

NAME /TITLE OF THE PoA: Programme on avoidance of methane production by on-site cassava pulp utilization in Thailand

CDM – Executive Board

CLEAN DEVELOPMENT MECHANISM SMALL-SCALE PROGRAM ACTIVITY DESIGN DOCUMENT FORM (CDM-SSC-CPA-DD) Version 01

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NOTE:

This form is for submission of CPAs that apply a small scale approved methodology using the (i) provision of the proposed small scale CDM PoA.

(ii) The coordinating/managing entity shall prepare a CDM Small Scale Programme Activity Design Document (CDM-SSC-CPA-DD)^{1,2} that is specified to the proposed PoA by using the provisions stated in the SSC PoA DD. At the time of requesting registration the SSC PoA DD must be accompanied by a CDM-SSC CPA-DD form that has been specified for the proposed SSC PoA, as well as by one completed CDM-SSC CPA-DD (using a real case). After the first CPA, every CPA that is added over time to the SSC PoA must submit a completed CDM-SSC CPA-DD.

This template shall not be altered. It shall be completed without modifying/adding headings or logo, format or font.

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The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.

At the time of requesting validation/registration, the coordinating managing entity is required to submit a completed CDM-POA-DD, the PoA specific CDM-CPA-DD, as well as one of such CDM-CPA-DD completed (using a real case).



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SECTION A. General description of small scale CDM programme activity (CPA)

A.I. Title of the small-scale CP	<u>A:</u>
----------------------------------	-----------

>>

- The title of the project activity

Activity on avoidance of methane production by on-site cassava pulp utilization at SWI starch factory in Nakhon Ratchasima (CPA-1)

- The current version number of the document

Version 1

- The date when the document was completed.

Feb, 2009

Description of the <u>small-scale CPA</u>: A.2.

>>

The purpose of the CPA is to avoid methane emissions that would have been released into the atmosphere from anaerobic decay of cassava pulp at stockpiles within the yard of Sanguan Wongse Industries Co., Ltd. (Hereafter, SWI). Cassava pulp is a by-product of starch production processes and it will be utilized as a raw material to produce ethanol in the CPA of the PoA.

SWI is one of the largest starch company in Thailand, and the capacity of the factory is 3,000 tons of fresh cassava per day.

SWI has two yards to pile cassava pulp within the plant site. The total area of the yards is $24,000 \text{ m}^2$ (150 rai). Cassava pulp is piled in the yard of starch factories, and in the dry season from November to March, after sun drying, cassava pulp is sold as a raw material for animal feed to cassava pellet factories. However, in the rain season from April to October, cassava pulp can not be dried well, therefore it is piled 1,200 tons every day to the yards. As soon as the dry season starts in November, the piled cassava pulp is sundried with new cassava pulp produced in daiy operations, and sold to pellet factories. The piled cassava pulp will be totally sold until at the end of February. Therefore, the methane emission from the piled cassava pulp will be started from April, and the emission as well as the amount of piled cassava pulp will be maximum in the end of October, and it will be zero at the end of February when all the piled cassava pulp will be sold.

Entity/individual responsible for the small-scale CPA: A.3.

>> Here the information on the entity/individual responsible of the CPA shall be included, hence forth referred to as CPA implementer(s). CPA implementers can be project participants of the PoA, under which the CPA is submitted, provided their name is included in the registered PoA.



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Sanguan Wongse Industries Co., Ltd. (SWI)

A.4. Technical description of the small-scale CPA:

A.4.1. Identification of the small-scale CPA:

>>

A.4.1.1.Host Party:

>>

Kingdom of Thailand

A.4.1.2. Geographic reference or other means of identification allowing the unique identification of the <u>small-scale CPA</u> (maximum one page):

>>Geographic reference or other means of identification³, Name/contact details of the entity/individual responsible for the CPA, e.g. in case of stationary CPA geographic reference, in case of mobile CPAs means such as registration number, GPS devices.

