

Annex 5. CDM PoA-DD と一般的な CPA-DD



CLEAN DEVELOPMENT MECHANISM  
SMALL-SCALE PROGRAMME OF ACTIVITIES DESIGN DOCUMENT FORM  
(CDM-SSC-PoA-DD) Version 01

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NOTE:

- (i) This form is for the submission of a CDM PoA whose CPAs apply a small scale approved methodology.
- (ii) At the time of requesting registration this form must be accompanied by a CDM-SSC-CPA-DD form that has been specified for the proposed PoA, as well as by one completed CDM-SSC-CPA-DD (using a real case).



SECTION A. General description of small-scale programme of activities (PoA)

A.1 Title of the small-scale programme of activities (PoA):

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**Programme for Promotion of Access to Domestic Biogas in Rural Bangladesh**

Ver.: 3.0 (track record from v. 2.1)

Date: 20/06/2012

A.2. Description of the small-scale programme of activities (PoA):

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**0. Background and outline of the PoA**

The natural gas supply network in Bangladesh covers only 4% of the population.<sup>1</sup> Households in rural areas continue to use mainly biomass for cooking. This practice forces the people (especially housewives) to spend money for purchasing fuelwood and/or to require substantial time to collect biomass as well as for cooking. Indoor air pollution is also a big problem for health of household members, especially women and children.

Therefore, several new practices started for better use of thermal energy in rural area. One is to introduce improved cookstove (ICS) technology, which reduces the amount of fuel biomass to around a half from conventional traditional three-stone type practice without chimney. The other and better (but much more expensive) solution is to utilize biogas by installing a micro-scale domestic digester.

Many literature<sup>2</sup> shows that the forest is seriously decreasing in Bangladesh with the rate far exceeding that of replanting, due to pressures from timber extraction, collection of fuelwood for domestic and industrial use, etc. Therefore, the fuelwood saved by ICS and biogas digester is recognized as a non-renewable biomass in Bangladesh, i.e., ICS and biogas utilization contributes to reduce CO<sub>2</sub> emissions.

For general consumption pattern of thermal energy in household, biomass is used almost exclusively for cooking purpose. Among the biomass, fuelwood constitutes around 42% of total biomass cooking energy in average.<sup>3</sup> It is noted that commercialization of fuelwood is increasing, implying the scarcity in the local environment.

Under these circumstances, the PoA promotes introduction of biogas for rural households coordinated by IDCOL<sup>4</sup> and implemented by the offices of Grameen Shakti (GS)<sup>5</sup> and other partner

<sup>1</sup> "Assessment of Existing Improved Cook Stove in Bangladesh", MA Quaiyum Sarkar *et al.*, Environment, BRAC Research Report 2006.

<sup>2</sup> For example, "Non-Renewable Biomass (NRB) Assessment Report—A Component of The Bangladesh Stoves Baseline Study 2008–9", ClimateCare, 009; "Environmental Literacy and NGOs: Experience from the Microcredit Based Social Forestry Program of Proshika in Bangladesh", J.A. Chowdhury, SANDEE Working Paper No. 50-10, August 2010.

<sup>3</sup> "Restoring Balance—Bangladesh's Rural Energy Realities", M. Asaduzzaman, *et al.*, World Bank Working Paper No. 181, 2010. <http://www.scribd.com/doc/29647179/Restoring-Balance-Bangladesh-s-Rural-Energy-Realities>

<sup>4</sup> Infrastructure Development Company Limited was established on 14 May 1997 by the Government of Bangladesh as a non-bank financial institution (<http://www.idcol.org/>).



organizations.

### 1. General operating and implementing framework of the PoA

IDCOL—a non-bank financial corporation—has been the implementing agency of the National Domestic Biogas and Manure Program (NDBMP)<sup>6</sup> from 2006 to develop and disseminate domestic biogas in rural areas with the ultimate goal to establish a sustainable and commercial biogas sector in Bangladesh. IDCOL's mission is to promote economic development in Bangladesh by encouraging private sector investment in energy and infrastructure projects. Since its inception, IDCOL is playing a major role in bridging the financing gap for developing medium and large-scale infrastructure and renewable energy projects in Bangladesh. IDCOL is implementing the NDBMP with support from Government of Bangladesh, SNN, Netherlands and KfW as a programme of renewable energies.

