MONITORING REPORT FORM (CDM-MR)
Version 01 - in effect as of: 23/01/2012

CONTENTS

MONITORING REPORT
Version No. 01 of 31/01/2012

Gianyar Waste Recovery Project
No. 1885
Monitoring Period No. 2 from 01/05/2010 to 31/12/2011, including the two dates

SECTION A. General description of the project activity

A.1. Brief description of the project activity:

1. The technology used and measures applied in this project activity is to avoid the production of methane from the biomass fraction of municipal waste that otherwise would have been left for anaerobic decay in a solid waste disposal site without methane capture and flaring or power production. The decay is prevented through aerobic treatment by composting the organic waste fraction and proper soil application of the compost. The proper composting process is secured by adequate compost handling procedures and measures, including active aeration.
2. Waste separation and composting are done in a covered area of 4760 m^2. Coarse organic material is shredded in 2 available shredders prior to being composted. A new shredder has been obtained from Thailand and is being modified locally to improve the energy efficiency. The windrows are then turned in 2 to 3 week intervals with an excavator. A better suited front wheel loader will become available in March 2012. When the decomposition has reached the stadium of raw compost, the material is sieved in 2 available sieves with a 9 mm mesh size. The sieved raw compost is sold directly or further cured to finished compost, depending on demand. To assure an aerobic process, the windrows are aerated with blowers to guarantee an oxygen level of at least a 6 % throughout the process. However routinely, an oxygen level of 9 to 12 % is maintained.
3. The project activity milestones are:
   - Project planning: 2004 to 2008, including operation of a pilot plant
   - Project construction: 1st phase of 2400 m^2: 1st semester 2008; 2nd phase of 2360 m^2: 2nd semester 2009
   - Project Commissioning: 1st phase of 2400 m^2: May 2008 for composting up to 30 tons of organic waste per day; 2nd phase of 2360 m^2: January 2010 for composting up to 60 tons of organic waste per day
   - Operating Periods: Uninterrupted since May 2008 (pilot plant since March 2004)
4. Total net emission reductions achieved in this monitoring period amount to 6,097 tons CO_2e.

A.2. Project participants

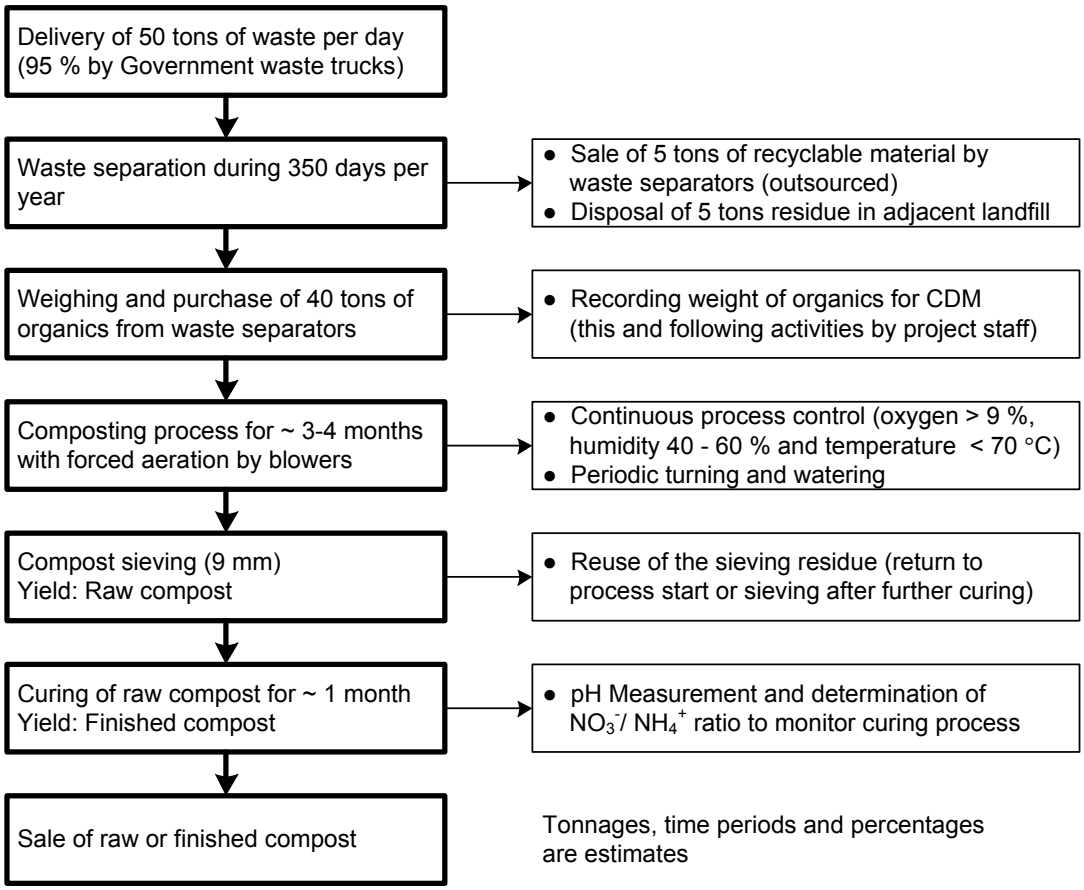
Name of Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants	Party involved wishes to be considered as project participant
Republic of Indonesia	Rotary Club of Bali Ubud	No
Republic of Indonesia	Badan Pengola Daur Ulang Sampah, Desa Temesi (Town of Temesi)	No
Switzerland	MyClimate, The climate protection partnership	No

In early 2012, there will be a change in the Modalities of Communications (MoC). The Rotary Club of Bali Ubud and the Badan Pengelola Daur Ulang Sampah, Desa Temesi (both not legal entities) will be replaced by the legal entity Yayasan Pemilahan Sampah Temesi.

A.3. Location of the project activity:

Temesi, Gianyar	Longitude:	E 115º 20' 59"	(new by GPS,
Bali 80551, Indonesia	Latitude:	S 8º 33' 58"	in PDD from map)

A.4. Technical description of the project



A.5. Title, reference and version of the baseline and monitoring methodology applied to the project activity:

Project activity:

- Sector 13, Waste handling and disposal.

Type and category in accordance with Annex B[1] to the simplified modalities and procedures for small-scale CDM project activities:

- Type III – Other project activities
- Category III.F. – avoidance of methane production from biomass decay through composting, version 05

A.6. Registration date of the project activity:

04/11/2008

A.7. Crediting period of the project activity and related information (start date and choice of crediting period):

10 years from 04/11/2008 to 03/11/2018

A.8. Name of responsible person(s)/entity(ies):

Responsible for Monitoring Report: David Küper, CDM Management Advisor
dkuper@indo.net.id Tel. +62 (0)81 24 66 22 50

SECTION B. Implementation of the project activity

B.1. Implementation status of the project activity

B.1.1. Phased in project activity

The project activity was preceded by a pilot plant operation during which all relevant parameters were researched and optimized to assure later an efficient process. The pilot plant was operational from 2004 to April 2008. The volume processed in the pilot plant is a "prior activity" that is deducted from the baseline emissions.

The CDM project activity was implemented in two phases:

1st Phase:	A 2400 m^2 covered processing area with a capacity of maximum 30 tons per day. Construction 1st semester 2008 / commissioning May 2008
2nd Phase:	A 2360 m^2 extension to 4760 m^2 with a final capacity of at least 60 tons per day. Construction 2nd semester 2009 / commissioning January 2010
Operating Periods:	Uninterrupted since May 2008

In each phase the processing volume was increased progressively, although monthly variations occurred mostly due to holidays and/or varying availability of waste separating personnel. While the project activity started in May 2008, the CDM registration was received only on November 4 2008. The first monitoring period started 04/11/2008 and ended 30/04/2010.The second monitoring period lasts from 01/05/2010 until 31/12/2011.

B.1.2. Treatment of the 2009/2010 blower downtime in the 1st and 2nd Monitoring Report

During 1st monitoring period, a blower downtime occurred due to the slow replacement of the 1st phase axial blower that was not energy efficient. Now, the project has two radial blowers, one for the 1st phase processing area and one for the 2nd phase processing area. Later, there were no further downtimes.

During the blower downtime, the forced aeration was interrupted for 36 days from 21/12/2009 to 25/01/2010. This led to a temporary interruption of the rapid aerobic decomposition of about 4000 tons of organic waste that were being processed at the time. With forced aeration organic waste decomposes in 4 to 5 months. On the contrary, the anaerobic decomposition in a landfill takes about 60 years.

It must be deemed that some much slower anaerobic decomposition with methane generation occurred during the downtime. Therefore the organic waste processed during the downtime was deducted from the total organic waste processed during the respective years. In this 2nd Monitoring Report, a similar simple correction will be made and is explained in more detail in Section E.1.6. and Annex 4.

Justification for this simplified correction: During the downtime of 36 days, about 4000 tons of organic waste was being processed. In the first year of anaerobic decomposition 1 ton organic waste generates 0.16 ton CO_2e baseline emissions (Annex 4). Thus the 4000 tons in process produced potentially 63 tons of CO_2e in 36 days (4000 * 0.16 * 36 / 365). The 181 tons CO_2e deducted for the 36 day downtime was therefore a correction that significantly over-compensated the actual impact of the downtime.

B.1.4. Special events during the 2nd monitoring period

No special events occurred.

B.1.5. Events or situations impacting the methodology during the 2nd monitoring period

No special events occurred.

B.2. Revision of the monitoring plan

The monitoring plan has not been revised.

B.3. Request for deviation applied to this monitoring period

No deviation has been requested or applied to this monitoring period.

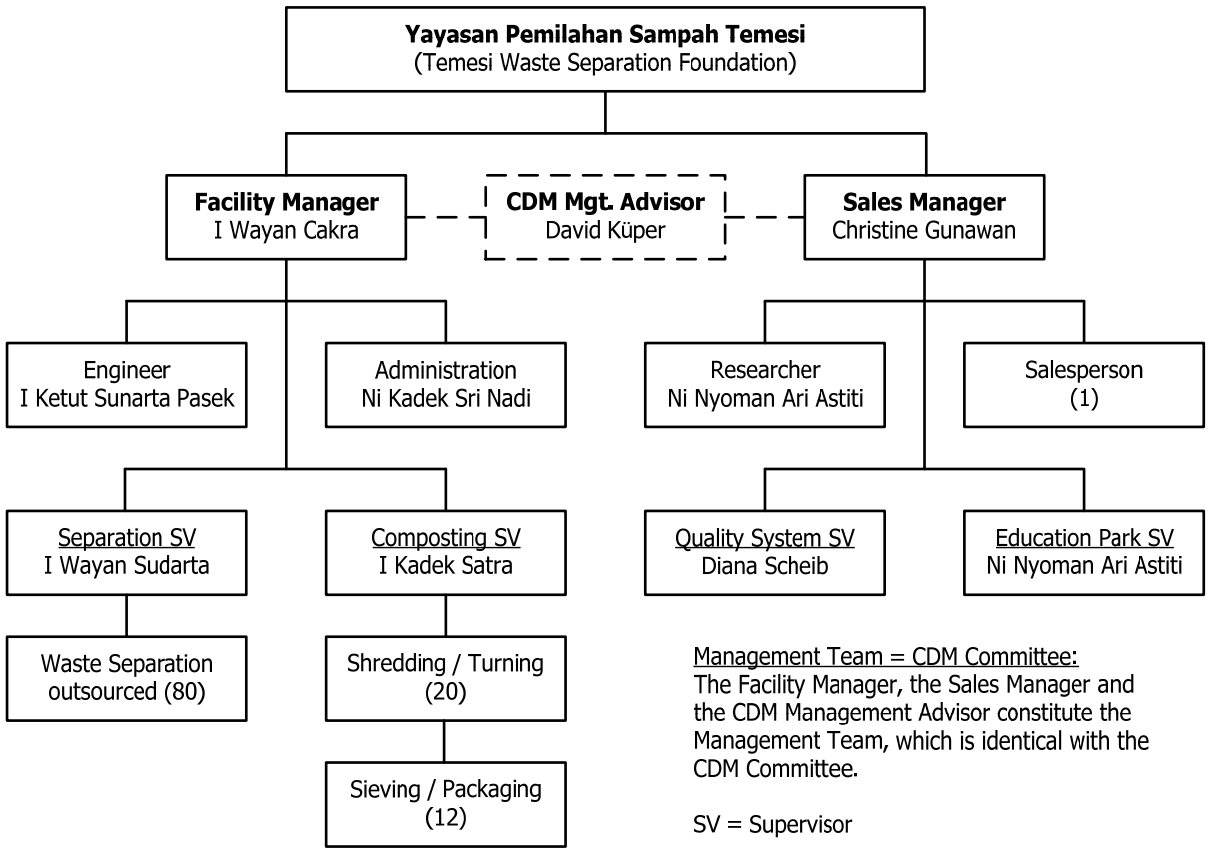
B.4. Notification or request of approval of changes