Address	Location
120 Moo 4, Ratchasima-Chkechai Rd.,	Latitude: 14°54'15"N
Muang, Nakhon Ratchasima 30000,	Longitude: 102°09'21"E
THAILAND	

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³ E.g. in case of stationary CPA geographic reference, in case of mobile CPAs means such as registration number, GPS devices.



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Figure 1 Location of the CPA (The red underline)





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Figure 2 Project site

A.4.2. Duration of the small-scale CPA:

A.4.2.1. Starting date of the small-scale CPA:

>>

To be fixed.

A.4.2.2. Expected operational lifetime of the small-scale CPA:

>>

30 years

A.4.3. Choice of the crediting period and related information:

Renewable crediting period; or

Fixed Crediting period

[Delete the one that is not applicable]

Fixed crediting period.

A.4.3.1. Starting date of the crediting period:

>>

The date of registration.

A.4.3.2. Length of the crediting period, first crediting period if the choice is renewable CP:

>>

NOTE: Please note that the duration of crediting period of any CPA shall be limited to the end date of the PoA regardless of when the CPA was added.

10 years.



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A.4.4. Estimated amount of emission reductions over the chosen crediting period:

>>

Year	Annual estimation of emission reductions (tonnes of CO ₂ e)
2012	4,649
2013	4,649
2014	4,649
2015	4,649
2016	4,649
2017	4,649
2018	4,649
2019	4,649
2020	4,649
2021	4,649
Total	46,490
Total number of crediting years	10
Annual average over the crediting period	4,649

A.4.5. Public funding of the <u>CPA</u>:

>>

The CPA do not utilize any public funding.

A.4.6. Information to confirm that the proposed <u>small-scale CPA</u> is not a <u>de-bundled</u> <u>component</u>

>>

- 1. For the purposes of registration of a Programme of Activities (PoA)⁴ a proposed small-scale CPA of a PoA shall be deemed to be a de-bundled component of a large scale activity if there is already an activity⁵, which:
 - (a) Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same sectoral scope, and;

⁴ Only those POAs need to be considered in determining de-bundling that are: (i) in the same geographical area; and (ii) use the same methodology; as the POA to which proposed CPA is being added

⁵ Which may be a (i) registered small-scale CPA of a PoA, (ii) an application to register another small-scale CPA of a PoA or (iii) another registered CDM project activity



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- (b) The boundary is within 1 km of the boundary of the proposed small-scale CPA, at the closest point.
- 2. If a proposed small-scale CPA of a PoA is deemed to be a debundled component in accordance with paragraph 2 above, but the total size of such a CPA combined with a registered small-scale CPA of a PoA or a registered CDM project activity does not exceed the limits for small-scale CDM and small-scale A/R project activities as set out in Annex II of the decision 4/CMP.1 and 5/CMP.1 respectively, the CPA of a PoA can qualify to use simplified modalities and procedures for small-scale CDM and small-scale A/R CDM project activities.

It is confirmed that the project activity is not a debundled component of a large project activity as the project participants have not registered or applied for another large scale PoA of the same sectoral scope.

A.4.7. Confirmation that <u>small-scale CPA</u> is neither registered as an individual CDM project activity or is part of another Registered PoA:

>>

The CPA is not registered as an individual CDM project activity and is not part of another registered PoA. These can be confirmed by CDM project lists of Thai DNA and UNFCCC, and should be checked by DOE.

SECTION B. Eligibility of <u>small-scale CPA</u> and Estimation of emissions reductions

B.1. Title and reference of the Registered <u>PoA to which small-scale CPA is added:</u>

Programme on avoidance of methane production by on-site cassava pulp utilization in Thailand

B.2. Justification of the why the <u>small-scale CPA</u> is eligible to be included in the Registered PoA :

>>

The proposed CPA complies with all of the eligibility criteria that are described in A.4.2.2 of PoA DD, as follows.

- 1) Sanguan Wongse Industries Co., Ltd. (SWI) is a member company of TTSA.
- 2) To avoid methane emissions that would have been released into the atmosphere from anaerobic decay of cassava pulp at stockpiles within the yard of starch factories.
- 3) Methane emissions have been measured from the stockpiles by on-site measurement.