Grameen Shakti, a non-governmental and non-profit organization under the Grameen Family Group of Bangladesh, is one of the largest and fastest growing rural based renewable energy entities in the world. GS has developed one of the most successful market based programs (micro-credit programme) with a social objective for disseminating improved cookstoves (ICSs) and solar home systems (SHS) to many rural villagers (SHS promotion is under the IDCOL's programme as in the case of biogas digester). Biogas model is trying to follow these successes.

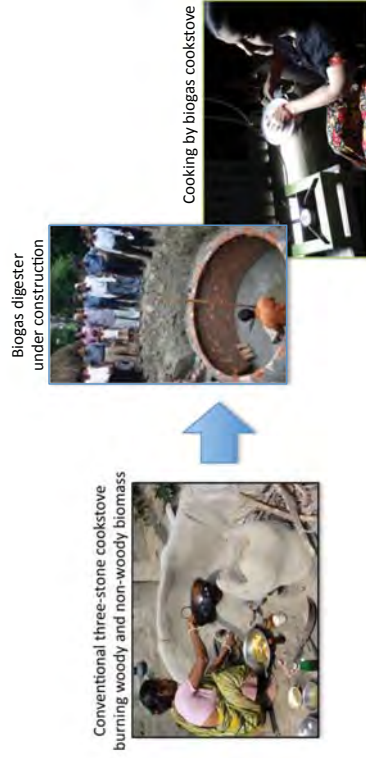


Figure 1: Image of an Element Activity of the PoA

Though there had been a NDBMP that facilitated installation of significant number of biogas digesters in rural area, there is still a huge potential number of rural households need biogas digester installation. As only 4% of the population is covered by the natural gas supply network in Bangladesh<sup>7</sup>, the most of the rural households still use biomass (woody and non-woody biomass) as the fuel for cooking.

<sup>5</sup> <http://www.gshakti.org>

<sup>6</sup> National Domestic Biogas and Manure Programme, [http://www.idcol.org/biogas\\_installation.php](http://www.idcol.org/biogas_installation.php). NDBMP includes 6 sizes of biogas plants, namely, 1.2, 1.6, 2.0, 2.4, 3.2 and 4.8 m<sup>3</sup> biogas generation capacity per day. <http://www.slideshare.net/aisalpo/national-domestic-biogas-and-manure-programme-bangladesh>



In order to expand biogas utilization in rural Bangladesh, IDCOL and GS plans to implement the biogas promotion programme as a Programme of Activities (PoA) that generates additional carbon benefit to enable more rural households to install biogas digester under the micro-credit scheme by utilizing the IDCOL's financing scheme of NDBMP or by GS's own scheme for non-covered digesters by the NDBMP.<sup>7</sup>

The coordinating and/or managing entity (CME) of the PoA is IDCOL. Grameen Shakti (GS), which is an operator of the CPAs, is another project participant in Bangladesh. PEAR Carbon Offset Initiative, Ltd. (PEAR)—a Japanese social venture with expertise in CDM—is the CER buyer and the PoA developer.

IDCOL is responsible for coordinating the efforts of the different parties involved in the PoA to promote the biogas business in Bangladesh. The PoA includes biogas digesters covered by NDBMP and also those not covered by NDBMP (up to 100 m<sup>3</sup>/day capacity).

It is noted that each CPA is defined as the period of the installation dates (= start dates of operation) of digesters.

The inclusions of new CPAs to the PoA will be requested by the CME (IDCOL) to a Designated Operational Entity (DOE) during the lifetime of the PoA.

The PoA has also provided related quality control system (for fixed dome biogas digester) with the compliance of quality standards during construction as well as operation/maintenance phases.

There are basically two types of feedstock for fixed-dome type: (a) cattle dung, and (b) poultry droppings. The sizes of the digester are 1.2, 1.6, 2.0, 2.4, 3.2, 4.8, 6.0, 9.0, 12.0, 15.0, etc. with the unit of [m<sup>3</sup> daily biogas generation capacity].<sup>9</sup> The gas generated from the digester with size more than 3.2 m<sup>3</sup>/day can be used for multiple households where smaller sizes will be used for single household.<sup>10</sup>

It is noted that both IDCOL nor GS do not invest in the biogas digesters. Each household invests (in many cases by utilizing the micro-financing scheme operated by GS and IDCOL's subsidy for the digesters with biogas generation capacity no larger than 4.8 m<sup>3</sup> per day). CER revenue will be used for the programme (i.e., used for the households). This is completely different from typical CDM projects where project owner invests and obtain the revenue from CERs.