No notification or requests for changes or revisions of the registered CDM-PDD or validation were made. However, a change of the Modalities of Communication is still pending (see also A.2.).

SECTION C. Description of the monitoring system

The facility management has introduced a Quality System that was designed after ISO 9000. This Quality System has three hierarchical levels. The first level is the Quality Manual. The second level is Operating Procedures. The Operating Procedures (OP) document the activities that need to be carried out to assure CDM related issues and to achieve the necessary level of quality of our products and services. They also define how CDM and quality records are maintained to provide evidence of monitoring. Refer to Annex 9 for a list of the Operating Procedures.

The following diagram depicts the Organizational Chart as of December 31, 2011:



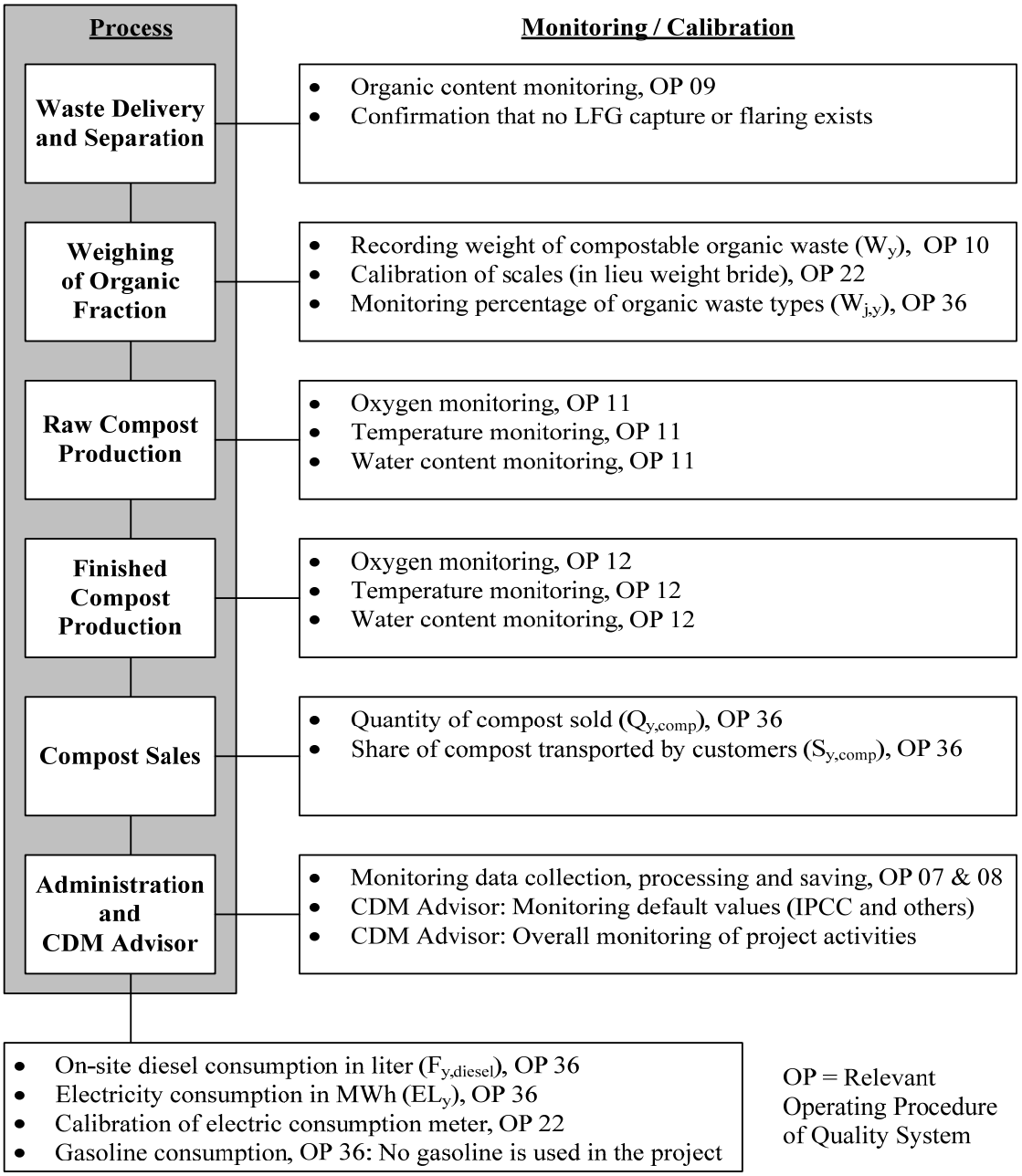
C.1. Monitoring management

All CDM related responsibilities are covered in the Quality System that is implemented under the responsibility of the General Manager. The CDM Management Advisor has the overall responsibility for the project's CDM monitoring and verification. The responsibilities delegated by the Facility Manager and Sales Manager are defined in the various Operating Procedures of the Quality System.

C.2. Monitoring process

All monitoring processes are defined in their respective Operating Procedures (OP) of the Quality System, which contain the details for reliable measurement and recording of the parameters. The original versions of the Operating Procedures are available in English language, but only those in Indonesian language are updated.

The following diagram shows the monitoring points and required equipment calibrations.



C.2.1. Waste measurement and project emissions

The Operating Procedures for the measurement and recording of quantity of waste processed, waste composition, energy consumption, and transport emission are referred to in the diagram above and the related sections of section E. Emission reductions calculations.

C.2.2. Other parameters required by the methodology

Other parameters are determined according to the following Operating Procedures:

- Monitoring the composting process is covered in OP 11 Raw Compost Production, OP 12 Finished Compost Production, OP 13 Specialty Compost Production and OP 17 Compost Production Monitoring.
- Analyzing the compost quality is covered in OP 18 Compost Quality Control.
- Tools for market development and other customer support are covered in OP 31 Customer Support.
- The assessment of common practices at the adjacent landfill (absence of methane capture) is confirmed by written statements of the landfill operator and verifiable on site.

C.3. Data recording and archiving

Data recording is performed according to the respective Operating Procedures and data storage is performed according to OP 07 Quality Record Storage.

C.4. Quality control procedures

The Quality System includes procedures that allows all personnel to report problems or irregularities that are then addressed by the Management Team / CDM Committee.

Personnel have two possibilities to report irregularities:

- Issue a Non-Conformity Report (NCR) according to OP 27 Non-Conformities.
- Refer to a potential problem according to OP 28 Quality Alerts.

The Facility Manager is responsible for the yearly calibration of the balances used to weigh the organic waste that is composted. The calibration of the weighing scales is performed according to OP 22 Calibrated Equipment. According to the PDD, no other equipment requires calibration. The summary of equipment calibrations is in Annex 7.

The Facility Manager and the Sales Manager are responsible to routinely reviewing quality procedures and to request changes at the quarterly Management Team / CDM Committee meetings.

C.5. Report compilation and verification

The input for the Monitoring Report is made available by the Facility Manager and Sales Manager or their staff. The CDM Management Advisor reviews the inputs and then compiles and submits the Monitoring Report to the DOE.

SECTION D. Data and parameters

D.1. Data and parameters determined at registration and not monitored during the monitoring period, including default values and factors

Table 1:

Data / Parameter:	**φ**
Data unit:	-
Description:	Model corrections factor to account for model uncertainties
Source of data used:	See below
Value(s) :	0.9
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Default value selected as proposed by methodology.
Additional comment:	Oonk et el. (1994) have validated several landfill gas models based on 17 realized landfill gas projects. The mean relative error of multi-phase models was assessed to be 18%. Given the uncertainties associated with the model and in order to estimate emission reductions in a conservative manner, a discount of 10% is applied to the model results.

Table 2:

Data / Parameter:	**OX**
Data unit:	-
Description:	Oxidation factor (reflecting the amount of methane from SWDS that is oxidised in the soil or other material covering the waste)
Source of data used:	
Value(s) :	0
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	0.1 is to be used for managed solid waste disposal sites that are covered with oxidizing material such as soil or compost. For other solid waste disposal sites a value of 0 can be used. The landfill where the waste would be disposed in the absence of the composting project activity is not covered with oxidizing material, hence a value of 0 is appropriate.
Additional comment:	

Table 3:

Data / Parameter:	**F**
Data unit:	-
Description:	Fraction of methane in the SWDS gas (volume fraction)
Source of data used:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value(s) :	0.5
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	IPCC default value as proposed by the methodology is applied.
Additional comment:	

Table 4:

Data / Parameter:	**DOC_f**
Data unit:	-
Description:	Fraction of degradable organic carbon (DOC) that can decompose
Source of data used:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value(s) :	0.5
Indicate what the data are	IPCC default value as proposed by the methodology is applied.

used for (Baseline/ Project/ Leakage emission calculations)	
Additional comment:	

Table 5:

Data / Parameter:	**MCF**
Data unit:	-
Description:	Methane correction factor
Source of data used:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value(s) :	0.8
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	MCF for the following types of solid wastes disposal sites are possible: **Disposal site type** / **MCF** Managed – anaerobic / 1.0 Managed – aerobic / 0.5 Unmanaged – deep (>5m) or high water table / 0.8 Unmanaged – shallow (<5m) / 0.4 Uncategorised SWDS / 0.6 The landfill where the waste would be disposed in the absence of the composting project activity has an average depth of 6 meters and the waste is mechanically compacted. Hence, a value between 1 and 0.8 would be appropriate. For conservativeness a value of 0.8 has been applied.
Additional comment:	

Table 6:

Data / Parameter:	**DOC_j**
Data unit:	-
Description:	Fraction of degradable organic carbon (by weight) in the waste type *j*
Source of data used:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Tables 2.4 and 2.5)
Value(s) :	DOC_j values for wet waste have been applied → see below
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The methodology distinguishes between five types of waste and respective DOC_j values under wet and dry waste conditions given as percentage of the total organic waste stream of the project: **Waste type j** / **% DOC wet waste** / **% DOC dry waste** Wood and wood products / **43** / 50 Pulp, paper and cardboard (other than sludge) / **40** / 44 Food, food waste, beverages and tobacco (other than sludge) / **15** / 38 Textiles / **24** / 30 Garden, yard and park waste / **20** / 49 Measures of the moisture content have shown values between 45-50% of the total waste amount (depending also on seasonal climatic circumstances and the waste composition). On average, the waste can be considered as wet waste and respective DOCj values as given in the second column above apply.
Additional comment:	

Table 7:

Data / Parameter:	**k_j**
Data unit:	-
Description:	Decay rate for the waste type *j*
Source of data used:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories (adapted from Volume 5, Tables 3.3
Value(s) :	K_j values for tropical / wet conditions have been applied → see below
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The methodology is based on the IPCC 2006 Guidelines and gives the following default values for tropical conditions:

Waste type j		**Tropical (MAT* > 20°C)**	
		Dry (MAP* < 1000 mm)	**Wet (MAP > 1000mm)**
Slowly degrading	Pulp. Paper, cardboard, textiles	0.045	**0.07**
	Wood, wood products, straw	0.025	**0.035**
Moderately degrading	Garden and park waste	0.065	**0.17**
Rapidly degrading	Food, food waste, beverages, tobacco	0.085	**0.4**
MAT: mean annual temperature MAP: mean annual precipitation			

Bali is located in tropical area with MAP of around 1700 mm per year and an average annual temperature (MAT) of 27°C. Therefore the proposed k values for wet conditions can be used.