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- 4) Cassava pulp is a by-product of starch production processes and it will be utilized as a raw material to produce ethanol within the starch factory.
- 5) Crude ethanol (moisture content 50 to 75%) produced by SWI will be transported to automobile ethanol plants, which were already licensed to produce ethanol by the government, and will be refined more than 99.5% to supply as automobile fuel.
- 6) The emission reduction is estimated as 4,649 tCO₂e per year, and may not exceed 60,000 tCO₂e per year.
- 7) The CPA is not registered as a CDM project or as a CPA under another PoA.

B.3. Assessment and demonstration of additionality of the <u>small-scale CPA</u>, as per eligibility criteria listed in the Registered PoA:

>>

For the CPA, investment barrier and technological barrier are chosen to demonstrate the additionality.

- Investment barrier:

Large investment is necessary for the construction of the ethanol plant, and the profitability of ethanol production project utilizing cassava pulp is much worse than existing ethanol plants, mainly because the production capacity of cassava pulp ethanol plant is very small, only around 30 kl/day, compared with existing ethanol plant whose capacity is around 150 kl/day. On the other hand, continuation of the current practice requires no investment and less operational costs because cassava pulp has been just piled in the yard.

Therefore, in terms of investment, it is difficult to realize the CPA without CDM.

- Technological barrier:

In Thailand, currently, there is no project that produce ethanol from cassava pulp. There is some project in China that utilize cassava pulp as auxiliary raw material for cassava chip ethanol production plant, however there is no plant which use cassava pulp as a main raw material. Cassava pulp contains more fiber than cassava chips or roots, therefore advanced technologies are needed.

Therefore, in terms of technology, it is difficult to realize the CPA without CDM.

In Japan, there are plants that already start commercial operation of ethanol production utilizing cassava pulp as main raw material. Therefore, it is possible for Japanese project participants to transfer the technology to each CPA.

B.4. Description of the sources and gases included in the <u>project boundary</u> and proof that the <u>small-scale CPA</u> is located within the geographical boundary of the registered PoA.

>>

The boundary of a CPA includes:



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- (a) Where cassava pulp would have been disposed and methane emissions occur in absence of the CPA
- (b) Ethanol production plant where cassava pulp is utilized as a raw material
- (c) The itineraries between (a) and (b), where the transportation of cassava pulp occurs

In the table below, all sources of the baseline and the project activity are listed.

	Source	Gas	Included?	Justification / Explanation
		CO ₂	No	Not significant. Excluded for simplification
				and conservativeness
s	Uncontrolled release of	CH ₄	Yes	Major emission source
ion	methane from anaerobic	N_2O	No	Not significant. Excluded for simplification
issi	decay of cassaya pulp			and conservativeness
em	deedy of edisava pulp	CO_2	Yes	Counted in "project emissions" as
ne	Emissions from trucks for			"Incremental transportation" compared with
seli	transport cassava puln from			project emissions
Bas	the starch factory to the	CH_4	No	Not significant. Excluded for simplification
	disposal site			and conservativeness
disposars		N ₂ O	No	Not significant. Excluded for simplification
				and conservativeness
	Emissions from electricity	CO_2	Yes	Major emission source
SL	consumption at the ethanol	CH ₄	No	Not significant. Excluded for simplification.
sion	production plant	N ₂ O	No	Not significant. Excluded for simplification.
niss		CO ₂	Yes	Major emission source
roject en	Emissions from fossil fuel consumption at the ethanol production plant Emissions from incremental	CH ₄	No	Not significant. Excluded for simplification.
		N ₂ O	No	Not significant. Excluded for simplification.
		CO ₂	Yes	Major emission source
<u>н</u>		CH ₄	No	Not significant. Excluded for simplification.
	transportation of assays		No	Not significant. Excluded for simplification.
nuln and ethanol				

Table Emission sources included in or excluded from the project boundary

B.5. Emission reductions:

B.5.1. Data and parameters that are available at validation:

