kg]×9,730 [kcal/kg-BDF]×20.2 [tC/TJ]×43.33 [TJ/10^3ton]×44/12 [tCO_2/tC]÷10,950 [kcal/kg-diesel]×1.12×(1-0)

= **4.79×10^4 [tCO_2/yr]**

Project Emission

Project emissions PE_y within the project boundary in a certain year y is given by;

$$PE_y = FF^{BFP}_{NG,y} \times COEF^{FF}_{NG} + BF^{mass}_y \times COEF^{FS} + PE^{plantation}\_N_2O_y$$

where $FF^{BFP}_{NG,y}$: natural gas consumption at the BDF plant [m^3/yr]

$COEF^{FF}_{NG}$: LCA CO_2 emission factor of natural gas [tCO_2/ m^3]

BF^{mass}_y: BDF sold or utilized in a certain year [t-BDF/yr]

$COEF^{FS}$: CO_2 emission factor of the non-bio feedstock (methanol) contained in the BDF [tCO_2/t-BDF]

$PE^{plantation}$_N_2O_y: N_2O emissions from fertilizer use at plantation site (direct)

= $Fertilizer^{in}_y$×UREA_EQ^{in}×$COEF^{Direct}$_N_2O×GWP_N_2O [tCO_2eq/yr]

where $Fertilizer^{in}_y$: fertilizer input to the plantation site [t-fertilizer/yr]

UREA_EQ^{in}: urea-equivalence factor of the fertilizer for N-component [t-urea/t-fertilizer]

$COEF^{Direct}$_N_2O: direct N_2O emission factor of the fertilizer (= 1.0 %) [tN_2O/t-urea]

GWP_N_2O: GWP potential for N_2O (= 310 for 1^{st} Commitment Period) [tCO_2eq/tN_2O]

In a typical year when BDF is produced 15,000 [t/yr], project emissions are estimated as;

PE_y = 9,648×10^6 [BTU/yr]×1,055.06 [J/BTU]×10^{-12} [TJ/J]×15.3 [tC/TJ]×44/12[tCO_2/tC] ＋ 28,350 [t/yr]×0.028×60/14 [t-urea/t-fertilizer]×0.010 [tN_2O/t-urea]×310 [tCO_2eq/tN_2O]

= **1.11×10^4 [tCO_2/yr]**

Leakage Emission

Leakage L_y, as the net emission change in a certain year y, is given by;

$$L_y = EL_y \times COEF^{EL}_y/(1- Loss_y) - BE\_N_2O_y + PE^{indirect}\_N_2O_y$$

where EL_y: Electricity consumed at the BDF production plant [MWh/yr]

$COEF^{EL}_y$: CO_2 emission factor of the used electricity [tCO_2/MWh]

$Loss_y$: Transmission loss of the grid [no dimension]

BE_N_2O_y: N_2O emissions substituted by bio-based fertilizer (by-product of the BDF)

= $BioFertilizer^{out}_y$×UREA_EQ^{out}×COEF_N_2O×GWP_N_2O [tCO_2eq/yr]

where $BioFertilizer^{out}_y$: bio-based fertilizer sold out in the market [t-biofertilizer/yr]

EQ^{out}: Coefficient to convert from bio-based fertilizer to synthetic urea fertilizer [t-urea/t-biofertilizer]

$COEF\_N_2O^{tot}$: N_2O emission factor of the synthetic urea fertilizer (direct+indirect) (= 0.030) [tN_2O/t-urea]

GWP_N_2O : GWP of N_2O (=310 in the 1st Commitment Period) [tCO_2eq/tN_2O]

$PE^{indirect}\_N_2O_y$: Indirect N_2O emissions from fertilizer use at plantation site (emitted at the fertilizer production facility) in PJS

$= Fertilizer^{in}_y \times UREA\_EQ^{in}_y \times COEF^{indirect}\_N_2O \times GWP\_N_2O$ [tCO_2eq/yr]

where $COEF^{indirect}\_N_2O$: indirect N_2O emission factor of the fertilizer (= 2.0 %) for synthetic fertilizer only [tN_2O/t-urea]

In a year when BDF is produced 15,000 [t/yr], leakage is estimated as;