Additional comment:	Temperature and precipitation values and references for Bali are presented in Annex 3 of the PDD.

Table 8:

Data / Parameter:	**EF_{diesel}**
Data unit:	kg/l
Description:	Diesel CO_2 emission factor
Source of data used:	IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value(s) :	2.664
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	The emission factor of diesel in kg/l has been calculated using IPCC default values for:

NCV diesel	43.33 GJ/t
Density diesel	0.83 kg/l
CO_2 emission factor diesel	74.07 t/TJ

Additional comment:	

Table 9:

Data / Parameter:	**EF_{grid}**
Data unit:	t CO_2/MWh
Description:	Grid emission factor
Source of data used:	Decision on the meeting on determination of CDM emission factor of JAVA-MADURA-BALI (JAMALI) Grid submitted by Chevron and agreed by the committee, Directorate General of Electricity and Energy Utilization, Jakarta, Indonesia, Friday, 11 March 2006).
Value(s) :	0.728
Indicate what the data are used for (Baseline/ Project/	This emission factor is estimated based on ACM 0002. Reference for cross checking: Directorate general electricity and energy utilization,

Leakage emission calculations)	Renewable energy division, 2006. Since no data is directly available to the project developer and also not expected to be available in the coming years, this emission factor remains fixed over the crediting period. However, with regard to the small amount of emissions resulting from power consumption this approach is considered appropriate.
Additional comment:	Determined ex-ante and fix over crediting period.

Table 10:

Data / Parameter:	**$EF_{transport}$**
Data unit:	kg CO_2 / km
Description:	Average CO_2 emissions per 100 km of customer vehicles used for compost transport
Source of data used:	Based on estimated average values and IPCC 2006 Guidelines for National Greenhouse Gas Inventories
Value(s) :	0.2664 kg/km
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	This factor is calculated using the EF_{diesel} (2.664 kg/l) times estimated average diesel consumption of customer vehicles per 100 km (12 l)
Additional comment:	Determined ex-ante and fix over crediting period.

Table 11:

Data / Parameter:	**$TWCOM_{BAU}$**
Data unit:	t
Description:	Maximum amount of organic waste processed for composting per year in the BAU scenario (pilot facility)
Source of data used:	Plant records
Value(s) :	595 t per year (source PDD)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	This figure reflects a conservative approach. It was calculated based on the average processed total volume per day (2 t) times the maximum operating days of the plant (350), times the average organic fraction of the waste (= 85 % according to reality and PDD Section B.6.3.).
Additional comment:	Determined ex-ante and fix over crediting period.

D.2. Data and parameters monitored

Table 12:

Data / Parameter:	**f**
Data unit:	-
Description:	Fraction of methane captured at the SWDS and flared, combusted or used in another manner
Measured /Calculated /Default:	There are no LFG capture and flaring installations at the landfill. However, the landfill operator will issue yearly a confirmation that no such equipment is installed and operated.
Source of data:	On-site inspection and written confirmation by landfill operator
Value(s) of monitored parameter:	0
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration	-

frequency, date of last calibration, validity)	
Measuring/ Reading/ Recording frequency:	Monitoring frequency: yearly
Calculation method (if applicable):	-
QA/QC procedures applied:	Operating Procedure 03

Table 13:

Data / Parameter:	**GWP_{CH4}**
Data unit:	t CO_2e / t CH_4
Description:	Global warming potential (GWP) of methane, valid for the relevant commitment period
Measured /Calculated /Default:	Default
Source of data:	UNFCCC
Value(s) of monitored parameter:	A value of 21 is to be applied for the first commitment period
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	-
Measuring/ Reading/ Recording frequency:	After each commitment period GWP is adjusted according UNFCCC decisions
Calculation method (if applicable):	-
QA/QC procedures applied:	-

Table 14:

Data / Parameter:	**$W_y = TWCOM_y$**
Data unit:	t
Description:	Total organic waste prevented from disposal in period y
Measured /Calculated /Default:	Total weight of organic waste composted is determined directly on scales instead of calculated by deducting recycled and landfilled waste from total delivered waste. This alternative is more accurate and allowed according to PDD Section B.7.2. (paragraph on waste measurement)
Source of data:	Plant records
Value(s) of monitored parameter:	01/01/2010 to 31/12/2011: 24,173 01/05/2010 to 31/12/2011: 20,888 (Source Annex 1.2. and 1.3.)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Analogue scales 300 kg / 0.1 kg. Serial number B 040784 and B.U 70494. Calibrated yearly, last 11/02/2011 by UPT Meterologi, Bali
Measuring/ Reading/ Recording frequency:	The weight is determined daily on calibrated scales

Calculation method (if applicable):	-
QA/QC procedures applied:	Operating Procedure 03 and 10

NB: The reduction of $W_y = TWCOM_y$ for the downtime due to the interrupted forced aeration during 25 days is calculated in Annex 4.

Table 15:

Data / Parameter:	$\mathbf{p_{n,j,y}}$
Data unit:	t
Description:	Weight fraction of waste type j in the sample n collected during period y
Measured /Calculated /Default:	The weight of each fraction is determined on scales
Source of data:	Plant records
Value(s) of monitored parameter:	2010: A=4.613% / B=4.237% / C=8.225% / D=0.125% / E=82.800% 2011: A=4.675% / B=3.987% / C=9.119% / D=0.313% / E=81.906% (Source Annex 2)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Analogue scales 300 kg / 0.1 kg. Serial number B 040784 and B.U 70494. Calibrated yearly, last 11/02/2011 by UPT Meterologi, Bali
Measuring/ Reading/ Recording frequency:	The size and frequency of sampling provides statistically significant data with a maximum uncertainty range of 20% at a 95% confidence level. Since the waste composition is relatively stable over the year, a sampling is undertaken quarterly (4 times a year) on calibrated scales. The average of these samplings is taken as weight fraction of waste type
Calculation method (if applicable):	A detailed written sampling procedure is applied to ensure a consistent approach over the crediting period. (see Operating Procedure 36, PDD Section B.7.2 and Annex 4 of the PDD)
QA/QC procedures applied:	Operating Procedures 03 and 36

Table 16:

Data / Parameter:	$\mathbf{W_{total,y}}$
Data unit:	t
Description:	Total waste delivered to the composting facility in period y
Measured /Calculated /Default:	This value is not needed and thus not monitored, because the weight of organic waste composted is determined directly (see Table 14)
Source of data:	-
Value(s) of monitored parameter:	-
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	-
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	-
Measuring/ Reading/	-

Recording frequency:	
Calculation method (if applicable):	-
QA/QC procedures applied:	-

Table 17:

Data / Parameter:	**$W_{recycled,y}$**
Data unit:	t
Description:	Waste fraction processed for recycling in period y
Measured /Calculated /Default:	This value is not needed and thus not monitored, because the weight of organic waste composted is determined directly (see Table 14)
Source of data:	-
Value(s) of monitored parameter:	-
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	-
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	-
Measuring/ Reading/ Recording frequency:	-
Calculation method (if applicable):	-
QA/QC procedures applied:	-

Table 18:

Data / Parameter:	**$W_{landfill,y}$**
Data unit:	t
Description:	Waste fraction diverted to landfill in period y
Measured /Calculated /Default:	This value is not needed and thus not monitored, because the weight of organic waste composted is determined directly (see Table 14)
Source of data:	-
Value(s) of monitored parameter:	-
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	-
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	-
Measuring/ Reading/ Recording frequency:	-
QA/QC procedures applied:	-

Table 19:

Data / Parameter:	**$F_{y,diesel}$**
Data unit:	Liter
Description:	Total consumption of diesel composting facility in period y
Measured /Calculated	The volume of diesel fuel is measured

/Default:	
Source of data:	Plant records
Value(s) of monitored parameter:	20,045 (Source Table 30 based on Annex 5)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	The diesel fuel is purchased at various government owned fuel stations. Purchase records and invoices are used to determine the diesel consumption.
Measuring/ Reading/ Recording frequency:	Monitoring frequency: continuously
Calculation method (if applicable):	
QA/QC procedures applied:	Operating Procedure 36

NB: No gasoline is used by the project

Table 20:

Data / Parameter:	**EL_y**
Data unit:	MWh
Description:	Total power consumption of composting facility in period y
Measured /Calculated /Default:	The power consumption is measured
Source of data:	Plant records
Value(s) of monitored parameter:	41.266 (Source Annex 5)
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Power consumption is directly measured with meters. Cross check of consumption with power invoices from power transmission and distribution company. Meters are subject to regular calibration by the power company
Measuring/ Reading/ Recording frequency:	Meter readings are taken monthly
Calculation method (if applicable):	
QA/QC procedures applied:	Operating Procedure 03 and 36

Table 21:

Data / Parameter:	**$Q_{y,comp}$**
Data unit:	t
Description:	Amount of compost sold in period y
Measured /Calculated /Default:	The weight of compost produced is not measured. However, the amount of compost sold is measured and recorded as sales of bulk and sales of 20 kg bags.
Source of data:	Plant records
Value(s) of monitored parameter:	929.2 based on calculation in Annex 6
Indicate what the data are used for (Baseline/ Project/	Project emission calculation

Leakage emission calculations)	
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Analogue scale 300 kg / 0.1 kg.
Measuring/ Reading/ Recording frequency:	Quantity of compost sold is measured and monitored continuously
Calculation method (if applicable):	
QA/QC procedures applied:	Operating Procedure 19, 30 and 36

Table 22:

Data / Parameter:	**$S_{y,comp}$**
Data unit:	
Description:	Share of compost bought and transported by customers in period y
Measured /Calculated /Default:	The share of compost picked up by customers at the facility is estimated using sales data and expert judgement
Source of data:	Plant records
Value(s) of monitored parameter:	0.244 based on calculation in Annex 6
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	-
Measuring/ Reading/ Recording frequency:	Each monitoring period
Calculation method (if applicable):	
QA/QC procedures applied:	Operating Procedure 30 and 36