>>

Data / Parameter:	φ
Data unit:	-
Description:	Model correction factor to account for model uncertainties
Source of data used:	"Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site (The latest version)"
Value applied:	0.9
Justification of the	Default value as per "Tool to determine methane emissions avoided from
choice of data or	disposal of waste at a solid waste disposal site (The latest version)".
description of	



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measurement methods and procedures actually applied :	
Any comment:	-

Data / Parameter:	OX
Data unit:	-
Description:	Oxidation factor
Source of data used:	"Tool to determine methane emissions avoided from disposal of waste at a solid
	waste disposal site (The latest version)"
Value applied:	0
Justification of the	The disposal site of the baseline scenario is not "a managed solid waste disposal
choice of data or	sites". Therefore, default value of "Other type of solid waste disposal site" was
description of	selected from "Tool to determine methane emissions avoided from disposal of
measurement methods	waste at a solid waste disposal site (The latest version)".
and procedures actually	
applied :	
Any comment:	-

Data / Parameter:	F
Data unit:	-
Description:	Fraction of methane in the disposal site gas (volume fraction)
Source of data used:	"Tool to determine methane emissions avoided from disposal of waste at a solid
	waste disposal site (The latest version)"
Value applied:	0.5
Justification of the	Default value as per "Tool to determine methane emissions avoided from
choice of data or	disposal of waste at a solid waste disposal site (The latest version)".
description of	
measurement methods	
and procedures actually	
applied :	
Any comment:	-

Data / Parameter:	DOC _f
Data unit:	-
Description:	Fraction of degradable organic carbon (DOC) that can decompose
Source of data used:	"Tool to determine methane emissions avoided from disposal of waste at a solid
	waste disposal site (The latest version)"
Value applied:	0.5
Justification of the	Default value as per "Tool to determine methane emissions avoided from
choice of data or	disposal of waste at a solid waste disposal site (The latest version)".
description of	
measurement methods	
and procedures actually	
applied :	
Any comment:	-



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Data / Parameter:	MCF
Data unit:	•
Description:	Methane correction factor
Source of data used:	AMS III.E. version 15.1
Value applied:	0.28
Justification of the	Default value for stockpiles.
choice of data or	
description of	
measurement methods	
and procedures actually	
applied :	
Any comment:	-

Data / Parameter:	DOC
Data unit:	-
Description:	Fraction of degradable organic carbon (by weight, dry basis) in cassava pulp
	(Dry basis)
Source of data used:	"Tool to determine methane emissions avoided from disposal of waste at a solid
	waste disposal site (The latest version)"
Value of data	0.44
Justification of the	Default value of "Pulp, paper and cardboard (other than sludge)" as per "Tool to
choice of data or	determine methane emissions avoided from disposal of waste at a solid waste
description of	disposal site (The latest version)".
measurement methods	
and procedures actually	
applied :	
Any comment:	-

Data / Parameter:	k
Data unit:	-
Description:	Decay rate for cassava pulp
Source of data used:	AMS III.E. version 15.1
Value applied:	0.06
Justification of the	The k value for the relevant waste type must be the lower value from the range
choice of data or	provided for the Boreal and Temperate Climate Zone as listed in Table 3.3 in
description of	Chapter 3, volume 5 of 2006 IPCC Guidelines for National Greenhouse Gas
measurement methods	Inventories.
and procedures actually	
applied :	
Any comment:	-

B.5.2. Ex-ante calculation of emission reductions:

>>



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I. Baseline emissions

The Baseline emissions of a CPA are CH_4 emissions from decay of degradable organic carbon in cassava pulp in disposal site:

$BE_{y} = BE_{CH4,SS,y} - MD_{reg,y} * GWP_{CH4} $ (Equation		
BE_v	: Baseline emissions in the year "y" (tCO ₂ e)	
BE _{CH4.SS.v}	: Baseline emissions from the decay of cassava pulp	
MD _{reg,y}	: Methane that would be destroyed or removed in the year '	"y" for safety or to
CWD	CWD for mothons	
Uwr _{CH4}		

There is presently no regulation or policy in place in Thailand to recover methane from landfill. Therefore;

$$MD_{reg,y} = 0$$
 (Equation 2)

