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

CONTENTS

Annexes

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 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.

[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).

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

A.1. Title of the small-scale CPA:

>>

Advanced Electronic Ballast Introduction Program for Non-Residential Building Fluorescent Lamps in Hanoi, Vietnam (CPA-[Name of Building owner]-[No of project])

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

>>

1) A typical CPA targets to install electronic ballasts to the florescent lamps in the buildings in of Hanoi, Vietnam. Installation and related technology transferring is performed by Cleath Co. Ltd. which is the producer and technology holder of the electronic ballasts.
2) The ballast with nature of high lighting efficiency is expected to save energy or reduce energy consumption at range of 30~50%.
3) The ballast drives fluorescent lamps to their peak performance while saving incredible amount of energy and reducing flickering and noise. The ballast offers a host of benefits to lamps including greater luminous efficiency, lower lumen depreciation, greater light and colour stability and longer lamp life.
4) The project boundary comprises all buildings in which the ballast is installed; the GHG gas included in the project is CO_2 only.
5) The coordinator CLEATH R&D Engineering Vietnam Inc.(CRDEV) is in charge of the project monitoring including device distribution, scrapping devise collection, recording power of lamps, metering operating hours and so on.
6) The baseline emission is calculated through the baseline operating hours measured by entire number survey or sample survey on units targeted replacing.
7) The project emission is calculated through the project operating hours measured by stratified random sampling method with 95% confidence level on units replaced.
8) The monitoring must include annual checks of a sample of non-metered systems to ensure they are still operating normally.

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

A CPA implementer is the owner of a target building/s.

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

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

>>

A.4.1.1. Host Party:

>>

Vietnam

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

All CPAs associated with the PoA will be implemented within the geographical boundary of Vietnam; the GSP coordinates of Hanoi (location of most CPAs) range from 21° 1' 60N ~ 105° 50' 60E. The boundary is shown in the figure 1 below.

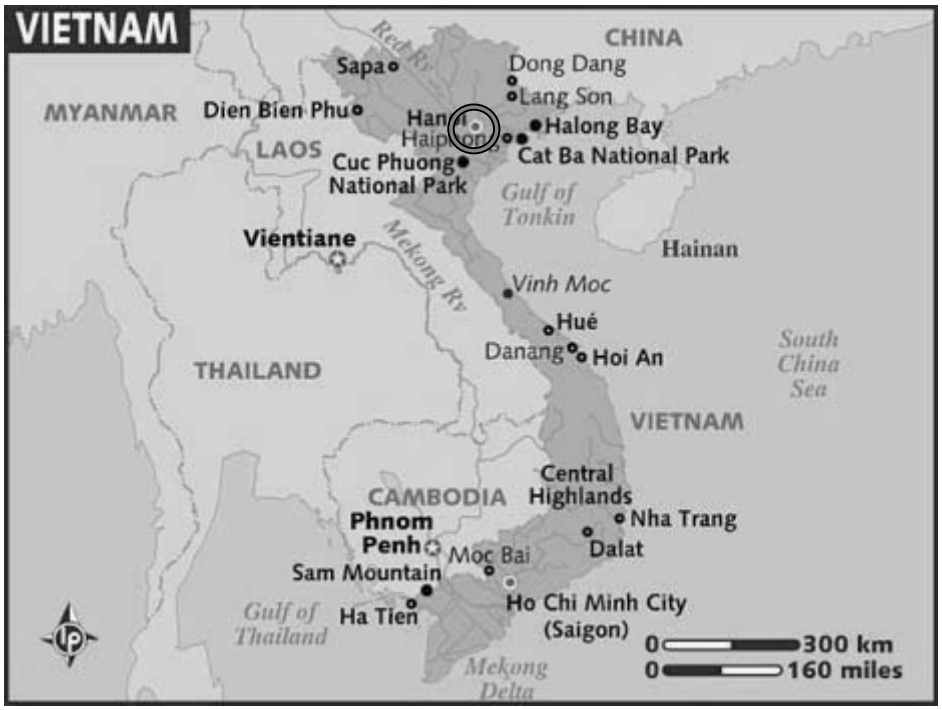

Figure 1The Geographical Boundary of the PoA

The contact information of the CPA implementer is as follows;

