

**SMALL-SCALE CDM PROGRAMME ACTIVITY DESIGN DOCUMENT FORM
(CDM-SSC-CPA-DD) - Version 01**

NAME /TITLE OF THE PoA:

Public Utility Jeepney Engine Modernization Program in Metro Manila

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

- A. General description of CDM programme activity (CPA)
- B. Eligibility of CPA and Estimation of Emission Reductions
- C. Environmental Analysis
- D. Stakeholder comments

AnnexesAnnex 1: Contact information on entity/individual responsible for the CPA

Annex 2: Information regarding public funding

Annex 3: Baseline information

Annex 4: Monitoring plan

NOTE:

(i) This form is for submission of CPAs that apply a small scale approved methodology using the 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

¹ The latest version of the template form CDM-CPA-DD is available on the UNFCCC CDM web site in the reference/document section.

² 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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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.

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SECTION A. General description of small scale CDM programme activity (CPA)**A.1. Title of the small-scale CPA:**

Public Utility Jeepney engine modernization program in Metro Manila

Version: 01

Date: 01/03/2008

A.2. Description of the small-scale CPA:

The purpose of the small-scale CPA engine exchange is to improve the efficiency of jeepneys operating in Metro Manila.

In the CPA, second-hand engines used in currently operating jeepney units will be traded for brand new engines. The new engines have a higher efficiency and deliver around twice the mileage of the old engines. Better efficiency means less fuel is consumed in providing the same amount of service, less fuel consumption leads to reduced greenhouse gas emissions.

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

In this program, a group of associations or transport cooperative will be a unit of each CPA. Within CPA, an individual will be assigned to be “CPA Implementer”. The CPA Implementer will collaborate with a coordinating entity of PoA for implementation of the program and monitoring.

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

This project comprises of:

1. Provide soft loans for provision of brand new engines
2. Replacement of engines by engine manufacturer(s)
3. Provision of technical training for check-up and maintenance of brand new engines by engine manufacture(s)
4. Periodical check-up and maintenance by end users

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

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Engine exchange for public utility jeepneys in Metro Manila

A.4.1.1. Host Party:

Republic of the Philippines

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

The CPA will be implemented in Metro Manila.

A.4.2. Duration of the small-scale CPA:**A.4.2.1. Starting date of the small-scale CPA:**

N/A

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

10 years

This is a recommended operational life time of new engine by the manufacture. The CPA will be excluded from the PoA once this operational life time expires.

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

Fixed crediting period;

A.4.3.1. Starting date of the crediting period:

Date of registration of respective CPA

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

10 years

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

Years	Annual estimation of emission reductions in tonnes of CO₂(tCO₂e)
Year 1	
Year 2	
Year 3	
Year 4	
Year 5	
Year 6	
Year 7	
Year 8	
Year 9	
Year 10	
Total estimated reductions (tonnes of CO₂e)	
Total number of crediting years	
Annual average over the crediting period of estimated reductions (tonnes of CO₂e)	

A.4.5. Public funding of the CPA:

Public funding is considered for the registered PoA. The DENR is now under negotiation with international financial institution for this purpose.

However, there is no public funding is considered for the CPA.

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

1. For the purposes of registration of a Programme of Activities (PoA)³ 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 activity⁴, which:

³ 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

⁴ 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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- (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;
 - (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.

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

The small-scale CPA is not registered as an individual CDM project activity. It is neither a part of another registered PoA.

SECTION B. Eligibility of small-scale CPA and Estimation of emissions reductions**B.1. Title and reference of the Registered PoA to which small-scale CPA is added:**

Engine exchange for public utility jeepneys in Metro Manila

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

- The proposed CPA has access to financing channels of the Jeepney Engine Exchange Program.
- The proposed CPA is within the Philippines
- The selected end-users of the proposed CPA operate within Metro Manila only.

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

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Future SSC-CPAs should demonstrate additionality based on the following criteria:

- Flexibility or innovativeness of financial mechanisms being used in order to expand the reach and implementation of the jeepney engine exchange program;
- The use of CDM revenues will be used to subsidize the cost of equipment maintenance.

The above two criteria shall be applied in the following way:

- An explanation of the financing mechanisms available to jeepney owners and the role of the CDM,
- Demonstration that CDM revenues (whole or in part) play a role in helping to expand the program

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

The CPA reduces CO₂ emissions by decreasing diesel consumption by public utility jeepneys. The jeepneys in this CPA operate in routes within Metro Manila which is the geographical boundary of the registered PoA. No point along the route goes outside the boundaries.

B.5. Emission reductions:

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

Data / Parameter:	ρ
Data unit:	kg _{fuel} /liter
Description:	Fuel density
Source of data used:	Default data for diesel
Value applied:	0.85
Justification of the choice of data or description of measurement methods and procedures actually applied :	No country specific data is available
Any comment:	-

Data / Parameter: **V_{fuel-base}**

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Data unit:	li/day
Description:	Volume of fuel consumed per day
Source of data used:	Survey data by University of the Philippines. National Center for Transportation Studies Foundation Inc.
Value applied:	20.0li/day
Justification of the choice of data or description of measurement methods and procedures actually applied :	-
Any comment:	-

Data / Parameter:	CF
Data unit:	TJ/10 ³ ton
Description:	Conversion Factor (43TJ/10 ³ ton)
Source of data used:	2006 IPCC Guidelines for National Greenhouse Gas Inventories Vol2 Tab1.2
Value applied:	43.0 TJ/10 ³ ton
Justification of the choice of data or description of measurement methods and procedures actually applied :	-
Any comment:	