Therefore the baseline emissions are calculated as follows:

$$BE_{v} = BE_{CH4,SS,v}$$
 (Equation 3)

BE_{CH4,SS,y} is the yearly methane generation potential calculated using "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site (The latest version)"

BE_{CH4,SS,y} = $φ^{*}(1-f)^{*}GWP_{CH4}^{*}(1-OX)^{*}16/12^{*}F^{*}DOC_{f}^{*}MCF^{*}\SigmaW_{x}^{*}DOC^{*}e^{-k(y-x)}^{*}(1-e^{-k})$ (式 2)

Where:	
BE _{CH4,SS,y}	: Baseline emissions from the decay of cassava pulp $(6,386 \text{ tCO}_2\text{e})$
φ	: Model correction factor to account for model uncertainties (= 0.9: Default value in the applied methodology)
f	: Fraction of methane captured at the disposal site and flared, combusted or used in another manner (= 0: Default value in the applied methodology)
GWP _{CH4}	: Global Warming Potential (GWP) of methane, valid for the relevant commitment period (21)
OX	: Oxidation factor (= 0: Default value in the applied methodology)
F	: Fraction of methane in the disposal site gas (volume fraction) (= 0.5 : Default value in the applied methodology)
DOC _f	: Fraction of degradable organic carbon (DOC) that can decompose (= 0.5: Default value in the applied methodology)
MCF	: Methane correction factor (= 0.28 : Default value for stockpile)
W _x	: Amount of cassava pulp prevented from disposal in the disposal site in the month x, dry basis (21,000 tons/year, 3,000 tons/month)
DOC	: Fraction of degradable organic carbon (by weight, dry basis) in cassava pulp (= 0.44: Default value for stockpile (Pulp, paper and cardboard (other than sludge) (Dry)) in the applied methodology)





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k	: Decay rate for cassava pulp (= 0.06: Default value for stockpile (Pulp, paper and cardboard (other than sludge), Boreal and Temperate, Dry)) in the applied methodology)
X	: Month during a year: x runs from the first month of a year $(x = 1)$ to the month y for which avoided emissions are calculated $(x = y)$
У	: Month for which methane emissions are calculated

See section B.6.3 and B.7 for values selected for the above parameters.

II. Project emissions

Project emissions are calculated by following equation.

$$PE_{y} = PE_{y,comb} + PE_{y,transp} + PE_{y,power}$$
(Equation 4)

Where.

PE_v : Project activity direct emissions in the year y (tCO₂e) PE_{v.comb}: Emissions through combustion of non-biomass carbon of ethanol in the year y (tCO₂e) PE_{transp.y}: Emissions from incremental transportation in the year y (tCO₂e/year) PE_{power.v}: Emissions from electricity and diesel consumption in the year y (tCO₂e/year)

 $PE_{power,y} = PE_{FF,y} + PE_{Elec,y}$

Where:

PE_{FF,y} : Emissions from fossil fuel consumption for ethanol production plant (tCO₂e/year) $PE_{elec y}$: Emissions from electricity consumption for ethanol production plant (tCO₂e/year)

The above project emissions will be calculated as follows:

(a) Emissions through combustion of non-biomass carbon of ethanol

Emissions through combustion of non-biomass carbon of ethanol is calculated as follows:

$PE_{y,comb} = Q_{y,non-biomass} * 44/12 + Q_{y,fuel} * EF_{y,fuel} $ (Equation 5)		
$\begin{array}{l} Q_{y,non\text{-}biomass} \\ Q_{y,fuel} \\ EF_{y,fuel} \end{array}$	 Non-biomass carbon of ethanol consumed in the year y (tonne Quantity of auxiliary fossil fuel used in the year y (tonnes) CO₂ emission factor for the combustion of the auxiliary fossil 	s of carbon) fuel (tCO ₂ /ton)

Ethanol produced in the project do not contain any non-biomass carbon, and no auxiliary fossil fuel will be used when ethanol will be combusted.