Table 23:

Data / Parameter:	**$CT_{y,comp}$**
Data unit:	t
Description:	Average capacity of vehicles used by customers
Measured /Calculated /Default:	The average weight of compost picked up by customers at the facility is calculated with figures taken from the sales statistic
Source of data:	Plant records
Value(s) of monitored parameter:	1.26 based on calculation in Annex 6
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	-
Measuring/ Reading/	Monitoring by expert estimations at the end of the crediting period

Recording frequency:	
Calculation method (if applicable):	-
QA/QC procedures applied:	Operating Procedure 36

Table 24:

Data / Parameter:	**DAF_{comp}**
Data unit:	Km / vehicle
Description:	Average return distance for compost transportation
Estimated:	The distance driven by customers to pick-up compost at the facility is estimated using sales data and expert judgement
Source of data:	Expert estimation
Value(s) of monitored parameter:	62
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Project emission calculation
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	-
Measuring/ Reading/ Recording frequency:	-
Calculation method (if applicable):	-
QA/QC procedures applied:	Operating Procedure 36

SECTION E. Emission reductions calculation

E.1. Baseline emissions calculation

E.1.1. Introduction

As described in section B.6.1. of the PDD, the baseline emissions are calculated based on the FOD-Model. The detailed calculations are available to the DOE from the UNFCCC project website: http://cdm.unfccc.int/Projects/DB/SGS-UKL1214472977.27/view as Annex 1 - ER Worksheet, or directly from: http://cdm.unfccc.int/UserManagement/FileStorage/7OXD4P48Q7CKOWOQAU9CK89E4H4T5V

This ER Worksheet allows scenario calculations by changing the input of the various parameters to represent the actual project activity during the monitoring period, like tons processed and waste types.

E.1.2. Baseline emission calculation for 2010

The period from 01/01/2010 to 30/04/2010 was already included in the 1st Monitoring Report. Many pro rata calculations were made for these 4 months that might not always be fully reliable due to variations in the percentages of waste types and the fact that the ER-Worksheet was not designed for split years. Therefore, the reliable total baseline emission for the whole year of 2010 is calculated first in this 2nd Monitoring Report. Then the baseline emissions stated in the 1st Monitoring Report for the first 4 months of 2010 are deducted to obtain a reliable baseline emission for the period of 01/05/2010 to 31/12/2010. This assures that the year 2010 is accurately reported. The correction for the downtime during 25 days in 2010 is done in Annex 4/Table D.

E.1.3. Actual amount of organic waste processed per monitoring period

Of the two methods possible according to the PDD, the project has chosen to determine the actual weight of compostable organic waste directly after the waste separation on calibrated weighing scales according to Operating Procedure (OP) 10 Weight Control.

The ER Worksheet is fixed on processing yearly 14,875 tons of organic waste into compost (Cell D3). Any yearly deviations from this amount are adjusted in the worksheets by inserting the percentage of actual tons processed in percent of the 14,875 tons into row 30 "Deposition trend" of the respective year. Also the percentages of the different waste types of the respective year are filled into column D, cells 20 to 25. All other years remain zero. Calculating each year individually is necessary because the ER Worksheet cannot handle different yearly waste type percentages.

Table 25: Actual amount and percentage of organic waste

Organic waste processed (W_y)	**01/01/2010 to 31/12/2010**	**01/01/2011 to 31/12/2011**	**Total 2010 to 2011**
Total of all waste types in tons	10,312	13,861	24,173
In % of the planned amount of 14,875 tons	**69.324 %**	**93.183 %**	

The amount of organic waste processed from 01/05/2010 to 31/12/2010 is 20,888 tons
Source: Annex 1.2. and 1.3.: Organic waste processed 2010 and 2011

The actual amount of organic waste processed as percentage of planned amount of 14,875 tons is inserted into Cells C30 toM30 of the ER Worksheets (one ER Worksheet for each year).

E.1.4. Percentage of waste types per monitoring period (W_j)

The methodology distinguishes between five types of waste. Table 26 below shows the sampled amounts of organic waste type for each monitoring year in percent of total organic waste as measured according to OP 36 CDM Monitoring Process, which complies with the details provided in Annex 4 of the PDD.

Table 26: Percentage of waste types

Waste types (j_y)	**PDD**	**01/01/2010 to 31/12/2010**	**01/01/2011 to 31/12/2011**
A. Wood, wood products	3.0 %	4.613%	4.675%
B. Pulp, paper and cardboard	0.5 %	4.237%	3.987%
C. Food, food waste, beverages and tobacco	3.0 %	8.225%	9.119%
D. Textiles	0.5 %	0.125%	0.313%
E. Garden, yard and park waste	93.0 %	82.200%	81.906%
Total organic waste	100.0 %	100.000%	100.000%

Source: Annex 2, Percentage of waste types 2010 and 2011

E.1.5. Other parameters

All default parameters are used as indicated in section D.1.

E.1.6. Total baseline emission for 2nd monitoring period

The total baseline emissions for the whole year of 2010 and 2011 are calculated by inserting the data from Table 25 and 26 for each year into a separate yearly ER Worksheets (a sample Worksheet was submitted with the PDD). The values obtained in row 46 of the ER Worksheets for each year are then entered into Table B of Annex 4. The baseline emission from January to April 2010 is subsequently deducted in Table 27. The rationale for this indirect approach was explained before in E.1.2.

In Table D of Annex 4, the 126 tons CO_2e baseline emission that would have resulted from the 783 tons organic waste processed during the downtime of 26 days in 2010 is deducted for the calculation of the total CO_2e baseline emission. Please refer to Annex 4 for the detailed calculation. The corrected baseline emission is then transferred to Table 27. This is a onetime correction that is no longer necessary in the later years.

Table 27: Total baseline emissions

Total baseline emissions (BEy)	**01/01/2010 to 31/12/2010**	**01/01/2011 to 31/12/2011**	**01/01/2010 to 30/04/2011**	**Total tons CO_2e**
Total baseline emissions	2,686	4,568	-763	**6,491**

Source: Annex 4, Table D / Baseline emission 01/01/2010 to 30/04/2010 (763 CO_2e) from 1st Monitoring Report Table 27

Total baseline emissions: 6,491 tons CO_2e.

E.2. Project emissions calculation

In this Monitoring Report the project emissions are divided as follow:

- Electrical power emissions by facility — E.2.1.: Tables 28 and 29
- Diesel emissions by facility from equipment like shredders, excavator, etc. — E.2.2.: Tables 30 and 31
- Diesel emissions by facility trucks — E.2.2.: Tables 30 and 31
- Diesel emissions by customers transports — E.2.3.: Tables 32 and 33

To calculate the project emissions during the monitoring period, first the energy consumption of each energy type is listed separately in the respective tables for May to December 2010 and the whole year of 2011. The same applies for the quantity of compost sold used to calculate customer transport emission.

E.2.1. Calculation of emissions from power consumption (PE_{power})
The power consumption is determined monthly according to OP 36 CDM Monitoring Process.

Table 28: Total of power consumption

Power consumption	**01/05/2010 to 31/12/2010**	**01/01/2011 to 31/12/2011**	**Total Monitoring Period**
kWh	14,515	26,751	**41,266**

Source: Annex 5

Table 29: Total power emission 01/05/2010 to 31/12/2011

Parameter	**Description**	**Unit**	**Value**
EL	Power consumption	kWh	41,266
EF_{grid}	Emission factor of the Java–Madura–Bali grid	t CO_2/MWh	0.728
PE_{power}	**Emission from power consumption**	**t CO_2e**	**30.04**

Formula: PE_{power} = EL * EF / 1000 (source of formula: PDD equation 6)

E.2.2. Calculation of emission from facility equipment and truck diesel consumption (PE_{diesel})
The facility equipment and truck diesel consumption is determined monthly according to OP 36 CDM Monitoring Process. The facility equipment and truck diesel consumptions are summarized in Annex 5 then entered into Table 30, where they are added up.

Table 30: Total facility diesel consumption
The insignificant small gasoline consumption has been added to the diesel consumption as no gasoline consumption is foreseen in the PDD. Using the diesel formula, the 325 liter of gasoline equal 1.4 CO_2e.

Facility diesel and gasoline consumption	**01/05/2010 to 31/12/2010**	**01/01/2011 to 31/12/2011**	**Total Monitoring Period**
Liter of facility equipment diesel	5,897	11,260	17,157
Liter of facility truck diesel	731	1,832	2,563
Liter of facility gasoline	0	325	325
Total facility diesel consumption	6,628	13,417	20,045

Source: Annex 5

Table 31: Total facility diesel emissions 01/05/2010 to 31/12/2011

Parameter	Description	Unit	Value
$F_{diesel, liter}$	Facility diesel consumption	liter	20,045
D_{diesel}	Density of diesel (ICPP)	kg/l	0.83
$F_{diesel, tons}$	Facility diesel consumption	tons	16.64
NCV_{diesel}	Net caloric value of diesel fuel (IPCC)	GJ/t	43.33
EF_{diesel}	CO_2 emissions factor for diesel (IPCC)	t CO_2/TJ	74.07
PE_{diesel}	**Emission from facility diesel consumption**	**t CO_2e**	**53.40**

Formula: $F_{diesel, tons} = F_{diesel, liter} * 0.83 / 1000$
Formula: $PE_{diesel} = F_{diesel, tons} * NCV / 1000 * EF$ (source of formula: MR Table 8 as well as PDD equation 7 and Table 6)

E.2.3. Calculation of emissions from customer transport ($PE_{transport}$)
Transport emissions for waste delivery to the facility are not included, because the project site is on the former landfill site that already received all waste before the project activity begun.

However, the transport of finished compost consumes diesel fuel and adds to project emissions. The transport emissions that are generated by customers picking up compost are calculated in the following Tables 32 and 33, based on data from Annex 6 and expert judgement. The diesel used by facility trucks to deliver compost is already included in the total facility diesel consumption in Table 30.

Table 32: Total compost sold per year

Total compost sold per year	01/05/2010 to 31/12/2010	01/01/2011 to 31/12/2011	Total Monitoring Period
$Q_{y, comp}$, tons	184.4	744.8	**929.2**

Source: Annex 6, which is based on sales statristics

Table 33: Total transport diesel emissions 01/05/2010 to 31/12/2011

Parameter	Description	Unit	Value
Q_{comp}	Total compost sold during monitoring period	t	929.2
S_{comp}	Fraction of compost picked up by customers		0.244
CT_{comp}	Average truck capacity for compost transport by customers	t	1.33
DAF_{comp}	Average distance for compost transport by customers	km/truck	62
$EF_{transport}$	CO_2 emission factor for diesel	kg/km	0.27
$PE_{transport}$	**Emission from compost transportation (by customer)**	**t CO_2e**	**2.85**

Source of Q_{comp}, S_{comp} and CT_{comp}: Annex 6 / Source DAF_{comp}: Expert estimate from Table 24 / Source of $EF_{transport}$: Table 10
Formula: $PE = Q * S / CT * DAF * EF / 1000$ (source of formula: PDD equation 5)

E.2.4. Total project emissions for the 2nd monitoring period

Table 34: Calculation of total project emissions 01/05/2010 to 31/12/2011

Description		t CO_2e
Total emissions from total power (PE_{power})	Source: Table 29	30.04
Total emissions from facility diesel consumption (PE_{diesel})	Source: Table 31	53.40
Total emissions from transport diesel consumption($PE_{transport}$)	Source: Table 33	2.85
Total project emissions		**86.29**

Total project emission: 86 t CO_2e

E.3. Leakage calculation

No leakage needs to be considered, since no composting technology equipment is transferred from or to another activity (L_y=0)

Total leakage: 0 t CO_2e

E.4. Emission reductions calculation / table

E.4.1. Calculation of adjustment factor (r) for prior activities

The baseline emissions must be reduced by a factor r for organic waste volumes already processed in the baseline case, i.e. the volume processed prior to the project activity in the pilot plant. The pilot plant processed 700 tons of waste with an organic content of 85 % which results in 595 tons of organic waste per year. The value of 595 tons is taken from Table 11 which is based on the PDD.

