



**CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-SSC-PDD)
Version 03 - in effect as of: 22 December 2006**

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Revision history of this document

Version Number	Date	Description and reason of revision
01	21 January 2003	Initial adoption
02	8 July 2005	<ul style="list-style-type: none"> •The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document. •As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at http://cdm.unfccc.int/Reference/Documents.
03	22 December 2006	<ul style="list-style-type: none"> •The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.

**SECTION A. General description of small-scale project activity****A.1 Title of the small-scale project activity:**

- The title of the project activity

Co-composting of EFB and POME at PT. Sabut Mas Abadi in Kumai

- The current version number of the document

Version 8

- The date when the document was completed.

September 28, 2010

A.2. Description of the small-scale project activity:

The purpose of the project activity is to reduce the amount of organic agricultural waste, EFB (Empty Fruit Bunch of oil palm) and POME (Palm Oil Mill Effluent), to surface and ground water and to utilize these wastes more effectively as compost at PT. Sabut Mas Abadi palm oil mill in Sekernan. Through this project activity, methane emissions that would have been released into the atmosphere from the anaerobic decay of EFB and POME in the landfill and lagoons respectively can be avoided. However, among these two elements, avoided emissions only from POME will be claimed in the project activity.

PT. Sabut Mas Abadi palm oil mill is owned by PT. Api Metra Palma (MEDCO AGRO). PT. Api Metra has been undertaking agricultural businesses of MEDCO GROUP which is leading private group company in Indonesia. PT. Api Metra Palma was established in 2006 and has been undertaking agricultural businesses of MEDCO GROUP, especially on oil palm plantation and palm oil production businesses.

The mill has the capacity to process 500 tonnes fresh fruit bunch (FFB) per day, generating approximately 0.6 m³ of POME per-tonne of FFB processed. The operation day is around 300 days in a year, thus, an average of 90,000 m³ of wastewater is produced annually.

Currently, the wastewater, POME, from mill is treated through the conventional pond system including two (2) cooling ponds, six (6) mixing ponds, three (3) anaerobic ponds, three (3) aeration ponds and two



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(2) sedimentation ponds. The treated water complies with the host country environment requirements. The EFB is currently mainly dumped into disposal sites or piled nearby the oil mill or used for mulching.

The project activity will reduce methane emissions that would have been released in an uncontrolled manner into the atmosphere from the anaerobic decay of EFB and POME in the landfill and lagoons respectively. The project activity will be implemented using unique technology invented by Kawashima Co. Ltd., which is a combination technology of using composting machine RA-X and probiotics BX-1. Screw type compost plant RA-X enables aerobic fermentation condition throughout the composting plant, and enables the composting plant to efficiently aerobically compost treat high moisture content organic waste and solid organic waste at the same time, without any pre-treatment. BX-1 is a probiotics made mainly from dried powder like lactobacillus probiotic and other natural yeast mixed with rice bran. All the POME will be supplied to the compost facility and the run-off water from the facility will be treated in the anaerobic lagoon. The compost produced by the proposed project will be sold to market.

The project activity will contribute to the sustainable development of Indonesia and Sekernan in many aspects. Producing compost from EFB and POME, the project will contribute to reduce the amount of agricultural wastes and to create a recycling society in Indonesia and Sekernan. The project will reduce the amount of synthetic fertilizer use in the surrounded area. The project will also contribute to activate local economy especially in agriculture field.

A.3. Project participants:

Name of party involved	Private and/or public entity(ies) Project participants (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Indonesia (host)	Private entity: PT. Api Metra Palma	No
Japan	Private entity: ITOCHU Corporation	No

A.4. Technical description of the small-scale project activity:

A.4.1. Location of the small-scale project activity:

A.4.1.1. Host Party(ies):

Republic of Indonesia



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A.4.1.2. Region/State/Province etc.:

Central Kalimantan

A.4.1.3. City/Town/Community etc:

DESA MEDANG SARI KAL-TENG

A.4.1.4. Details of physical location, including information allowing the unique identification of this small-scale project activity :

The project site is located in the central south of the Kalimantan. The composting facilities will be constructed beside the palm oil mill. The physical location of the site is S2°31'23,9", E111°40'53.5"