 $PE_{v.comb} = 0$

(b) Emissions from incremental transportation:



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CO₂ emissions from incremental transportation by the project activity are calculated as follows;

$$PE_{y,transp} = (Q_y/CT_y) * DAF_w * EF_{CO2} + (Q_{y,ash}/CT_{y,ash}) * DAF_{ash} * EF_{CO2} + (Q_{y,RDF/SB}/CT_{y,RDF/SB}) * DAF_{RDF/SB} * EF_{CO2}$$
(Equation 6)

Where:

PE_{y,transp} is negative value, therefore count as zero in order to ensure conservativeness.

(c) Emissions from fossil fuel consumption for ethanol production plant

CO₂ emissions from fossil fuel consumption for ethanol production plant are calculated as follows;

$$PE_{FF,y} = FC_y * EF_{CO2,I} * 10^{-6}$$
(Equation 8)

 $PE_{FF,y}$: Emissions from fossil fuel consumption at the ethanol production plant (166 tCO₂e/year) FC_y : Annual consumption of fuel oil at the ethanol production plant (=2,145 GJ/year) EF_{CO2,i} : CO₂ emission factor of fuel oil (=77,400 kg/TJ)

(d) Emissions from electricity consumption for ethanol production plant

CO₂ emissions from electricity consumption for ethanol production plant are calculated as follows;

$$PE_{elec,y} = EC_y * EF_{grid}$$
 (Equation 9)

- $PE_{elec,y}\;$: Emissions from electricity consumption at the ethanol production plant (1,571 tCO_2e/year)
- EC_y : Annual consumption of grid electricity at the ethanol production facilitiy in year y (3,003 MWh/year)
- EF_{grid} : Grid emission factor (0.523 tCO₂/MWh)

III. Leakage

Leakages need not be considered as there is no transfer of equipment from another activity or to another activity.



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IV. Emission reduction

Emission reduction is calculated as follows;

$$ER_y = BE_y - (PE_y + Leakage_y) = 6,386 - (1,737 + 0) = 4,649$$

B.5.3 .	Summary of the ex-ante estimation of emission reductions:
>>	

Year	Estimation of project activity emissions (tonnes of CO ₂ e)	Estimation of baseline emissions (tonnes of CO ₂ e)	Estimation of leakage (tonnes of CO ₂ e)	Estimation of overall emission reductions (tonnes of CO ₂ e)
2012	1,737	6,386	0	4,649
2013	1,737	6,386	0	4,649
2014	1,737	6,386	0	4,649
2015	1,737	6,386	0	4,649
2016	1,737	6,386	0	4,649
2017	1,737	6,386	0	4,649
2018	1,737	6,386	0	4,649
2019	1,737	6,386	0	4,649
2020	1,737	6,386	0	4,649
2021	1,737	6,386	0	4,649
$\begin{array}{c} \hline \textbf{Total} \\ (tonnes of \\ CO_2 e) \end{array}$	17,370	63,860	0	46,490

B.6. Application of the monitoring methodology and description of the monitoring plan:

B.6.1. Description of the monitoring plan:

>>

In the PoA, monitoring will be done for each CPA. The monitoring plan is provided as follows.

1) Monitoring framework

SWI will operate and manage the CPA, and measure necessary data for the monitoring of the CPA and report to TTSA based on the operation and monitoring manual prepared by TTSA.

2) The role of SWI



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Table		
	CPA implementers	
	(SWI)	
Data collection and	- Implement data collection of the CPA	
reporting	- Report data to TTSA	
	- Check data quality	
Data storage and	- Enter collected data to a computer.	
management	- Implement data management of CPA.	
	- Store and maintain records.	
Quality check and quality	- Undertake regular maintenance of the facility	
assurance	- Receive necessary training for proper operation of the facility and	
	quality assurance of monitoring data	

3) Monitored data

Data / Daramatar	W
Data / I al alletel.	w _x
Data unit:	tons/year
Description:	Total amount of cassava pulp prevented from piling in month x (tons) (Dry basis)
Source of data to be	Measurements by project participants
used:	
Value of data applied	21,000 tons/year (100 ton/day*210 days)
for the purpose of	
calculating expected	
emission reductions in	
section B.5	
Description of	
measurement methods	
and procedures to be	
applied:	
QA/QC procedures to	
be applied:	
Any comment:	Monitored monthly.