The first CPA is to include biogas digesters installed from the December 13 of 2011 to January 31 of 2012 regardless of geographical location in Bangladesh.<sup>11</sup> The slurry/sludge from the biogas digesters may be used as soil conditioner for the field application by substituting synthetic fertilizer.

<sup>7</sup> It is noted that GS voluntarily implement the activities with the use of IDCOL's financing scheme. CDM does not allow the policy such as subsidy scheme itself as the project activity, but allows the real actions by using the scheme as an eligible activities under CDM.

<sup>9</sup> In Bangladesh, the sizes of biogas digester are classified by gas generation capacity instead of physical volume.

<sup>10</sup> The PoA includes an innovative rural development model called "micro-utility" which enables the larger biogas digester owner to undertake a gas utility business to supply biogas to his neighbors by tube. This model enables the poorest farmers incapable to invest in biogas digester to enjoy the benefits of biogas with around 1/2 cost for purchasing fuelwood.

<sup>11</sup> The number of biogas digesters belonging to a CPA is decided through counting up the number of biogas cookstove burners to the number that cannot exceed the threshold of microscale CDM projects (15 MW<sub>pe</sub>). Since a biogas cookstove under the program have capacity of 1.65 kW<sub>pe</sub> for each burner, the number of biogas cookstove burners under a CPA shall be less than 15MW<sub>pe</sub>/1.65 kW<sub>pe</sub> = 9,096. Eligibility criteria for inclusion of a CPA set the maximum number of the burners as 8,000. The number of digesters is smaller than this number.



**2. Policy/measure or stated goal of the PoA**

The PoA contributes to the sustainable development of Bangladesh as explained below:

Most of the population in rural areas in Bangladesh still heavily rely on fuelwood, dung, and crop residues for their cooking needs. The impacts of biomass reliance include deforestation, drudgery from needing to collect and prepare the biomass for use and also health impacts from indoor air pollution to rural women and children.<sup>12</sup>

In order to prevent further environmental deterioration, it is required to promote non-conventional energy technologies in this country. Biogas generated from animal manure and/or other organic wastes is undoubtedly one of the most appropriate sources of energy. Therefore, the goal of the PoA is to accelerate dissemination of biogas application in rural Bangladesh using micro-credit scheme (to reduce the burden for initial investment) with the additional carbon credit-related revenue through the programme

The PoA will contribute to reduce deforestation as the biogas generated will be used to replace mostly non-renewable biomass consumed by households; and also improve the environment of target rural area and households using animal manures which causes indoor air pollution as well. It also set the trajectory of no carbon development pathway by utilizing indigenous renewable energy source in rural Bangladesh.

As a result, the PoA will provide sustainable and self-reliant clean energy for households through replacing the non-renewable biomass and also it reduces GHG emissions. For other/detailed consideration related to the contribution to sustainable development, please see section C.2.

**3. Confirmation that the proposed PoA is a voluntary action by the coordinating/ managing entity**

There is no any mandatory regulation in Bangladesh for biogas introduction, although the National Strategy for Economic Growth, Poverty Reduction and Social Development prepared by the Ministry of Finance and Planning has also put emphasis on “creating a policy environment that is capable of providing right incentives to adopt new technologies”. The NDBMP, supported by Bangladesh Government, is a programme to promote biogas digester introductions by providing incentives and other supports/services. IDCOL is implementing the NDBMP through several partner organizations.

As an implementation entity to construct biogas digesters, GS engaged in the NDBMP as the overwhelming partner organization of IDCOL.<sup>4,6</sup> Since then, GS has voluntarily continued to implement the biogas digester promotion (programme to develop and disseminate domestic biogas plant/digester in rural area with the ultimate goal to establish a sustainable and commercial biogas sector in Bangladesh) in rural Bangladesh by using its micro-credit programme. GS and other implementers have not obliged or mandated to implement such kind of programmes; nevertheless, the proposed programme is a voluntary action by GS and others. GS, currently facing financial deficits to continue this biogas programme, is willing to promote the programme as a CPA operator supported by the revenue of CERS and related financial arrangements.