The adjustment factor (r) is calculated by dividing the amount of organic waste that would have been processed in the pilot plant during the length of the monitoring period by the actual amount organic waste composted during the monitoring period.

Table 35: Calculation of average adjustment factor r

Organic waste processed in tons	**01/05/2010 to 31/12/2010**	**01/01/2011 to 31/12/2011**	**Total**
Project activity	7,027	13,861	20,888
Prior activity in 2010: 8/12 of 595 = 397 and			
Prior activity in 2011: 12/12 of 595 = 595	397	595	992
Adjustment factor r (= 992 / 20,888)			**0.0475**

Source Project activity: Annex 1.2 and 1.3 / Source Prior activity Table 11
Formula: Prior activity (pilot plant) / Project activity

E.4.2. Calculation of total emission reductions during monitoring period

Table 36: Total emission reduction

Total emission reduction	**tons CO_2e**
Baseline emission 01/05/2010 to 31/12/2011 (Table 27)	6,491
- Baseline project 01/05/2010 to 31/12/2011 (Table 34)	86
- Total leakage (E.3.)	0
- Adjustment for prior activity (Table 27 and 35):	308
Total emissions reduction for monitoring period (01/05/2010 to 31/12/2011)	**6,097**

Formula: Adjustment for prior activity: 0.0475 * 6,491 = 308

Overall emission reductions: 6,097 t CO_2e

E.5. Comparison of actual emission reductions with estimates in the CDM-PDD

The PDD lists ex-ante values for the total emission reductions per calendar year. However, this monitoring period does not correspond with calendar years. Therefore, below ex-ante PDD values were calculated pro rata to correspond with the monitoring period.

Item	**Values applied in ex-ante calculation of the registered CDM-PDD**	**Actual values reached during the monitoring period**
Emission reductions (tCO_2e)	**11,300 t CO_2e**	**6,097 t CO_2e**

E.6. Remarks on difference from estimated value in the PDD

The actual emission reductions achieved during this monitoring period are smaller than the PDD estimate. The reason is that until the end of 2009, the 1st phase facility had only half the planned size and thus only half of the planned capacity. End of 2009 the 2nd phase was completed and since October 2010, the facility operates at the planned capacity.

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History of the document (Monitoring Report Form)

Version	Date	Nature of revision
01	EB 54, Annex 34 28 May 2010	Initial adoption.
Decision Class: Regulatory **Document Type**: Guideline, Form **Business Function**: Issuance		

Annex 1.1: Organic waste processed 01/01/2009 until 31/12/2009

In kilograms

Date	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	204,518.7	0.0	22,001.8	11,813.4	15,459.5	16,057.0	23,732.0	28,714.0	10,565.0	19,298.0	14,219.0	22,082.0	20,577.0
2	251,483.2	33,846.6	22,085.8	15,991.8	16,284.0	13,415.0	24,466.0	18,671.0	17,417.0	15,495.0	21,879.0	30,273.0	21,659.0
3	242,434.7	21,354.6	25,767.5	13,282.4	18,041.2	11,668.0	21,659.0	28,406.0	21,029.0	17,893.0	18,618.0	19,998.0	24,718.0
4	223,628.1	0.0	23,771.6	19,907.7	15,205.8	16,377.0	21,339.0	20,840.0	15,713.0	14,932.0	21,626.0	31,207.0	22,709.0
5	246,280.8	35,599.2	21,891.4	12,161.8	7,125.4	19,380.0	20,624.0	24,405.0	18,880.0	14,488.0	24,605.0	18,390.0	28,731.0
6	253,989.6	26,174.3	29,809.8	15,376.5	12,155.0	17,987.0	18,700.0	21,655.0	11,213.0	19,593.0	25,939.0	32,547.0	22,840.0
7	254,236.4	24,060.0	25,506.2	15,293.2	11,374.0	16,921.0	19,394.0	23,111.0	19,454.0	18,034.0	23,822.0	27,547.0	29,720.0
8	254,477.6	25,788.1	20,451.5	10,884.0	16,854.0	23,075.0	25,343.0	26,107.0	16,337.0	13,617.0	28,020.0	21,453.0	26,548.0
9	249,077.8	23,568.6	20,392.4	15,808.8	5,424.0	16,672.0	22,385.0	25,308.0	20,744.0	15,543.0	23,113.0	30,454.0	29,665.0
10	256,205.6	21,247.2	28,232.4	16,301.0	9,611.0	11,066.0	23,365.0	23,425.0	16,838.0	13,842.0	28,582.0	32,879.0	30,817.0
11	263,610.0	24,667.3	23,744.3	14,482.4	9,356.0	18,028.0	22,500.0	22,539.0	23,428.0	14,672.0	27,673.0	32,622.0	29,898.0
12	233,366.5	31,973.9	31,307.8	16,649.8	7,412.0	11,893.0	22,366.0	19,684.0	17,814.0	10,488.0	20,450.0	32,140.0	11,188.0
13	272,871.2	26,479.0	20,302.2	13,743.0	16,386.0	26,120.0	26,099.0	27,069.0	21,510.0	0.0	33,464.0	29,284.0	32,415.0
14	225,024.5	27,773.8	22,978.9	17,512.8	17,807.0	19,042.0	19,151.0	20,585.0	13,479.0	9,285.0	0.0	33,653.0	23,757.0
15	239,889.1	29,302.4	21,337.7	14,339.0	15,484.0	15,725.0	23,818.0	18,932.0	0.0	5,461.0	31,437.0	33,508.0	30,545.0
16	278,772.4	27,141.0	25,521.6	13,945.8	13,964.0	22,288.0	21,576.0	27,454.0	24,441.0	6,833.0	29,615.0	33,135.0	32,858.0
17	220,447.8	0.0	27,109.8	0.0	12,401.0	18,448.0	22,073.0	20,140.0	17,524.0	9,088.0	27,938.0	33,019.0	32,707.0
18	258,458.7	23,640.6	30,152.1	0.0	16,353.0	21,380.0	19,455.0	21,854.0	20,309.0	7,584.0	30,842.0	33,329.0	33,560.0
19	246,410.9	31,212.3	21,948.6	0.0	11,180.0	25,350.0	25,066.0	22,707.0	13,461.0	8,486.0	29,835.0	23,496.0	33,669.0
20	267,682.7	27,373.8	28,632.0	19,367.9	17,000.0	22,223.0	18,329.0	19,800.0	20,570.0	0.0	31,503.0	29,957.0	32,927.0
21	237,901.6	24,491.3	23,091.3	16,503.0	14,517.0	20,143.0	26,875.0	17,310.0	17,746.0	6,569.0	27,392.0	16,823.0	26,441.0
22	260,823.0	25,784.1	23,161.5	18,561.4	21,974.0	20,149.0	19,222.0	22,350.0	15,664.0	7,417.0	29,533.0	24,878.0	32,129.0
23	243,250.4	21,700.0	32,111.4	2,175.0	17,409.0	21,280.0	22,348.0	19,374.0	15,696.0	5,356.0	31,531.0	22,527.0	31,743.0
24	239,267.6	24,690.3	26,270.4	24,553.9	22,561.0	16,334.0	21,329.0	22,353.0	22,830.0	6,183.0	0.0	20,642.0	31,521.0
25	245,950.4	20,473.2	21,208.2	12,712.0	16,683.0	18,935.0	24,710.0	22,353.0	20,813.0	6,696.0	30,390.0	21,559.0	29,418.0
26	248,443.8	21,392.7	20,073.6	0.0	18,082.5	20,541.0	24,228.0	20,896.0	23,419.0	9,276.0	35,292.0	22,623.0	32,620.0
27	233,072.6	20,134.8	26,655.0	6,637.8	15,896.0	19,242.0	23,662.0	19,393.0	15,962.0	9,372.0	30,732.0	16,756.0	28,630.0
28	251,939.6	26,650.6	20,260.0	0.0	19,995.0	24,554.0	21,012.0	21,586.0	17,472.0	10,171.0	32,742.0	23,814.0	33,683.0
29	226,545.2	24,325.2	0.0	0.0	16,492.0	21,382.0	25,353.0	17,211.0	21,020.0	13,287.0	31,747.0	22,862.0	32,866.0
30	246,684.6	25,984.4	0.0	20,979.2	17,738.0	23,239.0	19,218.0	17,793.0	19,605.0	18,739.0	30,836.0	22,411.0	30,142.0
31	152,707.5	22,981.1	0.0	17,302.4	0.0	17,057.0	0.0	16,161.0	19,560.0	0.0	27,185.0	0.0	32,461.0
TOTAL	**7,529,453**	**719,810**	**685,777**	**376,286**	**446,224**	**585,971**	**669,397**	**678,186**	**550,513**	**327,698**	**800,560**	**795,868**	**893,162**

The days highlighted represent organic waste processed during the downtime without forced aeration and are eliminated from all baseline calculations:

Total processed 01/01/20009 to 30/12/2009: 7,529 t (above table in in kilograms)
Processed during downtime 21/12/2009 to 31/12/2009: 342 t or 55 tons CO_2e