Table 1Information of a CPA implementer

Name of the CPA implementer		
Contact Information	Address	
	e-mail	
	Tel	
	FAX	

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

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

>>
##/6/2011

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

>>
15 years

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

Fixed Crediting period

A.4.3.1. Starting date of the crediting period:

>>
##/06/2011 or the date of registration, whichever is later

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

>>

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

10 years

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

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Table 2 Estimation of Emission Reduction

Year	Annual estimation of emission reductions (tonnes of CO_2 e)
2010	422
2011	422
2012	422
2013	422
2014	422
2015	422
2016	422
2017	422
2018	422
2019	422
Total	422
Total number of crediting years	10
Annual average over the crediting period	4,220

A.4.5. Public funding of the CPA:

>>
There is no public fund used in the project.

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

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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 activity[4], which:

   (a) Has the same activity implementer as the proposed small scale CPA or has a coordinating or managing entity, which also manages a large scale PoA of the same sectoral scope, and;

   (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.

There has been no nay registered small scale CDM project related to demand side energy efficiency improvement in Vietnam. Moreover,
According to paragraph 9 of the "Guidelines on assessment of de-bundling for SSC project activities, version 02:
If each of the independent subsystems/measures (e.g. biogas digester, solar home system)included in the CPA of a PoA is no greater than 1% of the small scale thresholds defined by the methodology applied than that CPA of PoA is exempted from performing de-bundling check i.e. considered as being not a de-bundled component of a large scale activity.

The second condition of de-bundled consideration can be cleared as the annual energy saving by an individual florescent lamp is around 0.077MWh that is far less than 1% the threshold of 60GWh /year.

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

>>

[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

Any CPA is not registered as an individual CDM project activity and is not part of another registered PoA. This can be verified through checking CDM project lists of Vietnam DNA and UNFCCC, and should be confirmed by DOE.

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:

>>

Advanced Electronic Ballasts Promoting Program for Fluorescent Lamps in Hanoi, Vietnam

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

>>

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

1) To replace conventional ballasts used on fluorescent lamps with advanced electronic ballasts at the buildings in Hanoi, Vietnam. A CPA targets to install electronic ballasts to buildings in Hanoi, Vietnam. Installation and related technology transferring is performed by Cleath Co. Ltd. which is the producer and technology holder of the electronic ballast.
2) A CPA boundary comprises all buildings in which the ballast is installed; the GHG gas concerned in the project is CO_2 only.
3) Any CPA is not registered as a CDM project under another PoA.

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

>>

According to Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities, project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

- Investment barrier:

Despite its potential savings, electronic ballasts have yet not gain a toehold in the lighting markets of most developing countries including Vietnam. One of the barriers to the introduction of electronic ballasts in Vietnam is economic or investment; the imported twin-tube electronic ballasts costs high and foreign manufacturers are not willing to establish factories without some guarantee of a demand for their product. Consumers are not willing to invest in a technology that is expensive and financial institutions also are hesitant to take risk in promoting this new technology.

So far, the dominant type of lamps used in the buildings of Hanoi university campus is conventional florescent lamps. Replacing these florescent lamps with energy efficient lamps including CFL or retrofitting them with advanced ballasts costs additional initial investment comparing to business-as-usual practice. The project implementer does not have a sufficient economical capacity to install electronic ballasts to conventional florescent lamps used in the buildings, even the new technology is economically sounded in the long term perspective. The CPA, however, is to install electronic ballasts free to florescent lamps used in the buildings.

- Technological barriers:

Moreover, the advanced electronic ballast technology and product itself are unavailable in Vietnam that substantially prevents installation of electronic ballasts in target buildings without the CPA.
Financially and technically the application of electronic ballasts in the target buildings could not happen without incentive of the CPA.

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 boundary of the SSC-CPA is the buildings which are targeted to install ballast to the conventional fluorescent lamps.
In the table 3 below, all sources of the baseline and the project activity are listed.

