

**Annex to Project Design Document for the CDM project activity
„Chumporn applied waste water treatment system“,
Registered project number # 1418**

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This document contains clarifications and additional information to those provided in the CDM PDD with regard to the registration requirements of the Gold Standard.

Pre-announcement statement

No previous announcement has been made of the project going forth without carbon revenues.

1. Chapter A.2. Description of the project activity

Clarification on Table 1: Evaluation of the project activity based on sustainable development indicators, pages 4 and 5 of the PDD:

Component	Indicators	Score –2 to +2	Notes
Local/ regional/ global environment	➤ Water quality and quantity (as per technical description of the project, calculated basis)	+ 1	COD content in the effluent will be reduced by about 80%. This is a reduction of 1.8 million kg/year of COD in the wastewater. ¹
	➤ Air quality (reduction of fugitive CH ₄)	+ 1	The project will reduce methane gas emission of 2.6 million kg/year. ²
	➤ Other pollutants (no toxic, radioactive, POPs, or stratospheric ozone layer depleting gases, other than methane are relevant)	not applicable	
	➤ Soil condition (quality and quantity)	0	Production of approximately 8.0 million kg/year of dry organic fertilizer will improve soil fertility. Production of approximately 180.000m ³ /year of liquid fertilizer will substitute chemical fertilizer. ³
	➤ Biodiversity (species and habitat conservation)	0	The new water treatment system will not have leakages. This will improve the environmental conditions of the water fauna. ⁴
	Sub total	+ 2	
Social sustainability and development	➤ Employment (including job quality, fulfillment of labor standards)	+1	Employment opportunities will increase, especially during the construction and installation of the system, and also for the long term maintenance of the biogas technology and related systems. ⁵
	➤ Livelihood of the poor (including poverty alleviation, distributional equity, and access to essential services)	0	CPI hires many local people. Before the establishment of the factory, this group of people was very poor. For qualified employees, the company provides bonus as an incentive. Apart from that, agriculturists in the area can sell their products (palm oil fruits) to the factory at a reasonable price with less transportation cost. The factory provides social insurance and cooperative store

➤ Access to energy services ➤ Human and institutional capacity (including empowerment, education, involvement, gender)	Not applicable 0	where employee can buy products at reasonable prices. Additional farmers benefit from the factory in economic terms as they receive support for establishing and operating plantations to deliver palm oil fruits. The factory provides fresh water to the villagers, schools and temples in the fry season.⁶ To assure the correct handling of the equipment, correct monitoring, a comprehensive training of local stuff will be organized.⁷
Sub total	+ 1	
Economic and technological development ➤ Employment (number) ➤ Balance of payments (sustainability) ➤ Technological self reliance (including project replicability, hard currency liability, skills development, institutional capacity, technology transfer)	+ 1 + 1 + 1	Four new jobs will be created (2 technicians, 2 laborers).⁸ The use of biogas as renewable energy will reduce emission and overall production costs and therefore improve the mill's environmental performance and competitiveness both in the local and overseas markets.⁹ The project activity helps to reduce the dependency on fossil fuels by implementing a modern technology that produces biogas (autonomous renewable energy). The project activity will constitute a positive example for other palm oil plants in Thailand. Applied on a large scale, the project type may have macroeconomic benefits by reducing the need for fossil fuel imports. Additionally, such decentralized types of power generation help to minimize governmental expenses for power production infrastructure.¹⁰
Sub total	+ 3	
TOTAL	+ 6	

Clarification: the score "not applicable" shall mean "0" according to the categories as defined by the Gold Standard

¹Refer to pages 8, 29, 58 and 87 of the registered CDM PDD

²Refer to pages 58 and 87 of the registered CDM PDD

³Refer to pages 58 and 86 of the registered CDM PDD

⁴Refer to page 93 of the registered CDM PDD

⁵Refer to pages 84 and 87 of the registered CDM PDD

⁶Refer to pages 89 and 93 of the registered CDM PDD

⁷Refer to page 87 of the registered CDM PDD

⁸Refer to pages 3 and 87 of the registered CDM PDD

⁹Refer to pages 3 and 87 of the registered CDM PDD

¹⁰Refer to pages 3, 58 and 88 of the registered CDM PDD

Remarks on Table 1: The following scoring system applies:

-2: Major negative impacts, i.e. where there is significant damage to ecological, social and/or economic systems that cannot be mitigated through preventive (not remedial) measures.

-1: Very minor negative impacts, i.e. where there is a measurable impact but not one that is considered by stakeholders to mitigate against the implementation of the project activity or cause significant damage to ecological, social and/or economic systems.

0: No, or negligible impacts, i.e. there is no impact or the impact is considered insignificant by stakeholders.

+1: Minor positive impacts

+2: Major positive impacts

2. Monitoring of sustainable development benefits (from PDD, p.72 and two additional indicator)

In addition to monitoring baseline and project emissions, the actual project performance in terms of sustainable development benefits will be assessed on an annual basis. Based on the results of the first stakeholder consultation and the resulting evaluation on social, environmental and technical sustainability in 2005, the most sensitive sustainable development indicators have been determined. These indicators, also summarized in Table 10, will be monitored on a yearly basis. It should be noted that none of the stakeholders have anticipated any severe impacts deriving from the project (see sustainability screen in section A.2. as well as Annexes 7-8. People from surrounding communities will be informed periodically by CPI on the monitoring results.