L_y = 4,600 [MWh/yr]×0.641 [tCO_2/MWh]/(1 – 0.03) – 0 + 0

= **3.0×10^3 [tCO_2/yr]**

GHG Emissions Reductions from Project Activity

In a year when BDF is produced 15,000 [t/yr], emission reductions ER_y are estimated as;

$ER_y = BE_y - PE_y - L_y$

= 4.79×10^4 [tCO_2/yr] - 1.11×10^4 [tCO_2/yr] - 3.0×10^3 [tCO_2/yr]

= **3.38×10^4 [tCO_2/yr]**

Provisional calculation of estimated amount of emission reductions is shown below.

year	BDF [t/yr]	$Fertilizer^{in}_y$ [t/yr]	$FF^{BFP}_{NG,y}$ [TJ/yr]	EL_y [MWh/yr]	PE_y [tCO_2eq/yr]	BE_y [tCO_2eq/yr]	L_y [tCO_2eq/yr]	ER_y [tCO_2eq/yr]
2008	12,000	22,680	8.14	3,680	8,894	38,310	2,432	27,074
2009	15,000	28,350	10.18	4,600	11,117	47,888	3,040	33,731
2010	15,000	28,350	10.18	4,600	11,117	47,888	3,040	33,731
2011	15,000	28,350	10.18	4,600	11,117	47,888	3,040	33,731
2012	15,000	28,350	10.18	4,600	11,117	47,888	3,040	33,731
2013	15,000	28,350	10.18	4,600	11,117	47,888	3,040	33,731
2014	15,000	28,350	10.18	4,600	11,117	47,888	3,040	33,731
2015	15,000	28,350	10.18	4,600	11,117	47,888	3,040	33,731
2016	15,000	28,350	10.18	4,600	11,117	47,888	3,040	33,731
2017	15,000	28,350	10.18	4,600	11,117	47,888	3,040	33,731
Total	147,000	277,830	99.76	45,080	108,947	469,302	29,792	330,653
Average	14,700	27,783	9.98	4,508	10,895	46,930	2,979	33,065

■ Monitoring Plan

Monitoring Plan follows NMM. The letters B, P and L means the parameter for calculation of emission amount of baseline, project activity and leakage, respectively.

Sunflower Cultivation

P5. $PE^{plantation}\_N_2O_y$: N_2O emissions from fertilizer use at plantation site (direct) [tCO_2eq]

Measured; calculated monthly and saved as electronic data

Comment; $PE^{plantation}\_N_2O_y = Fertilizer^{in}_y \times UREA\_EQ^{in} \times COEF^{Direct}\_N_2O \times GWP\_N_2O$

P6. $Fertilizer^{in}_y$: fertilizer input to the plantation site [t-fertilizer]

Measured; measured monthly to use weight meter and saved as electronic data

Comment; checked against the fertilizer purchase receipt

P7. $UREA\_EQ^{in}$: urea equivalence factor of the fertilizer for N-component [t-urea/t-fertilizer]

Measured; calculated in every time when fertilizer is changed and saved as electronic data

Comment; calculated by using the data of fertilizer supplier

BDF Production Plant

B1. BF_y: BDF sold or utilized in a certain year (thermal content) [GJ]

Measured; calculated daily and saved as electronic data

Comment; $BF_y = BF^{vol}_y \times Density_y \times HV_y$

B2. BF^{vol}_y: volume content of BF_y [m^3]

Measured; measured daily to use volumeter and saved as electronic data

Comment; check against BF^{mass}_y and fuel sales record. More accurate one is prioritized.

B3. $Density_y$: mass density of BDF [ton/m^3]

Measured; measured monthly to use density meter and saved as electronic data

Comment; in the early stage of project implementation, more frequent sampling should be done in order to assess fluctuation

B4. HV_y: thermal content of BDF per unit of mass [GJ/ton]

Measured; measured monthly and saved as electronic data

Comment; chemical component analysis or combustion test is applied in the beginning. Later, $Density_y$ is used to approximate this value. In the early stage of project implementation, more frequent sampling should be done in order to assess fluctuation.