Table 3 Emissions sources included in or excluded from the project boundary

	Source	Gas	Included?	Justification / Explanation
Baseline emissions	Emission from electricity consumption on fluorescent lamps	CO_2	Yes	Major emission source
		CH_4	No	Not significant. Excluded for simplification and conservativeness
		N_2O	No	Not significant. Excluded for simplification and conservativeness
Project emissions	with conventional ballasts Florescent lamps with electronic ballasts	CO_2	Yes	Major emission source
		CH_4	No	Not significant. Excluded for simplification
		N_2O	No	Not significant. Excluded for simplification

B.5. Emission reductions:

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

>>

Data / Parameter:	n_i
Data unit:	unit
Description:	Number of fluorescent lamp of the group of "i" baseline devices (e.g. 40W fluorescent lamp) with which electronic ballasts will be installed
Source of data used:	Ex-ante on-site sample or entire number survey
Value applied:	

Justification of the choice of data or description of measurement methods and procedures actually applied :	The survey must be implemented before the CPA start and ballast installation.
Any comment:	-

Data / Parameter:	p_i
Data unit:	W (watt)
Description:	Power of the fluorescent lamp of the group of "i" baseline devices (e.g. 40W fluorescent lamp) with which electronic ballasts will be installed
Source of data used:	Ex-ante on-site sample or entire number survey
Value applied:	40 W
Justification of the choice of data or description of measurement methods and procedures actually applied :	The survey must be implemented before the CPA start and ballasts installation.
Any comment:	-

Data / Parameter:	o_i
Data unit:	Hours/day
Description:	Average annual operating hours of the fluorescent lamp of the group of "i" baseline devices with which electronic ballasts will be attached
Source of data used:	Ex-ante on-site sample or entire number survey
Value applied:	
Justification of the choice of data or description of measurement methods and procedures actually applied :	The survey must be implemented before the CPA start and Galaxy installation.
Any comment:	-

Data / Parameter:	l_y
Data unit:	-
Description:	Average annual technical grid losses (transmission and distribution) during year y
Source of data used:	This value can be determined from recent data published either by a national utility or an official governmental body if available otherwise IPCC default value can be used
Value applied:	0.1
Justification of the choice of data or description of	

measurement methods and procedures actually applied :	
Any comment:	-In case of no country specific data, default value of 0.1

Data / Parameter:	$EF_{CO2,ELEC}$
Data unit:	tCO_2-e /MWh
Description:	CO_2 emission factor for grid electricity
Source of data used:	Latest emission factors for regional power grids in Vietnam
Value applied:	0.5801
Justification of the choice of data or description of measurement methods and procedures actually applied :	
Any comment:	-

E.7. Application of the monitoring methodology and description of the monitoring plan:

E.7.1. Data and parameters to be monitored by each SSC-CPA:

Data / Parameter:	$n_{PJ,i}$
Data unit:	unit
Description:	Number of fluorescent lamp of the group of "i" baseline devices (e.g. 40W fluorescent lamp) with which electronic ballasts will be installed and operated during the year.
Source of data to be used:	On site monitoring
Value of data applied for the purpose of calculating expected emission reductions in section B.5	
Description of measurement methods and procedures to be applied:	Before starting of the CPA, the number of target fluorescent lamps are recorded though number plate and along with the CPA, corresponding number of galaxies will be installed to the fluorescent lamps in the buildings by checking against the number plate. The implementer should report the number to the program coordinator.
QA/QC procedures to be applied:	The implementer and program coordinator will establish a database covering all related information including number plate, location and date of installation and operation record. The database should be archived electronically.
Any comment:	-

Data / Parameter:	$p_{PJ,i}*o_i$
Data unit:	kWh
Description:	Annual electricity consumptions of the fluorescent lamp of the group of "i" in project devices with
Source of data to be used:	On site monitoring (sample or entire number)
Value of data applied for the purpose of calculating expected emission reductions in section B.5	
Description of measurement methods and procedures to be applied:	Metering electricity consumption on lamps with electronic ballasts in buildings with appropriated devices installed lamps through sample survey with 90% confidence level or entire number survey.
QA/QC procedures to be applied:	The project implementer checks the metering devices and records the data on fluorescent lamps with electronic ballasts. In the case of sample survey, sample of non-metered systems are checked also in order to ensure the whole system are on operation.
Any comment:	-