CPI already practices periodic stakeholder meetings. On average, 2 – 3 stakeholder meetings per year are conducted. CPI will use these traditional stakeholder meetings to inform about the sustainability performance of the project activity.

	Sustainable Development Indicator	Data type	Data variable	Data unit	Measured (m), calculated (c) or estimated (e)
1	Water quality in the receiving body of water	Yearly measures, Laboratory tests at CPI, Method AWWA 5220B., P5-14, 1998	COD	Kg COD/m3	m
2	Air quality (Emission)	Odor	qualitative	Record of complaints	e
3	Employment (fulfillment of labor standards)	Monthly salary	Average salary of new employed staff	THB/year	m
4	Employment (numbers)	Monthly number of staff	Number of new employed staff for project activity (employment contract)	Number	m
5	Balance of payment (yearly savings of fossil fuel)	Monthly savings	Saved fossil fuel Saved costs on fossil fuels and palm shells	Liter/year THB/year	c c
6	Project replicability (technical sustainability)	Yearly replications	Number of applied similar technology at other palm oil industries ¹	Number per year	m
7	Monitoring of heat generation	Yearly calculation	Quantity of thermal energy that would be consumed in absence of the project activity	HG _{B1}	c
8	New legislation development	Yearly replication	New legislation development that mandates methane recovery from wastewater treatment for this site		m
9	Safety	Yearly replication	Proper function of the fire emergency plan and associated equipment		m
10	Stakeholder participation	Yearly replication	Evidence of the monthly community meeting and regular stakeholder consultations	Archieved minutes	M
11	Profitability of the palm oil facility and pressure on primary forests	Yearly replications	Financial report (monitoring that the mill is not continued only because of the CDM project) Site visit (monitoring that no primary forest has been cut to enhance the Chumporn palm oil plantation)		e m
12	GTZ RSPO activities	Yearly replications	Reports on RSPO activities		e

Table 2: Data to be collected in order to monitor the project's performance on the most sensitive sustainable development indicators

1 These data and information shall be obtained at the Ministry of Energy and the Ministry of Industry

3. Conservative Approach

In line with the Gold Standard requirements, a conservative approach has been chosen for this project, and in the relevant parts of the PDD.

In this regard, it is worth mentioning that already the choice of Approved Methodology AM00013 was made on the basis of the conservativeness principle: an alternative option would have been to apply the Small Scale Methodology AMS III.H – for which the project would also have been eligible because it lead to emission reductions lower than 60,000 t CO₂e per year. However, the project participants chose AM00013, because Large Scale Methodologies are more conservative than Small Scale Methodologies with regards to estimating baseline- and project emissions (inter alia by applying more conservative default factors). As an example, AM00013 explicitly applies the “uncertainty conservativeness factor B0”, which reduces baseline emissions by 11%.

In addition, the project does not apply for CERs that result from reduced transport of palm shells; see chapter B 6.3. (page 34) of the PDD: “The planned project activity reduces greenhouse gas emissions outside the project boundary as defined in AM0013 and this PDD. The reduction in GHG-emissions is achieved through reduction in road transport, i.e. the transportation of palm shells and heavy oil to the plant in absence of the project. In 2004 alone, 16,750 t of palm shells have been transported by 12 t-trucks (300 days per year). The palm shells have been brought from Krabi and Surathani Provinces. The average transportation distance was 300 km one way. As indicated above, the utilization of about 7,650 additional t palm shells can be avoided through the project activity. This leads to a significant reduction of transport-related CO₂-emissions. - For conservativeness reasons, however, those emission reductions shall not be accounted for.”

The grid emissions factor has been calculated on the basis of the most recent available data at the time of writing the PDD, and by applying the new “Tool to calculate the emission factor for an electricity system”. This tool was approved by EB35, i.e. at a point in time where validation already started. The grid emissions factor was updated on the basis of this tool, as it can be considered to reflect latest scientific and regulative knowledge.

As referred to in Annex 5 of the PDD, the conservative approach chosen in the PDD has also been confirmed by local expert Dr.Samai Jai-In (RTN). His letter states that “*The Expert Dr. Samai Jai-In confirms that for the project 'Chumporn applied biogas technology for advanced waste water treatment', a suitable approach and an appropriate methodology - especially in terms of baseline choice and quantification - have been used, as well as conservative parameters. All assumptions have been stated explicitly and are well-argued. Resulting emission reductions from the project activity have been estimated in a conservative manner, and CERs will only be claimed for the lower value of ex-ante estimation and ex-post monitoring.*”

4. Biogas Utilization

According to GSv1 rules, the project should exercise a 65% minimum of biogas utilization threshold. If a 65% minimum threshold is not met during a given monitoring period (e.g. technical failure, unexpected fluctuations of LFG production, etc.), project proponents shall demonstrate that everything is undertaken to meet compliance again for the next monitoring period. The project will apply the GS rules regarding the 65% rule, from Annex C of the GSv2.1 toolkit.

The minimum of biogas utilization of the plant is shown in Appendix A1.1 (Monitoring Report) Row 32: "Used to biogas entering the boiler". The result showed that the average utilization was 74% for the boiler to generated heat (Q1-Q3 2009).