Data / Parameter:	FCy
Data unit:	GJ/year
Description:	Annual consumption of fuel oil at the ethanol production plant
Source of data to be	Records of fuel purchase invoices
used:	
Value of data applied	21,230
for the purpose of	
calculating expected	
emission reductions in	
section B.5	
Description of	
measurement methods	
and procedures to be	



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applied:	
QA/QC procedures to	Verify the conformity of data with the fuel purchase invoices and equipments
be applied:	fuel consumption
Any comment:	Each delivery of fuel is recorded

Data / Parameter:	ECy
Data unit:	MWh/year
Description:	Annual consumption of grid electricity at the ethanol production facility in year
	у
Source of data to be	Records of grid electricity purchase invoices
used:	
Value of data applied	3,657
for the purpose of	
calculating expected	
emission reductions in	
section B.5	
Description of	
measurement methods	
and procedures to be	
applied:	
QA/QC procedures to	Verify the conformity of data with the fuel purchase invoices and equipments
be applied:	electricity consumption
Any comment:	

Data / Parameter:	f
Data unit:	-
Description:	Fraction of methane captured at the disposal site and flared, combusted or used
	in another manner
Source of data to be	"Tool to determine methane emissions avoided from disposal of waste at a solid
used:	waste disposal site (The latest version)"
Value of data applied	0
for the purpose of	
calculating expected	
emission reductions in	
section B.5	
Description of	Written information from the operator of the solid waste disposal site and/or
measurement methods	site visits at the solid waste disposal site
and procedures to be	
applied:	
QA/QC procedures to	
be applied:	
Any comment:	Monitored annually.



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SECTION C. Environmental analysis

>>

C.1. Please indicate the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken. Justify the choice of level at which the environmental analysis is undertaken:

 \square Please tick if this information is provided at the PoA level. In this case sections C.2. and C.3. need not be completed in this form.

To be elaborated.

C.2. Documentation on the analysis of the environmental impacts, including transboundary impacts:

>>

To be elaborated.

C.3. Please state whether an environmental impact assessment is required for a typical CPA, included in the programme of activities (PoA), in accordance with the host Party laws/regulations: >>

In each CPA of the PoA, ethanol plant will be constructed within the existing starch plant, and it is not a Greenfield project. Therefore, an environmental impact assessment is not required. However, preparations of IEE (Initial Environmental Evaluation) and SDC (Sustainable Development Criteria) is required by Thailand DNA. (These will be attached to this document before submitting to the validation process.)

SECTION D. Stakeholders' comments

>>

D.1. Please indicate the level at which local stakeholder comments are invited. Justify the choice:

 \square Please tick if this information is provided at the PoA level. In this case sections D.2. to D.4. need not be completed in this form.

To be elaborated.

D.2. Brief description how comments by local <u>stakeholders</u> have been invited and compiled:

>>

This template shall not be altered. It shall be completed without modifying/adding headings or logo, format or font.



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To be elaborated.

D.3. Summary of the comments received:

>>

To be elaborated.

Report on how due account was taken of any comments received: **D.4**.

>>

To be elaborated.



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Annex 1

CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE SMALL-SCALE CPA

Organization:	Sanguan Wongse Industries Co., Ltd.
Street/P.O.Box:	12 Moo 4, Ratchasima-Chokechai Rd., Muang
Building:	
City:	Nakhon Ratchasima
State/Region:	
Postfix/ZIP:	30000
Country:	Thailand
Telephone:	+66 (0) 4421-2185/6
FAX:	+66 (0) 4421-2727
E-Mail:	
URL:	
Represented by:	
Title:	
Salutation:	
Last Name:	
Middle Name:	
First Name:	
Department:	
Mobile:	
Direct FAX:	
Direct tel:	
Personal E-Mail:	





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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding is used in the CPA.



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Annex 3

BASELINE INFORMATION

See B.5 for details about monitoring plan.