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

>>

1) Baseline emission

The baseline emission consists of CO_2 emissions from electricity consumption of fluorescent lamp with conventional ballasts used in the absence of the CPA.
Based on the results of survey and equations depicted in Section E of the PoA DD, the baseline emission is calculated as follows

(a) Electricity consumption of fluorescent lamps with conventional ballasts

$$E_{BL,y} = \sum_i \left(n_{PJ,i} * p_i * o_i\right)/\left(1 - l_y\right) \quad (1)$$

Where:

$E_{BL,y}$: Electricity consumption in the baseline in year y (kWh)

Σi : Sum over the group of i devices (e.g., 40W incandescent bulb, 5hp motor) replaced, for which the project energy efficient equipment is operating during the year, implemented as part of the project activity.

$n_{PJ,}$: Number of fluorescent lamp of the group of i baseline devices (e.g. 40Wfluorescent lamp) with which electronic ballast will be attached and is operating during the year (1,000,000).

p_i : Recording power of fluorescent lamps targeted through entire number survey; (power of the fluorescent lamp of the group of i baseline devices (e.g. 40W fluorescent lamp) with which electronic ballasts will be attached (40 W).

o_i : Metering operating hours of fluorescent lamps targeted with appropriate meters; (Average annual operating hours of the fluorescent lamp of the group of i baseline devices with which electronic ballast will be attached (14 adjusted value of 16 hour which is get through sample survey).

l_y : Average annual technical grid losses (transmission and distribution) during year y for the grid serving the locations where the devices are installed, expressed as a fraction (0.1).

(b) Baseline emission

$$BE_y = E_{BL,y} * EF_{CO2,ELEC} \quad (2)$$

Where:

$E_{BL,y}$: Electricity consumption in the baseline in year y (kWh)
BE_y : Baseline emissions in year y (tCO_2-e)
$EF_{CO2,ELEC}$: CO_2 emission factor for grid electricity (tCO_2-e /MWh)

2) Project emissions

The project emission consists of CO_2 emissions from electricity consumption of fluorescent lamp with electronic ballasts.

(a) Electricity consumption of fluorescent lamps with electronic ballasts

$$E_{PJ,y} = \sum_i \left(n_{PJ,i} * p_{PJ,i} * o_{PJ,i}\right)/\left(1-l_y\right) \quad (3)$$

Where:

$E_{PJ,y}$: Electricity consumption in the project in year y (kWh)
Σi : Sum over the group of "i" devices (e.g., 40W incandescent bulb, 5hp motor) replaced, for which the project energy efficient equipment is operating during the year, implemented as part of the project activity)
$n_{PJ,i}$: Number of fluorescent lamp of the group of "i" baseline devices (e.g. 40W fluorescent lamp) with which electronic ballasts will be attached and is operating during the year).
$p_{PJ,i}*o_i$: Sample survey on fluorescent lamps with electronic ballasts though metering with appropriate devices (Average annual electricity consumptions of the fluorescent lamp of the group of "i" baseline devices with which electronic ballasts will be attached)
l_y : Average annual technical grid losses (transmission and distribution) during year y for the grid serving the locations where the devices are installed, expressed as a fraction (0.1).

$$PE_y = E_{PJ,y} * EF_{CO2,ELEC} \quad (4)$$

PE_y : Project emissions in year y (tCO_2-e)
$E_{PJ,y}$: Electricity consumption in the project in year y (kWh)
$EF_{CO2,ELEC}$: CO_2 emission factor for grid electricity (tCO_2-e/MWh)

3) Leakages

The galaxies used the CPA are not transferred from another activity; therefore, there is no need to consider leakages.

$Leakage_y = 0$;

4) Emission reductions

$ER_y = (BE_y - PE_y) - 0$;

Where:
ER_y : Emission reductions in year y (tCO_2-e)
BEy : Baseline emission in year y (tCO_2-e)
PEy : Project emission in year y (tCO_2-e)

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

Table 4 Estimation of Emission Reduction

Year	Estimation of project activity emissions (tonnes of CO_2 e)	Estimation of baseline emissions (tonnes of CO_2 e)	Estimation of leakage (tonnes of CO_2 e)	Estimation of overall emission reductions (tonnes of CO_2 e)
2011	661	1,083	0	422
2012	661	1,083	0	422
2013	661	1,083	0	422
2014	661	1,083	0	422
2015	661	1,083	0	422
2016	661	1,083	0	422
2017	661	1,083	0	422
2018	661	1,083	0	422
2019	661	1,083	0	422
2020	661	1,083	0	422
Total (tonnes of CO_2 e)	6,610	10,830	0	4,220