Annex 1.2: Organic waste processed 01/01/2010 until 31/12/2010

In kilograms

Date	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	293,717.0	0.0	28,440.0	29,638.0	21,399.0	24,978.0	31,878.0	20,771.0	21,163.0	4,147.0	31,763.0	40,542.0	38,998.0
2	338,206.0	41,627.0	30,449.0	28,442.0	22,988.0	23,885.0	29,313.0	20,458.0	20,321.0	2,575.0	36,308.0	41,543.0	40,297.0
3	322,087.0	27,645.0	29,097.0	22,382.0	22,295.0	25,706.0	30,092.0	21,988.0	21,948.0	3,166.0	34,706.0	43,492.0	39,570.0
4	326,275.0	34,763.0	30,365.0	24,150.0	21,262.0	26,800.0	25,913.0	20,138.0	20,788.0	2,908.0	37,916.0	39,798.0	41,474.0
5	291,459.0	27,487.0	36,049.0	21,813.0	22,039.0	26,780.0	32,242.0	22,354.0	21,890.0	2,025.0	39,384.0	39,396.0	0.0
6	333,313.0	27,214.0	31,675.0	24,783.0	23,372.0	30,067.0	24,211.0	21,448.0	20,238.0	4,041.0	40,016.0	42,336.0	43,912.0
7	308,454.0	30,276.0	34,560.0	24,521.0	21,567.0	30,565.0	22,520.0	20,140.0	0.0	3,516.0	30,574.0	41,631.0	48,584.0
8	296,081.0	30,419.0	29,940.0	21,448.0	25,172.0	28,672.0	24,303.0	20,014.0	25,489.0	3,718.0	40,593.0	46,313.0	0.0
9	297,762.0	29,501.0	33,265.0	27,247.0	27,028.0	31,610.0	24,000.0	21,620.0	21,015.0	2,231.0	36,689.0	43,556.0	0.0
10	365,991.0	32,330.0	33,042.0	27,566.0	26,403.0	29,610.0	30,772.0	19,278.0	20,474.0	3,095.0	48,611.0	42,390.0	52,420.0
11	325,686.0	36,546.0	24,899.0	27,214.0	25,981.0	25,814.0	23,454.0	18,866.0	20,132.0	3,510.0	35,612.0	41,164.0	42,494.0
12	315,999.0	34,670.0	29,717.0	26,390.0	27,092.0	0.0	28,674.0	21,475.0	19,586.0	1,998.0	41,315.0	40,694.0	44,388.0
13	328,795.0	34,824.0	33,527.0	0.0	28,386.0	41,785.0	23,116.0	18,729.0	22,583.0	3,682.0	40,557.0	40,279.0	41,327.0
14	362,789.0	35,435.0	27,597.0	38,342.0	28,451.0	28,112.0	28,948.0	18,138.0	21,419.0	3,381.0	44,164.0	39,621.0	49,181.0
15	348,243.0	30,592.0	31,506.0	25,581.0	24,982.0	33,872.0	27,924.0	19,391.0	23,471.0	4,691.0	39,390.0	38,598.0	48,245.0
16	335,740.0	38,118.0	34,789.0	0.0	28,617.0	30,104.0	27,414.0	19,763.0	19,157.0	7,961.0	40,519.0	38,937.0	50,361.0
17	340,313.0	41,783.0	14,581.0	22,053.0	30,322.0	31,438.0	26,936.0	21,890.0	20,511.0	9,371.0	41,712.0	37,250.0	42,466.0
18	315,508.0	38,131.0	33,897.0	30,598.0	23,384.0	32,300.0	22,829.0	20,013.0	21,224.0	12,836.0	41,287.0	39,009.0	0.0
19	357,506.0	32,216.0	32,306.0	24,014.0	31,754.0	32,642.0	21,252.0	18,977.0	22,964.0	12,209.0	40,174.0	43,559.0	45,439.0
20	353,697.0	26,591.0	30,868.0	28,072.0	26,254.0	30,958.0	18,282.0	21,527.0	21,418.0	15,858.0	40,161.0	41,635.0	52,073.0
21	353,180.0	34,901.0	23,509.0	18,132.0	32,365.0	34,530.0	26,042.0	18,668.0	19,494.0	18,969.0	46,080.0	40,759.0	39,731.0
22	337,862.0	27,690.0	22,895.0	28,944.0	28,915.0	0.0	27,951.0	21,391.0	20,232.0	24,169.0	50,325.0	40,802.0	44,548.0
23	362,342.0	34,384.0	27,614.0	21,488.0	29,128.0	24,660.0	26,582.0	23,275.0	22,759.0	26,836.0	41,470.0	42,367.0	41,779.0
24	391,806.0	22,588.0	33,105.0	23,084.0	38,105.0	33,692.0	25,127.0	20,994.0	23,041.0	36,387.0	48,317.0	45,136.0	42,230.0
25	381,165.0	33,087.0	28,891.0	19,884.0	25,412.0	34,553.0	25,550.0	20,713.0	24,285.0	32,221.0	49,376.0	45,428.0	41,765.0
26	379,737.0	31,715.0	30,148.0	28,304.0	25,407.0	30,522.0	22,398.0	21,224.0	22,478.0	35,392.0	47,277.0	43,451.0	41,421.0
27	346,037.0	34,991.0	27,873.0	21,344.0	23,591.0	28,982.0	0.0	22,931.0	24,104.0	37,247.0	42,407.0	41,592.0	40,975.0
28	364,719.0	29,267.0	30,706.0	24,550.0	0.0	31,448.0	29,937.0	23,461.0	22,524.0	35,898.0	43,619.0	50,161.0	43,148.0
29	331,539.0	32,206.0	0.0	21,458.0	19,349.0	36,901.0	24,467.0	23,757.0	18,695.0	31,616.0	44,563.0	39,883.0	38,644.0
30	322,885.0	29,116.0	0.0	23,365.0	27,677.0	24,420.0	17,098.0	21,307.0	19,677.0	32,694.0	42,631.0	43,388.0	41,512.0
31	183,415.0	26,569.0	0.0	19,116.0	0.0	33,993.0	0.0	20,614.0	0.0	0.0	42,340.0	0.0	40,783.0
TOTAL	10,312,308	966,682	835,310	723,923	758,697	879,399	749,225	645,313	623,080	418,348	1,279,856	1,254,710	1,177,765

The days highlighted represent organic waste processed during the downtime without forced aeration and are eliminated from all baseline calculations:

Total processed 01/01/2010 to 31/12/2010:	10,312 tons	(above table in in kilograms)
Total processed 01/05/2010 to 31/12/2010:	7,027 tons	(above table in in kilograms)
Processed during downtime 01/01/2010 to 25/01/2010:	783 tons	or 125 tons CO_2e

Annex 1.3: Organic waste processed 01/01/2011 until 31/12/2011

In kilograms

Date	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	394,446.0	0.0	30,554.0	43,096.0	39,307.0	43,202.0	39,158.0	36,002.0	39,804.0	0.0	40,149.0	42,341.0	40,833.0
2	436,227.0	38,855.0	34,146.0	40,419.0	37,272.0	39,891.0	40,259.0	41,012.0	42,300.0	1,170.0	43,712.0	40,783.0	36,408.0
3	414,783.0	48,103.0	36,603.0	45,157.0	0.0	44,344.0	42,231.0	42,075.0	44,924.0	1,525.0	44,617.0	30,078.0	35,126.0
4	451,945.0	41,553.0	36,795.0	41,352.0	39,132.0	42,062.0	44,276.0	38,186.0	41,066.0	0.0	44,897.0	43,357.0	39,269.0
5	396,913.0	40,518.0	34,484.0	0.0	37,919.0	44,002.0	45,147.0	29,602.0	40,132.0	1,372.0	42,392.0	40,486.0	40,859.0
6	348,367.0	38,442.0	38,302.0	39,150.0	41,000.0	42,077.0	36,611.0	0.0	39,745.0	1,357.0	40,331.0	0.0	31,352.0
7	443,447.0	41,800.0	31,206.0	44,992.0	40,774.0	40,069.0	45,021.0	39,898.0	38,637.0	1,281.0	45,825.0	45,111.0	28,833.0
8	449,459.0	40,535.0	37,052.0	42,177.0	38,062.0	43,089.0	40,512.0	44,065.0	38,055.0	0.0	48,871.0	47,639.0	29,402.0
9	458,657.0	39,742.0	39,250.0	39,385.0	40,257.0	47,228.0	43,116.0	40,099.0	41,334.0	4,216.0	46,949.0	40,252.0	36,829.0
10	445,237.0	40,249.0	38,065.0	39,263.0	38,197.0	46,608.0	44,040.0	39,640.0	39,833.0	4,503.0	42,453.0	41,864.0	30,522.0
11	477,346.0	42,570.0	40,114.0	39,059.0	40,709.0	45,398.0	42,130.0	40,099.0	39,640.0	28,018.0	43,145.0	44,123.0	32,341.0
12	470,795.0	43,701.0	36,616.0	43,213.0	41,603.0	41,050.0	40,445.0	38,581.0	41,039.0	20,637.0	46,138.0	48,627.0	29,145.0
13	467,413.0	39,645.0	38,392.0	44,888.0	41,175.0	42,458.0	45,980.0	37,815.0	38,472.0	29,286.0	43,189.0	41,045.0	25,068.0
14	493,368.0	40,002.0	40,960.0	39,441.0	40,282.0	45,367.0	45,206.0	40,216.0	36,811.0	31,672.0	48,069.0	51,025.0	34,317.0
15	470,881.0	41,274.0	37,691.0	37,424.0	38,838.0	39,079.0	47,019.0	39,242.0	35,352.0	35,845.0	43,688.0	39,202.0	36,227.0
16	459,861.0	40,516.0	40,216.0	46,309.0	37,614.0	43,070.0	41,173.0	0.0	36,319.0	37,010.0	49,938.0	46,154.0	41,542.0
17	493,777.0	49,216.0	43,060.0	46,054.0	40,167.0	43,098.0	39,198.0	43,998.0	35,139.0	40,609.0	41,290.0	43,815.0	28,133.0
18	497,314.0	38,387.0	37,774.0	45,067.0	40,229.0	44,155.0	44,779.0	38,431.0	36,940.0	40,346.0	45,365.0	45,195.0	40,646.0
19	480,024.0	39,636.0	43,940.0	34,183.0	41,249.0	42,304.0	46,034.0	40,732.0	29,437.0	43,158.0	44,446.0	39,405.0	35,500.0
20	489,781.0	38,025.0	42,172.0	40,575.0	39,285.0	45,060.0	41,225.0	40,510.0	31,288.0	41,886.0	45,512.0	45,736.0	38,507.0
21	466,048.0	41,295.0	46,549.0	41,468.0	40,158.0	44,755.0	35,758.0	41,937.0	0.0	39,470.0	50,562.0	44,215.0	39,881.0
22	495,014.0	38,410.0	42,458.0	43,525.0	41,129.0	45,583.0	40,050.0	42,183.0	26,461.0	40,557.0	49,227.0	45,270.0	40,161.0
23	464,790.0	40,157.0	38,992.0	40,176.0	42,508.0	44,201.0	42,126.0	41,906.0	0.0	44,152.0	45,845.0	42,132.0	42,595.0
24	453,351.0	39,327.0	42,050.0	39,055.0	42,373.0	44,026.0	42,895.0	40,105.0	0.0	40,675.0	40,230.0	42,325.0	40,290.0
25	470,874.0	41,214.0	44,330.0	38,016.0	43,054.0	42,597.0	41,463.0	42,277.0	0.0	46,145.0	44,733.0	47,788.0	39,257.0
26	469,105.0	39,216.0	43,067.0	39,658.0	44,915.0	44,255.0	39,096.0	39,822.0	0.0	47,009.0	47,423.0	46,203.0	38,441.0
27	452,021.0	42,325.0	42,072.0	37,860.0	42,100.0	40,608.0	37,956.0	40,101.0	0.0	47,354.0	39,837.0	43,667.0	38,141.0
28	466,909.0	39,073.0	39,797.0	40,188.0	43,220.0	45,236.0	43,081.0	44,197.0	0.0	50,247.0	38,077.0	42,438.0	41,355.0
29	428,244.0	36,842.0	0.0	41,348.0	44,238.0	45,430.0	39,648.0	43,990.0	0.0	42,139.0	47,168.0	47,371.0	40,070.0
30	420,135.0	39,345.0	0.0	36,724.0	42,192.0	43,310.0	41,505.0	45,836.0	0.0	45,042.0	45,280.0	42,244.0	38,657.0
31	235,119.0	38,073.0	0.0	37,156.0	0.0	38,112.0	0.0	40,262.0	0.0	0.0	45,757.0	0.0	35,759.0
TOTAL	13,861,651	1,218,046	1,096,707	1,226,378	1,178,958	1,341,724	1,257,138	1,172,819	792,728	806,681	1,385,115	1,259,891	1,125,466

No waste processing during the peak of Ramadan in August (the vast majority of waste separators are Muslim migrant workers from Java).