<sup>12</sup> Domestic Health Hazard and Indoor Air-Pollution: An Approach to Find Alternative Energy Source for Rural Bangladesh to Minimize the Threat, S. M. Rezaul Ahsam, et al.



**A.3. Coordinating/managing entity and participants of SSC-PoA:**

Table 1: Project Participants of the PoA

Name of Party involved(*) (host) indicates a host Party)	Private and/or public entity (ies) project participants(*) (as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant ( Yes/No)
Bangladesh (host Party)	Infrastructure Development Company Limited (IDCOL) (Coordinating/Managing Entity)  Grameen Shakti (GS) (a CPA Operator)	No
Japan	PEAR Carbon Offset Initiative, Ltd.	No

(\*)In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.

Infrastructure Development Company Limited (IDCOL) and Grameen Shakti (GS) play the role of the joint focal point for communication with the CDM Executive Board.

**A.4. Technical description of the small-scale programme of activities:**

**A.4.1. Location of the programme of activities:**

**A.4.1.1. Host Party(ies):**

Bangladesh

**A.4.1.2. Physical/ Geographical boundary:**

The PoA covers whole Bangladesh which sits in between 24° 00' North latitude and 90° 00' East longitude (see Figure 2).



Figure 2: Boundary of the PoA  
(whole Bangladesh)



**A.4.2. Description of a typical small-scale CDM programme activity (CPA):**

A typical CPA under the PoA is characterized as follows:

- A CPA consists of activities to install biogas digester systems for a certain period of time and operates the systems throughout the crediting period in many rural places in Bangladesh. The aggregated heat capacity of biogas cookstoves under a CPA shall not exceed 15 MW<sub>th</sub> (i.e., below the threshold of micro-scale project category), namely, the number of burners of biogas cookstoves is no more than 8,000.
- A CPA is defined as installation of biogas digester systems for a given period of time, not defining any specific areas in Bangladesh.
- A CPA targets rural (mainly farmer) households in villages and small towns.
- The fuels used in households for cooking before use of biogas are conventional biomass (non-renewable and renewable biomass).
- Micro-type biogas digesters (fixed dome, fiberglass digesters, etc.) and related equipment for rural households are installed. The digesters consume organic waste (typically, cow dung or poultry litter) as a principal feedstock to produce biogas.
- A typical biogas digester system is composed of major parts: inlet, inlet pipe, fermentation chamber, hydraulic chamber, dome, movable cover and gas tube and other relevant equipment (Figure 3 for conventional fixed dome type). Each design typically has different capacities. These sizes will be 1.2, 1.6, 2.0, 2.4, 3.2, 4.8, 6.0, 9.0, 12.0, ... until 100 with the unit of [m<sup>3</sup> daily biogas generation as its production capacity].
- In some cases, a digester may deliver biogas to its neighbour households for cooking through distribution pipelines (tubes) typically with the length of 10–200 m.
- The biogas is completely combusted in biogas cookstoves at the households.
- The sludge and slurry soil application guarantees aerobic condition not to result in methane generation.
- Most of the activities under a CPA are implemented by branch offices of partner organizations of IDCOL.

**A.4.2.1. Technology or measures to be employed by the SSC-CPA:**

A typical biogas digester system consists of function parts including inlet, gas tube, movable cover, hydraulic chamber, dome, inlet pipe and fermentation chamber. The structure of conventional fixed dome type biogas digester applied in the PoA is shown in Figure 3 below followed by explanations:

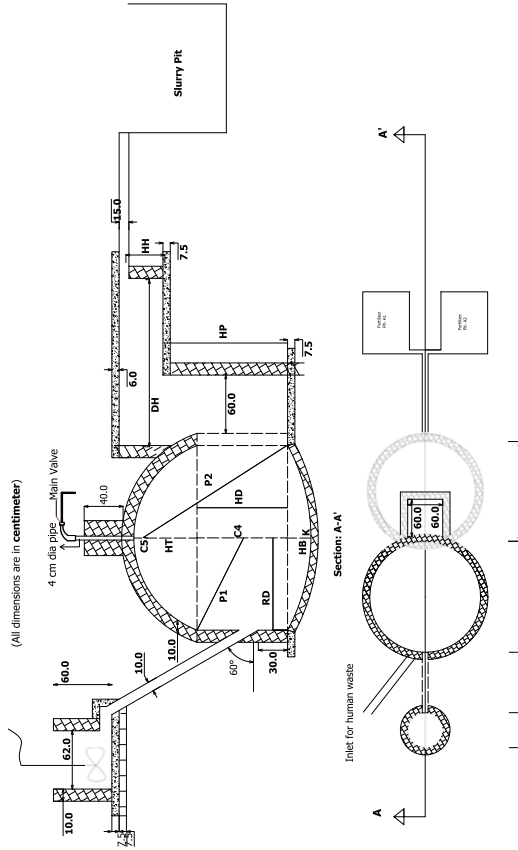
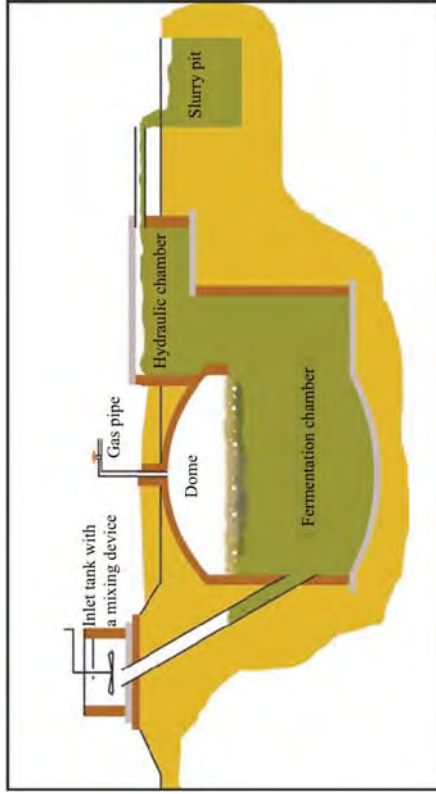


Figure 3: The Structure of a Typical Fixed Dome Type Biogas Digester in Bangladesh

The domestic biogas digester will be installed below or near to the livestock pen so that wastes from the pen are fed into the digester via the inlet pipe and undergoes anaerobic digestion in the fermentation chamber, that is a complex biochemical reaction occur under the catalysis of micro



organism in the absence of air. As a result of that anaerobic digestion, the biogas—mainly methane (around 60%) and carbon dioxide (around 40%)—is produced from the organic wastes.

For fixed dome type (others are functionally same), the inlet is a circular tank with a mixing device, which is connected with the inlet pipe through which the digester ordinarily acquires excrements and urine. And inlet pipes lower end is inserted in the middle of the wall of the fermentation chamber. The angle included between the axis of the inlet pipe and vertical line is 30 degrees.

The fermentation chamber is used for the storage of the fermented slurry and the gas produced. And also, the whole fermentation process goes on in this chamber. The upper part of the fermentation chamber is a dome mainly used for the storage of generated biogas, hence called gas storage chamber. In order to protect the center pipe from the dome, a brick turret is provided.

The hydraulic chamber mainly acts as hydraulic pressure besides serving as slurry discharge and seal for preventing outgassing. The generated biogas will occupy a definite space in the digester and a part of fermented liquid will be pressed into the hydraulic chamber so as to make the liquid surface inside the hydraulic chamber rising gradually. This is the action of gas pressing on the water. As the generated biogas is consumed, the space the gas occupied will diminish continuously, and the liquid inside the hydraulic chamber will gradually be pressed back into the fermentation chamber. This is the action of water pressing on gas.

The center tube from the dome is connected with a gas delivery tube(s) so as to convey the gas generated in the digester out.

The generated biogas in digester is then delivered to biogas cookstoves at the household for thermal energy use through the biogas conveyance system that consists of a gas tube, valves and water traps that remove the water from the pipes. The gas pipeline connects the gas tube and the appliances including biogas cookstoves. In some cases—micro-utility model, the biogas is delivered to other households by tube.

Slurry pits are also provided to ensure proper storing of digested slurry. The performance of the system is assured by related IDCOL standards. Compliance with the standards is inspected during and after construction (for the activities under NDBMP) internally. Households will be instructed on proper operation of biogas digester along with installation with a manual for operation.

Biogas cookstove is also an important device of the activity and a relatively simple appliance for direct combustion of biogas. The Figure 4 below shows the type of biogas cookstoves used in Bangladesh.