B.6.1. Description of the monitoring plan:

>>

1. Monitoring framework

The program coordinator and the CPA implementer are the subjective of monitoring and they have their own functions stipulated in the monitoring programme.
The coordinator will function as an overall supervisor of the PoA and undertake checking of reported data by CPA implementer, aggregating the data, necessary calculations of emission reductions and reporting the data to the DOE.

The CPA implementer on the other hand, based on the operation and monitoring plan prepared by the coordinator, undertakes the monitoring of CPA including surveying and numbering of target fluorescent lamps , ballast distribution, scrapped device collection, data recording and reporting to the coordinator. The implementer manages and operates the CPA.

2. The functions of the coordinator and implementer

The table 5 below shows the functions of the program coordinator and the CPA implementer.

Table 5 Functions of the Programme Coordinator and CPA implementer

	The CPA implementer	The coordinator
Monitoring management	- Implement and manage monitoring of the CPA	- Developing the operation and monitoring program (manual) for the CPA. - Developing and establishing data collection and reporting system. - Implementing and managing monitoring of the CPA.
Data collection	- Undertaking data collection including ex ante and ex post entire survey or sample survey. - Checking data quality and collection procedures regularly.	- Establishing and maintaining data collection systems for parameters monitored. - Check data quality and collection procedures of the CPA regularly.
Data storage and management	- Developing data sheets - Implementing data management of CPA. - Storing and maintaining records.	- Developing database format of CPA. - Checking the reported data from each CPA - Calculating emission reductions based on the data reported by the CPA implementer. - Implementing data management of PoA. - Storing and maintaining records.
Reporting	- Reporting electronic data to the coordinator.	- Analyzing data and comparing project performance. - Preparing and forwarding monthly or yearly reports.
CDM training and capacity building	- Implementing simple training for each building owner, ensuring enabled to meet the needs of the monitoring plan.	- Developing and establishing training program for the CPA implementer.
Quality assurance	- Undertaking regular inspection on electronic ballasts. - Providing technical services to each building.	- Establishing and maintaining quality assurance system with a view to ensuring transparency and allowing for verification. - Preparing for, facilitating and co-ordinating verification process.

3. Monitored data

The data need to be monitored are described in section E.7.1.

4. Data collection

Baseline emission is calculated based on ex-ante sample survey with 95% confidence level; on the other hand project emission is calculated through ex-ante sample survey with 95% confidence level and confirmed by ex-post monitoring.
Data collection is undertaken by a CPA implementer. The role of coordinator in data collection is quality check of the data collected by the CPA implementer. A CPA implementer shall undertake annual sample survey to collect data, such as lighting hours and electricity consumptions of lamps.

5. Data management

A data management system promises transparency and quality of data. Data management is the most important exercise in the monitoring process to ensure transparent and reliable emission reduction calculations.
A CPA implementer shall collect data described in section E.7.1 and archive the data electronically to the common template developed by the coordinator. Data shall be archived along with the entire/sample survey, stored in hard disks and kept as a hard copy printout. The electronic file and the hard copy shall be sent to the coordinator.
The coordinator shall develop an appropriate electronic template for archiving the data of CPA. The coordinator shall verify and certify the data reported from the implementer. Any errors found must be checked against original data; any incomplete or inappropriate points figured out must be recovered. If necessary, interview and resurvey are required. All responses to these errors shall be documented and compiled.
The coordinator shall calculate emission reductions for a CPA and store and keep the outputs in hard disks as well as a hard copy printout.

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:

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

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

>>
Not applicable

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:

>>
Not applicable

SECTION D. Stakeholders' comments

>>

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

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

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

>>

Stakeholders' meeting has not been held yet.

D.3. Summary of the comments received:

>>

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

>>

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:	

Annex 2

NFORMATION REGARDING PUBLIC FUNDING

Annex 3

BASELINE INFORMATION

Annex 4

MONITORING INFORMATION

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