Annex 2: Percentage of waste types

Organic waste for composting:

Sampling Year	Sampling Month	Sample Size kg		A. Wood, wood products	B. Pulp, paper cardboard	C. Food, food waste, tobaco, beverages	D. Textiles	E. Garden, yard park waste	Total organic waste

Waste types in percent of total organic waste for 2010

2010	January	200*	kg	6.8	5.4	6.2	0	181.6	200.0
2010	April	200**	kg	9.5	9.6	7.7	0	173.2	200.0
2010	July	200	kg	9.7	8.5	27.1	1.0	153.7	200.0
2010	October	200	kg	10.9	10.4	24.8	0.0	153.9	200.0
			kg	36.9	33.9	65.8	1.0	662.4	800.0
Total	2010		%	**4.613%**	**4.237%**	**8.225%**	**0.125%**	**82.800%**	**100.000%**

* extrapolated from 178.4 kg to have same sample size (21.6 kg was residue)

** extrapolated from 173.4 kg to have same sample size (26.6 kg was residue)

Waste types in percent of total organic waste for 2011

2011	January	200	kg	5.4	7.9	12.7	0.0	174.0	200
2011	April	200	kg	4.5	6.5	14.3	0.0	174.8	200
2011	July	200	kg	15.0	10.5	26.0	0.0	148.5	200
2011	October	200	kg	12.5	7.0	20.0	2.5	158.0	200
			kg	37.4	31.9	72.95	2.5	655.25	800
Total	2011		%	**4.675%**	**3.987%**	**9.119%**	**0.313%**	**81.906%**	**100.000%**

Annex 3.1: ER Worksheet for 2009

Parameter	Variable	Unit	Value
Project commissioning year		y	2008
Waste deposition per year		t / y	14,875
Waste deposition days per year		d	350
Deposition trend			0%
Midpoint year			1
Landfill closure (in years)			30
Waste conditions			wet
Regional climatic conditions			tropical
Regional precipitation conditions			wet
Model correction parameter for uncertainties	Phi		0.9
Fraction of methane captured in the baseline	f		0.0
Global warming Potential CH4	GWPCH4		21
Oxidation factor	OX		0.0
Fraction of methane in LFG	F		0.5
Fraction of degradable organic carbon	DOCf		0.5
Mass ratio CH4:C	16/12		1.33
Methane correction factor	MCF		0.8

Determination of DOCj and kj depending on input parameters. Do not edit this table!

Waste stream				Degradable organic carbon DOCj (fraction)		Decay rate kj boreal / temperate climate		Decay rate kj tropical climate		Applied Parameters		Methane generation potential	
				wet waste	dry waste	dry	wet	dry	wet	DOCj	kj	t CH4 / t waste	t CO2e / t waste
Wood and wood products	A	%	5.051%	0.43	0.50	0.020	0.030	0.025	0.035	0.43	0.035	0.103	2.167
Pulp, paper and cardboard	B	%	5.756%	0.40	0.44	0.040	0.060	0.045	0.070	0.40	0.070	0.096	2.016
Food, food waste, beverages and tobacco	C	%	7.416%	0.15	0.38	0.060	0.185	0.085	0.400	0.15	0.400	0.036	0.756
Textiles	D	%	0.000%	0.24	0.30	0.040	0.060	0.045	0.070	0.24	0.070	0.058	1.210
Garden, yard and park waste	E	%	81.777%	0.20	0.49	0.050	0.100	0.065	0.170	0.20	0.170	0.048	1.008
Glass, plastic, metal other inert	F	%	0.000%	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000
Total		%	100.000%										

Calculations

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Deposition trend:		0.0%	50.615%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Year		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Waste deposition														
Wood and wood products	t / year	0.00	380.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pulp, paper and cardboard	t / year	0.00	433.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, food waste, beverages and tobacco	t / year	0.00	558.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textiles	t / year	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Garden, yard and park waste	t / year	0.00	6,156.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste deposition total	t / year	0.00	7,528.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste deposition (cumulative)	t	0.00	7,528.98	7,528.98	7,528.98	7,528.98	7,528.98	7,528.98	7,528.98	7,528.98	7,528.98	7,528.98	7,528.98	7,528.98
Methane emissions														
Wood and wood products	t CO2e/yr	0	28	27	26	26	25	24	23	22	21	21	20	19
Pulp, paper and cardboard	t CO2e/yr	0	59	55	51	48	45	42	39	36	34	31	29	27
Food, food waste, beverages and tobacco	t CO2e/yr	0	139	93	63	42	28	19	13	8	6	4	3	2
Textiles	t CO2e/yr	0	0	0	0	0	0	0	0	0	0	0	0	0
Garden, yard and park waste	t CO2e/yr	0	970	819	691	583	492	415	350	295	249	210	177	150
Methane emissions total	t CO2e/yr	0	1,197	994	831	698	589	499	424	362	310	266	229	198

Annex 3.2: ER Worksheet for 2010

Parameter	Variable	Unit	Value
Project commissioning year		y	2008
Waste deposition per year		t / y	14,875
Waste deposition days per year		d	350
Deposition trend			0%
Midpoint year			1
Landfill closure (in years)			30
Waste conditions			wet
Regional climatic conditions			tropical
Regional precipitation conditions			wet
Model correction parameter for uncertainties	Phi		0.9
Fraction of methane captured in the baseline	f		0.0
Global warming Potential CH4	GWPCH4		21
Oxidation factor	OX		0.0
Fraction of methane in LFG	F		0.5
Fraction of degradable organic carbon	DOCf		0.5
Mass ratio CH4:C	16/12		1.33
Methane correction factor	MCF		0.8

Determination of DOCj and kj depending on input parameters. Do not edit this table!

Waste stream				Degradable organic carbon DOCj (fraction)		Decay rate kj				Applied Parameters		Methane generation potential	
						boreal / temperate climate		tropical climate				t CH4 / t	t CO2e / t
				wet waste	dry waste	dry	wet	dry	wet	DOCj	kj	waste	waste
Wood and wood products	A	%	4.613%	0.43	0.50	0.020	0.030	0.025	0.035	0.43	0.035	0.103	2.167
Pulp, paper and cardboard	B	%	4.237%	0.40	0.44	0.040	0.060	0.045	0.070	0.40	0.070	0.096	2.016
Food, food waste, beverages and tobacco	C	%	8.225%	0.15	0.38	0.060	0.185	0.085	0.400	0.15	0.400	0.036	0.756
Textiles	D	%	0.125%	0.24	0.30	0.040	0.060	0.045	0.070	0.24	0.070	0.058	1.210
Garden, yard and park waste	E	%	82.800%	0.20	0.49	0.050	0.100	0.065	0.170	0.20	0.170	0.048	1.008
Glass, plastic, metal other inert	F	%	0.000%	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000
Total		%	100.000%										

Calculations

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Deposition trend:		0.0%	0.0%	69.324%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Year		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Waste deposition														
Wood and wood products	t / year	0.00	0.00	475.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pulp, paper and cardboard	t / year	0.00	0.00	436.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, food waste, beverages and tobacco	t / year	0.00	0.00	848.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textiles	t / year	0.00	0.00	12.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Garden, yard and park waste	t / year	0.00	0.00	8,538.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste deposition total	t / year	0.00	0.00	10,311.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste deposition (cumulative)	t	0.00	0.00	10,311.95	10,311.95	10,311.95	10,311.95	10,311.95	10,311.95	10,311.95	10,311.95	10,311.95	10,311.95	10,311.95
Methane emissions														
Wood and wood products	t CO2e/yr	0	0	35	34	33	32	31	30	29	28	27	26	25
Pulp, paper and cardboard	t CO2e/yr	0	0	60	56	52	48	45	42	39	36	34	32	30
Food, food waste, beverages and tobacco	t CO2e/yr	0	0	211	142	95	64	43	29	19	13	9	6	4
Textiles	t CO2e/yr	0	0	1	1	1	1	1	1	1	1	1	1	1
Garden, yard and park waste	t CO2e/yr	0	0	1,346	1,135	958	808	682	575	485	409	345	291	246
Methane emissions total	t CO2e/yr	0	0	1,653	1,368	1,138	953	801	676	573	487	415	355	305

Annex 3.3: ER Worksheet for 2011

Parameter	Variable	Unit	Value
Project commissioning year		y	2008
Waste deposition per year		t / y	14,875
Waste deposition days per year		d	350
Deposition trend			0%
Midpoint year			1
Landfill closure (in years)			30
Waste conditions			wet
Regional climatic conditions			tropical
Regional precipitation conditions			wet
Model correction parameter for uncertainties	Phi		0.9
Fraction of methane captured in the baseline	f		0.0
Global warming Potential CH4	GWPCH4		21
Oxidation factor	OX		0.0
Fraction of methane in LFG	F		0.5
Fraction of degradable organic carbon	DOCf		0.5
Mass ratio CH4:C	16/12		1.33
Methane correction factor	MCF		0.8

Determination of DOCj and kj depending on input parameters. Do not edit this table!

Waste stream				Degradable organic carbon DOCj (fraction)		Decay rate kj boreal / temperate climate		Decay rate kj tropical climate		Applied Parameters		Methane generation potential	
				wet waste	dry waste	dry	wet	dry	wet	DOCj	kj	t CH4 / t waste	t CO2e / t waste
Wood and wood products	A	%	4.675%	0.43	0.50	0.020	0.030	0.025	0.035	0.43	0.035	0.103	2.167
Pulp, paper and cardboard	B	%	3.987%	0.40	0.44	0.040	0.060	0.045	0.070	0.40	0.070	0.096	2.016
Food, food waste, beverages and tobacco	C	%	9.119%	0.15	0.38	0.060	0.185	0.085	0.400	0.15	0.400	0.036	0.756
Textiles	D	%	0.313%	0.24	0.30	0.040	0.060	0.045	0.070	0.24	0.070	0.058	1.210
Garden, yard and park waste	E	%	81.906%	0.20	0.49	0.050	0.100	0.065	0.170	0.20	0.170	0.048	1.008
Glass, plastic, metal other inert	F	%	0.0%	0.00	0.00	0.000	0.000	0.000	0.000	0.00	0.000	0.000	0.000
Total		%	100.0%										

Calculations

		2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Deposition trend:		0%	0%	0%	93.183%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Year		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Waste deposition														
Wood and wood products	t / year	0.00	0.00	0.00	648.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pulp, paper and cardboard	t / year	0.00	0.00	0.00	552.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food, food waste, beverages and tobacco	t / year	0.00	0.00	0.00	1,263.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Textiles	t / year	0.00	0.00	0.00	43.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Garden, yard and park waste	t / year	0.00	0.00	0.00	11,353.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste deposition total	t / year	0.00	0.00	0.00	13,860.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Waste deposition (cumulative)	t	0.00	0.00	0.00	13,860.93	13,860.93	13,860.93	13,860.93	13,860.93	13,860.93	13,860.93	13,860.93	13,860.93	13,860.93
Methane emissions														
Wood and wood products	t CO2e/yr	0	0	0	48	47	45	43	42	41	39	38	37	35
Pulp, paper and cardboard	t CO2e/yr	0	0	0	75	70	65	61	57	53	49	46	43	40
Food, food waste, beverages and tobacco	t CO2e/yr	0	0	0	315	211	142	95	64	43	29	19	13	9
Textiles	t CO2e/yr	0	0	0	4	3	3	3	3	2	2	2	2	2
Garden, yard and park waste	t CO2e/yr	0	0	0	1,789	1,509	1,273	1,074	906	765	645	544	459	387
Methane emissions total	t CO2e/yr	0	0	0	2,231	1,841	1,529	1,277	1,072	903	765	650	554	473

Annex 4: Calculation of baseline emission (based on ER worksheets in Annex 3.1. to 3.3.)