Figure 4: Typical Biogas Cookstove Applied in Bangladesh

A typical biogas cookstove consists of gas supply tube, gas tap/valve, gas injector jet, primary air



opening(s) or regulator, throat, gas mixing tube/mainfold, burner head, burner ports (orifices), pot supports and body frame. Assembly of a typical biogas burner is shown at Figure 5 below. A biogas cookstove can have single or double burner(s), varying in capacity to consume biogas per hour.

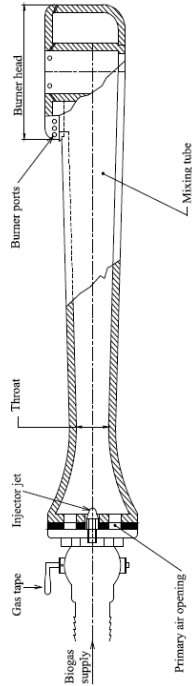


Figure 5: Assembly of Typical Burner for Biogas Cookstove

The biogas flow rate of the biogas cookstove (single burner) is set as 0.3 m<sup>3</sup>/h as those approved by IDCOL (used by GS activities) for a (common) single burner type. This is equivalent to 1.65 kW<sub>th</sub> assuming that methane content is 60% and 300 K (= 27 °C, mean temperature of Dhaka).<sup>13</sup>

All technologies utilized in the project activity are technologies in Bangladesh and there will be no need for international technology transfer involved in this project.

**A.4.2.2. Eligibility criteria for inclusion of a SSC-CPA in the PoA:**

Any CPA under the PoA shall meet the following five criteria in *italic*. The criteria covers the minimum 12 requirements<sup>14</sup> specified in “Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities” (ver. 01.0).<sup>15</sup>

The means of checking by the DOE at the time of inclusion are also explained in roman letters:

- (1) *The CME (IDCOL) define the period during which the biogas digester systems covered by the CPA are installed (e.g., 1/4/2012–31/9/2012). The CME provides a list of all user information with starting date of the service as well as the associated biogas digester and cookstoves for use. Summary list is attached to the CPA-DD and the electronic file is provided also to the DOE with full relevant information.*

DOE is to desk review that the period is consistent with the defined starting date of the CPA as well as to review whether the information is consistent.

<sup>13</sup> Assumptions for calculation: Methane content: 0.6 m<sup>3</sup>-CH<sub>4</sub>/m<sup>3</sup>-biogas; Biogas flow rate: 0.3 m<sup>3</sup>-biogas/h; Calorific value of methane: 50.4 MJ/kg-CH<sub>4</sub>; Density of methane: 0.67 kg-CH<sub>4</sub>/m<sup>3</sup>-CH<sub>4</sub> for 20°C (AMS-III.Y); Atmospheric temperature: 27°C (Dhaka, mean).

<sup>14</sup> Requirements ID in (alphabet) are shown the explanation.

<sup>15</sup> <http://cdm.unfccc.int/UserManagement/FileStorage/E61Y7DMI28WGCUN5J0K31LA0HBO9RFN>.



It is noted that the starting date of CPA can be an earlier date of inclusion if it is after the starting date of the PoA.<sup>16</sup>

Location of each household is also shown in the file. DOE is to confirm all of them are in the geographical area of Bangladesh (*i.e.*, geographical area of the CPA).

- (2) *The CPA includes installation/construction of biogas digester systems, biogas delivery lines and biogas cookstoves at rural households or small and medium farms in Bangladesh. IDCOL has records and documentation control processes for each CPA as a part of its management system.*

CPA-DD with the relevant list of information is submitted for inclusion after installation of all biogas systems in the CPA.

IDCOL will inspect installation of biogas digesters and watch their operation regularly. Inspection procedures have been introduced in NDBMP by IDCOL for proper installation of the system. Each partner organization already has the maintenance system/service for proper operation of the biogas digesters as the eligibility requirements by IDCOL to be a partner organization.

IDCOL keeps information of digesters in a CPA such as locations, ID numbers, names of user households including that of the digester owner and number of biogas cookstove burners and starting date of operation. IDCOL shall demonstrate that it prepares the management system and has operated it properly to the DOE at the time of first verification.

DOE is to check whether IDCOL prepared the management system and operates it properly with the relevant reporting arrangement and can be verifiable at the time of verification. DOE can desk review of this criterion by checking all relevant information provided by IDCOL. If all of them are met for the first CPA and no changes from that time, this criterion is considered to be met. DOE’s check does not include whether some specific data is missing for some specific household.