Data / Parameter:	Carbon Content
Data unit:	tC/TJ
Description:	Carbon content
Source of data used:	IPCC 2006 default data for gasoline table 1.3
Value applied:	20.2
Justification of the choice of data or description of measurement methods and procedures actually applied :	
Any comment:	

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Data / Parameter:	Carbon Content
Data unit:	tC/TJ
Description:	Carbon content
Source of data used:	IPCC 2006 default data for gasoline table 1.3
Value applied:	20.2
Justification of the choice of data or description of measurement methods and procedures actually applied :	
Any comment:	-

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

The calculation of emission reductions will be based on the CDM small scale baseline methodology SSC_149 “Transport Energy Efficiency Activities using Retrofit Technologies”⁵.

The basic formula used to calculate emission reduction through the replacement of existing engines is the following:

$$ER = BE - PE - Leakage$$

Where

- ER = total emissions reductions in tCO₂e/yr
- BE = baseline emissions in tCO₂e/yr
- PE = project emissions in tCO₂e/yr

Baseline Emission

Step 1. Estimating apparent fuel consumption at a common energy unit (TJ)

⁵ The proposed new SSC methodology was discussed at the 14th SSC Working Group held in Feb. 11-13, 2008. The methodology received several comments and has not been approved as of March 20, 2008. However, as of now, this particular methodology is the most suited to the proposed PoA and CPA. The author of this PDD will closely watch the next discussion at the next SSC Working Group meeting and make necessary adjustment to complete this PDD.

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$$FC_{base} = mfuel * CF \quad (1)$$

Where

FC_{base} Baseline energy consumption of retrofit vehicle per year (TJ / year)
 CF Conversion Factor of fuel (TJ/103ton)
 $mfuel$ Annual consumed fuel mass (tons/year)

$$mfuel = vfuel * \rho * T * 1ton/1000kg \quad (2)$$

Where

$mfuel$ Annual consumed fuel mass (tons/year)
 $vfuel$ Volume of fuel consumed per day (li/hour)
 T number of operational hours in a year (hours/yr)
 ρ Fuel Density (kgfuel/liter)

Step 2. Multiply energy consumption by carbon emission factor to calculate carbon content.
Carbon content = FC_{base} (TJ/year) * CEF (tC/TJ) (3)

CC Carbon conten of fossil fuel used (tC/TJ)

Step 3. Converting to CO2 emissions

$$BE_y = carbon\ content * mole\ ratio * N \quad (4)$$

Where

BE_y baseline emissions on year y
 Carbon content carbon content of fuel consumed per year
 Mole ratio mole ratio of carbon to carbon dioxide (44/12)
 N number of retrofit vehicles

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

Year	Estimation of project activity emissions (tonnes of CO2 e)	Estimation of baseline emissions (tonnes of CO2 e)	Estimation of leakage (tonnes of CO2 e)	Estimation of overall emission reductions (tonnes of CO2 e)
2008				

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2009				
2010				
2011				
2012				
2013				
2014				
2015				
2016				
2017				
Total (tonnes of CO ₂ e)				

B.6. Application of the monitoring methodology and description of the monitoring plan:**B.6.1. Description of the monitoring plan:**

The following are outline of monitoring plan based on the CDM small scale monitoring methodology SSC_149 “Transport Energy Efficiency Activities using Retrofit Technologies”⁶. The monitoring will be conducted for those items described in Section E.7.1. of the SSC-PoA-DD.

- (i) Monitoring shall track the number of retrofit vehicles operated under the small-scale CDM project activity and the annual units of service for a sample of the vehicles.
 - ✧ The CPA implementer to account the number of Jeepney units in operation that will be included in the CPA prior to the project implementation.
 - ✧ The CPA implementer to monitor the number of Jeepney units with new engines.
- (ii) The quantity of fossil fuel consumed should be monitored for a sample retrofit vehicles.
 - ✧ The CPA implementer should correct fuel purchase receipt by individual Jeepney units with new engines.

⁶ The proposed new SSC methodology was discussed at the 14th SSC Working Group held in Feb. 11-13, 2008. The methodology received several comments and has not been approved as of March 20, 2008. However, as of now, this particular methodology is the most suited to the proposed PoA and CPA. The author of this PDD will closely watch the next discussion at the next SSC Working Group meeting and make necessary adjustment to complete this PDD.

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(iii) The monitoring should include a check if the number of project activity equipment distributed by the project and the number of scrapped equipment correspond with each other.

- ✧ The CPA implementer should coordinate with engines providers to confirm scrapping of old engines on-site upon replacement with new engines.

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:

- Environmental analysis provided at the PoA level.

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

N/A

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:

N/A

SECTION D. Stakeholders' comments

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

- Comments provided at the PoA level.

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

N/A

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D.3. Summary of the comments received:

N/A

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

N/A

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Annex 1**CONTACT INFORMATION ON ENTITY/INDIVIDUAL RESPONSIBLE FOR THE
SMALL-SCALE CPA**

Organization:	
Street/P.O.Box:	
Building:	
City:	
State/Region:	
Postfix/ZIP:	
Country:	
Telephone:	
FAX:	
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

Information provided in Section A.4.5.

Annex 3

BASELINE INFORMATION

Information provided in Section B.5.

Annex 4

MONITORING INFORMATION

Information provided in Section B.6.