B5. $COEF^{FF}$: Life-cycle CO_2 equivalent emission factor of the petro-diesel which BDF substitutes [tCO_2/GJ]

Measured; calculated once in the beginning of the crediting period to use fuel supplier, statistics and scientific literature, and saved as electronic data

Comment; *direct part*; fuel supplier or other statistics, if unavailable.

indirect part; project participants shall provide related objective information, such as scientific documents/paper. Life-cycle assessment is not needed if the project participants cannot provide such information as a conservative estimation (only CO_2 emissions from direct combustion is considered).

Oxidation factor; Defaults in the IPCC Guidelines/Good Practice Guidance are used.

P1. $FF^{BFP}_{NG,y}$: natural gas consumption at BDF production plant [m^3]

Measured; measured daily to use flowmeter and saved as electronic data

Comment; checked against the sales record

P2. $COEF^{FF}_{NG}$: CO_2 emission factor of the natural gas combusted at the BDF production plant [tCO_2/m^3-NG]

Measured; calculated from data provided by fuel supplier or statistics once at the time of drafting the PDD and saved as electronic data

Comment; data obtained from natural gas supplier. If non-available, IPCC default (15.3 [tC/TJ] is used.

P3. BF^{mass}_y: BDF sold or utilized in a certain year (in mass) [t-BDF]

Measured; measured daily to use weight meter and saved as electronic data

Comment; checked against BF^{vol}_y and fuel sales record.

L1. EL_y: electricity consumed at the BDF production plant [MWh/yr]

Measured; measured monthly to use wattmeter and saved as electronic data

Comment; check against the power purchase receipt

L2. $COEF^{EL}_y$: CO_2 emission factor of the used electricity [tCO_2/MWh]

Measured; calculated yearly to use statistical data and saved as electronic data

Comment; obtained by using the calculation method of Simple OM specified in ACM0002. The project participants shall obtain the signed letter of the person who is in charge of the power development plan of the power company that the power development plan is never affected by the existence/non-existence of the facility.

L3. $Loss_y$: transmission loss of the grid [no dimension]

Measured; calculated yearly to use statistical data and saved as electronic data

Comment; statistical data is applied for the latest year.

L4. $BE\_N_2O_y$: N_2O emissions substituted by bio-based fertilizer (by-product of BDF) [tCO_2eq]

Measured; calculated yearly and saved as electronic data

Comment; $BE\_N_2O_y = BioFertilizer^{out}_y \times UREA\_EQ^{out} \times COEF\_N_2O \times GWP\_N_2O$

L5. $BioFertilizer^{out}_y$: bio-based fertilizer sold out in the market [t-biofertilizer]

Measured; measured monthly to used weight meter and saved as electronic data

Comment; check against the sales record

L6. $UREA\_EQ^{out}$: coefficient to convert from bio-based fertilizer to synthetic urea fertilizer [t-urea/t-biofertilizer]

Measured; calculated yearly and saved as electronic data

Comment; calculated by using the data of fertilizer

L7. $PE^{indirect}\_N_2O_y$: indirect N_2O emissions from fertilizer use at plantation site [tCO_2eq]

Measured; calculated yearly and saved as electronic data

Comment; $PE^{indirect}\_N_2O_y = Fertilizer^{in}_y \times UREA\_EQ^{in}_y \times COEF^{indirect}\_N_2O \times GWP\_N_2O$

■ Environmental Impacts/Indirect Impacts

Environmental Impacts

The sunflower plantation is to utilize unused land with improvement and maintenance of the farm field. Residue of oil mill feeds back to the plantation site as high quality organic fertilizer, and recycling of natural resources is accomplished. Glycerol, a by-product of BDF, is sold to the chemical manufacturer and used as a feedstock of chemical substance. Wastewater effluent from the plant is treated within the plant. Compliance to effluent regulation is checked before flashing to outer environment. Therefore, we see no negative impacts on environment. Furthermore, BDF not only reduces CO_2 emissions, but also reduces other air pollutans, such as PM, PAH, CO, SOx.

Indirect Impacts

The large-scale sunflower plantation in Loei is expected to raise farmers' income. Because the flowers are also valuable tourist resources, it should have major economic effects. Moreover, BDF production plant is expected to generate new industries, and to create new employment.