Table A: Inputs for the ER worksheets (white cells row 30 and 20 to 25)

Year	Processed (Annex 1)	Percent of 14,875	Percent Waste Type (Annex 2) A	B	C	D	E	A to E
2008	1,490	10.017%	5.051	5.756	7.416	0.000	81.777	100.000
2009	7,529	50.615%	5.051	5.756	7.416	0.000	81.777	100.000
2010	10,312	69.324%	4.613	4.237	8.225	0.125	82.800	100.000
2011	13,861	93.183%	4.675	3.987	9.119	0.313	81.906	100.000
2012		0.000%						0.000
2013		0.000%						0.000
2014		0.000%						0.000
2015		0.000%						0.000
2016		0.000%						0.000
2017		0.000%						0.000
2018		0.000%						0.000

Table B: Results from the ER worksheets (white cells row 46)

2008 CO_2e	2009 CO_2e	2010 CO_2e	2011 CO_2e	2012 CO_2e	2013 CO_2e	2014 CO_2e	2015 CO_2e	2016 CO_2e	2017 CO_2e	2018 CO_2e
236.9	196.8	164.4	138.1	116.6	98.7	84.0	71.6	61.3	52.7	45.3
	1196.8	994.3	830.9	697.9	588.9	499.0	424.3	362.0	309.9	266.0
		1653.0	1367.6	1138.4	952.7	801.0	676.2	572.9	487.1	415.4
			2231.3	1840.7	1528.6	1276.6	1071.6	903.4	764.7	649.6

Table C: Summary (tons CO_2e)

Total CO_2e from the processing year (rounded)	237	1,197	1,653	2,231	0	0	0	0	0	0	0
Total CO_2e from the years following processing (rounded)		197	1,159	2,337	3,794	3,169	2,661	2,244	1,900	1,614	1,376
Total CO_2e per year	**237**	**1,394**	**2,812**	**4,568**	3,794	3,169	2,661	2,244	1,900	1,614	1,376
Total cumulative CO_2e	237	1,630	4,442	9,010	12,804	15,973	18,633	20,877	22,777	24,391	25,767

= Cells to be filled into ER worksheets for each year (other years = 0).

= Values from ER worksheets for each processing year.

These values must be inserted for each year individually (other years = 0) into the ER worksheet that is downloadable from the project's CDM website: http://cdm.unfccc.int/UserManagement/FileStorage/7OXD4P48Q7CKOWOQAU9CK89E4H4T5V (See sheet FOD Model Input & Output)
Inserting these values into the ER worksheets does results in the grey and yellow highlighted values in above tables

Table D: Correction for downtimes in 2009 and 2010

In 2009 and 2010 blower downtimes occurred. It was then decided to deduct the CO_2e resulting from the tons of organic waste processed during the downtime from the CO2e of the baseline calculation of each year, but not for the subsequent years. The elimination of the 36 days from the baseline calculation in 2010 significantly over-compensated the actual impact of the downtime. See Section B.1.2. for justification of this simplified type of correction.

Year	2009	2010
Processed during downtime from Annex 1.1. and 1.2. (tons waste)	342	783
CO_2e per ton organic waste (=1,653:10,312)*	0.16	0.16
Deduction for downtime (tons CO_2e)	55	126

* For year 2010 in above table it can be taken that 10,312 tons of organic waste generate 1,653 tons of CO_2e in the first year, i.e. 1 ton organic waste generates 0.16 ton CO_2e.

Calculation of corrected baseline emission:

Year	2008	2009	2010	2011
CO_2e from the processing year (rounded)	237	1,197	1,653	2,231
CO_2e from the years following processing (rounded)	0	197	1,159	2,337
Deduction for downtime (rounded)		55	126	
Total baseline emissions in CO_2e per year (for Table 27)	**237**	**1,339**	**2,686**	**4,568**

The values for 2008 and 2009 correspond with the 1st MR

Annex 5: Summary of project energy consumption and project emissions

Table 1: Summary of Project Energy Consumption (from Files "Energy 2010 and 2011")

Month	Year	Facility Electric Consumption (kWh)	Equipment Diesel Consumption in liters	Truck Diesel Consumption in liters	Facility Gasoline Consumtion in liters
May	2010	923	89	760	-
June	2010	1,325	67	1,180	-
July	2010	2,036	98	477	-
August	2010	2,000	111	440	-
September	2010	1,886	122	420	-
October	2010	1,746	67	900	-
November	2010	2,320	89	780	-
December	2010	2,279	89	940	-
Total May to December 2010		14,515	731	5,897	-
January	2011	1,990	117	740	-
February	2011	2,312	200	700	-
March	2011	2,005	78	600	-
April	2011	2,199	111	860	-
May	2011	2,032	178	820	-
June	2011	1,567	133	1,160	26
July	2011	2,440	111	660	18
August	2011	2,314	155	980	52
September	2011	2,168	167	1,200	87
October	2011	2,814	150	1,400	53
November	2011	2,802	189	1,060	53
December	2011	2,108	244	1,080	37
Total 2011		26,751	1,832	11,260	325
Subtotal Monitoring Period		41,266	2,563	17,157	325
Transfer of insignificant gasoline				325	-325
Total Monitoring Period		**41,266**	**2,563**	**17,482**	**0**

Note: The facility gasoline consumption using the diesel formula generate only insignificalt 1.4 CO_2e, and is therefore added to the diesel on-site diesel consumption.

Table 2: Summary of Project Emission PE

Emissions in CO_2e	Source	01/05/2010 to 31/12/2010	01/01/2011 to 31/12/2011	Total CO_2e
Facility power (PE_{power})	Table 28/29	10.57	19.47	30.04
Total diesel (PE_{diesel})	Table 30/31	17.66	35.74	53.40
Transport diesel ($PE_{transport}$)	Table 32/33	0.63	2.50	3.13
Total PE Project	Table 34	28.86	57.71	86.57
Calculation basis:				
Compost sold, kg	Annex 6	189.05	745.13	934.18
Facility power, kWh	Table 1 above	14,515.00	26,751.00	41,266.00
Total diesel, liter (incl. gasoline)	Table 1 above	6,627.60	13,416.90	20,044.50

Annex 6: Calculation of transport emissions

- Based on Sales Statistic
- Rounding may cause minor differences

			May 2010 to Dec 2010	Jan 2011 to Dec 2011	Total
1. Compost Delivery by Facility					
20 kg Bags:	Number of 20 kg bags sold	units	1,304	4,536	5,840
	Weight of 20 kg bags sold	tons	26.1	90.7	116.8
Bulk:	Weight of Bulk sold	tons	9.6	4.8	14.4
Total compost sold and delivered by facility		**tons**	**35.7**	**95.5**	**131.2**
Deliveries by facility		**trips**	**29**	**70**	**99**
2. Compost Pickup by Customers					
20 kg Bags:	Number of 20 kg bags sold	units	1,045	4,474	5,519
	Weight of 20 kg bags sold	tons	20.9	89.5	110.4
Bulk:	Weight of Bulk sold	tons	127.8	559.8	687.6
Total compos sold to customers		tons	148.7	649.3	798.0
Sold to BioTek (processed on-site)		tons	33.7	537.8	571.5
Total compost sold and picked up from facilit		**tons**	**115.0**	**111.5**	**226.5**
Number of sales		trips	85	115	200
Used on-site by BioTek		trips	6	14	20
Pick ups from facility		**trips**	**79**	**101**	**180**
3. Data used in Tables 32 and 33					
Total compost sold = Q_{comp} (for use in Table 21)		**tons**	**184.4**	**744.8**	**929.2**
Share of compost picked up = S_{comp} (for use in Table 22)		**ratio**		(= 226.5 : 929.2)	**0.244**
Average weight per pickup = CT_{comp} (for use in Table 23)		**tons**		(= 226.5 : 180)	**1.26**

Annex 7: Calibration summary for weighing scales and kW-meter

Weighing scales, calibrated according to Operating Procedure OP 22
Calibration frequency: annually for weighing scales, 10 years for kW-Meter

Brand and model	Type	Specification	Serial No.	Calibration dates	Calibrated by
AND AD 4406	digital	1000 kg / 0.2 kg	P3507372	27 March 2008	Balai Metrologi, Jakarta
				10 June 2008	UPT Metrologi, Bali
				18 February 2009	UPT Metrologi, Bali
				17 February 2010	UPT Metrologi, Bali
				10 February 2011	UPT Metrologi, Bali
Pertis sentisimal	analog	300 kg / 0.1 kg	B 040784	21 July 2009	UPT Metrologi, Bali
				17 February 2010	UPT Metrologi, Bali
				10 February 2011	UPT Metrologi, Bali
Pertis sentisimal	analog	300 kg / 0.1 kg	B.U 70494	21 July 2009	UPT Metrologi, Bali
				17 February 2010	UPT Metrologi, Bali
				10 February 2011	UPT Metrologi, Bali
Ohaus Scout	digital	200 g / 10 mg	7129350044	3 September 2010	UPT Metrologi, Bali
				Not used for CDM	
Metbelosa	OQ93L (kW-Meter)	3 Phase 40 kW	4523019	30 September 2010	UPT Metrologi, Bali
				Recalibration due 2018	

The 1000 kg digital scale was used for weighing organic waste until mid-2009, when it was deemed that smaller analog scales were more practical

Annex 8: Index of the Operating Procedures of the Quality System

Section	Topic
Quality System Related Operating Procedures	
OP 01	Index
OP 02	empty
OP 03	Document Control
OP 04	Procedure Writing
OP 05	Management Review
OP 06	Internal Quality Audits
OP 07	Quality Record Storage
OP 08	Computer Security
Production Related Operating Procedures	
OP 09	Waste Separation
OP 10	Weight Control
OP 11	Raw Compost Production
OP 12	Finished Compost Production
OP 13	Speciality Compost Production
OP 14	Sieving of Compost
OP 15	Product Identification
OP 16	Compost Storage
OP 17	Compost Production Monitoring
OP 18	Compost Quality Control
OP 19	Packaging and Delivery
OP 20	empty
OP 21	Maintenance
OP 22	Calibrated Equipment
OP 23	Staff Training
OP 24	Staff Safety
OP 25	Staff Health
OP 26	Environmental Control
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OP 28	Quality Alerts
OP 29	empty
Sales Related Operating Procedures	
OP 30	Sales Control
OP 31	Customer Support
OP 32	Customer Complaints
OP 33	Administration and Accounting
OP 34	empty
CDM Related Operating Procedures	
OP 35	CDM Monitoring Management
OP 36	CDM Monitoring Process
OP 37	CDM Data Recording and Storage
OP 38	CDM Quality Control Procedures
OP 39	CDM Report Compilation and Verification