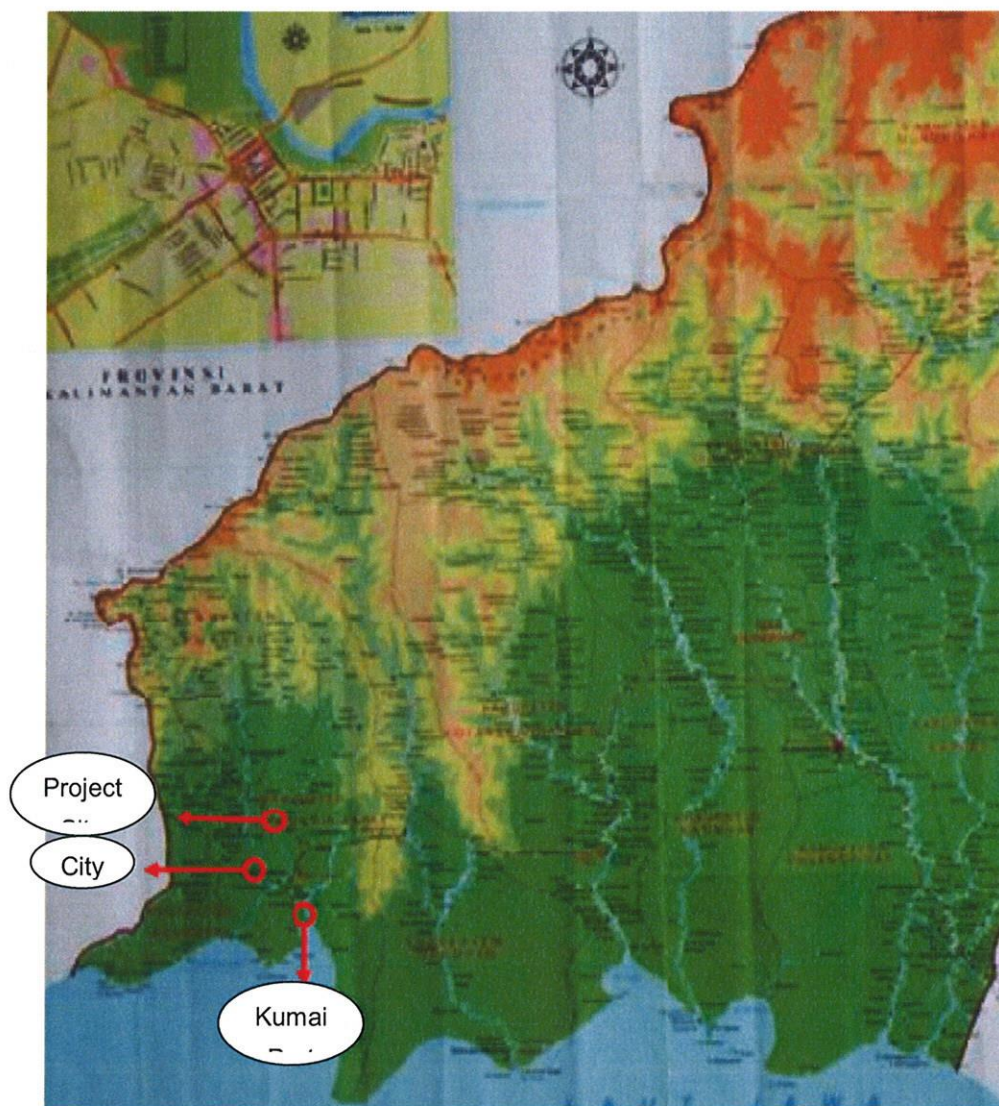


Figure 1 Project site

A.4.2. Type and category(ies) and technology/measure of the small-scale project activity:

Type and category

Type: III (Other project activities)



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Category: Avoidance of methane production from palm oil mill effluent and empty fruit bunches through co-composting

Technology

The proposed project activity will be implemented using unique technology invented by Kawashima Co., Ltd., which is a combination technology of using composting machine RA-X and probiotics BX-1.

The each specific component of the Kawashima Co., Ltd.'s technologies, which is going to be introduced to Sekernan through this project activity, are as follows:

- Screw type compost plant RA-X
- Probiotics BX-1

The major characteristics of combination technology of RA-X and BX-1 are as follows;

- Keeping high temperature during composting
- Easy maintenance
- Possible to aerobically compost treat organic wastes with high moisture content

Screw type compost plant RA-X :

Screw type compost plant RA-X is a technology developed by Kawashima, which enables aerobic fermentation condition throughout the composting plant. Conventional composting plant had to treat solid and liquid (high moisture content) organic waste independently; solid organic waste to be composted and liquid organic waste to be water purified treated. Kawashima focused on this point and developed the composting plant technology, which enables the composting plant to efficiently aerobically compost treat high moisture content organic waste and solid organic waste at the same time. Kawashima's technology is optimum technology for co-composting of EFB and POME, since it can treat organic wastes regardless of the moisture content. Screw type compost plant RA-X and its fermentation treatment process has taken patent in Japan (Japanese patent no.3607252).

Probiotics BX-1 :



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BX-1 is a probiotics made mainly from dried powder like lactobacillus probiotic and other natural yeast mixed with rice bran, which Kawashima developed. During the process of composting, by inputting BX-1 into the composting plant, micro-organism will keep the aerobic fermentation environment in a good condition to promote efficient fermentation process. BX-1 not only promotes the efficient fermentation process, but also reduces the emission of gas and odour, under any circumstances. Utilising probiotic during the fermentation composting process is Kawshima's original technology.

Process Steps :

The overall process and outline of the scheme is presented in the figure below.

Feedstock of the compost are EFB and POME. EFB and POME are transported to the composting facility by a conveyer belt, and pipes and pump, respectively. All the POME discharged from the palm oil mill will be pour into the composting facility. Before pour into the composting facility, suspended solids are separated from POME by a filter. About 50% of organic matters of POME is contained in suspended solids and another 50% is contained in the liquid portion of POME. Since the purpose of the proposed project activity is to remove organic matters and reduce COD concentration in POME that has potential to produce methane, in the proposed project, suspended solids are removed from POME, and then pour into the fermentation chamber. This process enables to avoid flowing out organic matters with runoff water, and to ferment organic matters more effectively in composting process. Suspended solids separated from POME are put into the composting facility with EFB. Filtered POME is stored in the holding tank, and sprayed to EFB and suspended solids stored in the fermentation chamber using the sprinkler system. EFB and suspended solids are stirred by the screw system which enables the EFB and suspended solids aerobic fermentation condition.

The composting facility use about 80 KW (Shredder and Separation system: 50 KW, Composting machine: 18 KW, Other facilities: 12 KW) of electricity that is supplied from the palm oil mill. The electricity is produced from biomass residues such as palm fibers and palm kernel shells.

The compost produced will be sold to market.