■ Stakeholders' Comments

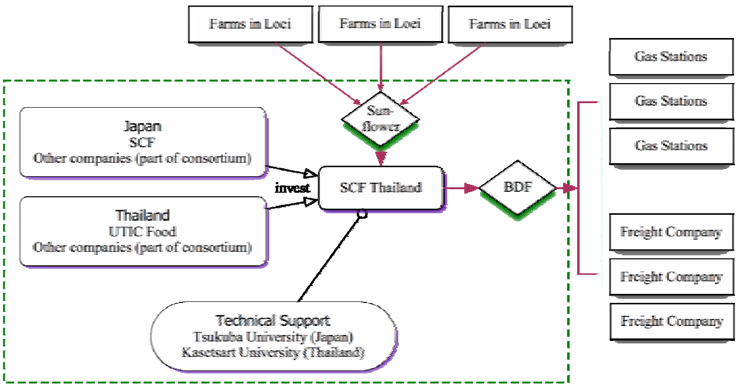
We interviewed Dr. Chanate Malumpong at Kasetsart University about sunflower plantations in Loei. His coments are, "PhuRua district is suitable for sunflower cultivation. To assure the lowest purchase price of sunflower seeds is important for farm arrangement. Tourism there should be considered."

The researchers of PTT (Public Company Limited, Thailand) were also interviewed about BDF production. They said that Thai government tried to increase the penetration of bio-diesel by 2 % per year for 5 years and welcome new comers.

(3) To Realize Project implementation

■ Project Participants (Japan, Host Country, Others)

This project is operated by a consortium of universities and companies in Thailand and Japan which are interested in BDF.



■ The Cost-Effectiveness

Estimated amount of emission reductions is around 330,653 [tCO_2eq] over the 10-year crediting period. The cost effectiveness of project is estimated by project budget per 1 ton of emission reductions.

1,000,000,000 [yen] / 330,653 [tCO_2eq] = 3,024 [yen/ tCO_2eq]

■ The Potential/Assignment to realize project implementation

Establishing Sun Care Fuels (Thailand) Co., Ltd. on March 3rd '05, we have been testing cultivation of sunflower and getting some good results. This result shows that sunflower cultivation can be started from this fall. Also, we will apply our new methodology in this April. However, we are still weak on our financial situation and human resource. In order to start this project successfully, we need to find the solution to those two subjects.

(4) Validation

■ The Outline of Desk Review for Validation

In the desk review report for validation by JQA, 5 points of CAR and 7 points of CL are listed.

CAR (Corrective Action Request)

1. The PDD presupposes that all the BDF produced in project would be consumed domestically within a year. However, there is a possibility that the product might be exported to neighboring country.
2. The PDD discusses that bio-fuel is competitive in the market as an alternative to the fossil fuel. Because the relationships of the bio-fuel and petro-diesel would change temporarily and locally, these might be the items of monitoring.
3. There is discrepancy that the project activity and the crediting period starts from different time, but both periods are same.
4. The monitoring plan should include quality assurance and control procedures for monitoring process.
5. Environmental impact on ecosystem and biodiversity by the sunflower plantation should be identified. "Unused land" and "decrease of forest" is not clearly defined.

CL (Clarification)

1. In Thailand, a Cabinet Resolution regarding the sustainable development policy was issued on 1 July 2003, which should be referred to in the PDD.
2. the same as CAR-1.
3. The emission factors and mean mileages of BDF for various types of vehicles might be different from those of petro-diesel. These factors are necessary to be explained with data.
4. In the case of the waste oil would be utilized, it would be monitored as a leakage.
5. The agricultural waste discarded at the plantation site and conversion of unused land to crop land might generate N_2O or CH_4. These possibility should be identified and discussed in the PDD.
6. the same as CAR-4.
7. Possibility of environmental impact accompanied by the usage of agricultural chemicals is not identified.

■ The Exchanges of Opinions with OE

The PDD and NMB&NMM were prepared by the support of Dr. Matsuo, and submitted to JQA on 10 Feb 2005. The pre-validation was done by JQA, and NMB&NMM were submitted to CDM EB on 12 Feb 2005. On 18 March, UNFCCC office sent assessment result which is not-received for consideration of the Board and the Meth Panel. The modified version of PDD and methodologies would be re-submitted again.