It is noted that proper operation of the management system will be checked at the time of verification again in more detail. In case verification identifies some improper functions in the management system, new CPA inclusion cannot be done until the CME will demonstrate to fix all identified issues.

This criterion covers (c) and (i) of the requirements specified in the Standard.

- (3) *The CPA is not a part of a registered CDM project or not a CPA under another PoA.*

Regarding inclusion of any CPA to the PoA, IDCOL identifies if there is any registered CDM project activity or CPA of a registered PoA that targeting the same households in Bangladesh.

<sup>16</sup> “Glossary of CDM terms” (ver. 05) ([http://cdm.unfccc.int/Reference/Guidelinf/ghos\\_CDM.pdf](http://cdm.unfccc.int/Reference/Guidelinf/ghos_CDM.pdf)) specifies that

**Starting date of a CDM programme activity (CPA - All types)**

The starting date of a CDM programme activity is the earliest date at which either the implementation or construction or real action of a programme activity begins. The starting date of the CPA cannot be prior to the commencement of validation of the programme of activities, *i.e.* the date on which the CDM-POA-DD is first published for global stakeholder consultation.



DOE is to check whether the information of all current registered CDM project activities and CPAs under PoAs in Bangladesh provided by the CME cover the cooking energy use of targeted households in general.

For this purpose, IDCOL is to prepare the database in order to meet this criterion for the cases mentioned below:

- (a) User households of the CPA are not covered by other existing CPAs of this PoA, by checking that the period to define the CPA is different from others. Basically this is true, but if some overlap is set for the period, the households in the overlapping period is checked to avoid double-counting, and
- (b) User households of the CPA used ICS before use of biogas will not result in double counting of emission reductions, by introducing checking system in the database.

It is noted that there is a registered PoA for installation of improved cookstoves (ICS).<sup>17</sup> The CPA may include the household covered by this PoA but includes a procedural arrangement to avoid double counting, i.e., a checking system is introduced whether the household has already installed ICS (under registered PoA 4791 as well as by non-CDM programmes or independently). If so, the emission reductions for the households are discounted by subtracting the relevant CO<sub>2</sub> emission reductions by the ICS activities in a conservative manner.

In addition, each biogas digester is equipped with some physical mark specifying that the digester be installed under the CDM PoA.

If this procedure is introduced at the time of the first CPA and no changes from that time, this criterion is met.

This criterion covers (b) of the requirements specified in the Standard.

- (4) *Installations/operations of biogas digesters shall be in compliance with related national and sectorial standards and regulations.*<sup>18</sup>

DOE is to check whether the CME provided all related documents. For proper operation, providing relevant handbook with suitable instruction and establishment of maintenance system are considered to be the evidences. If all of them are provided for the first CPA and no changes from that time, this criterion is met.

It is noted that a monitoring system—*incl.* annual survey—is introduced to include only properly operating biogas digesters in the calculation of emission reductions. The latest survey report is provided to the DOE.

This criterion covers (g) of the requirements specified in the Standard.

- (5) *The aggregated capacity of biogas cookstoves under a CPA is less than 15 MW<sub>th</sub>, i.e., the aggregated number of burners of cookstoves is less than 8,000.*<sup>19</sup>

Bearing the threshold in mind, IDCOL construct the database of digester systems

<sup>17</sup> PoA 4791: “Improved Cooking Stoves in Bangladesh”. See [http://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/SETXIMKFN8YYOTLI6BW3U45C9ZDGP/view](http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/SETXIMKFN8YYOTLI6BW3U45C9ZDGP/view).

<sup>18</sup> Infrastructure Development Company Ltd. (IDCOL) Model Biogas Plant Construction Manual, IDCOL/ISNV, April 2006.

<sup>19</sup> See footnotes 11 and 13 for calculations.



(including cookstoves and related equipment) for each CPA to and provide all specific information of biogas digester system to DOE through the CME.

DOE is to desk review the specification of the system (*esp.*, number of burners of biogas cookstoves) and *ex ante* calculation of GHG emission reductions specified or attached to the CPA-DD. If the data of the number of burners is missing, a conservative default value<sup>20</sup> is applied.

This criterion covers (e), (f) and (k) of the requirements specified in the Standard.

It is noted that most of the essential elements covering the PoA as a whole—such as the assumption that all of the fuelwood portion of biomass is regarded as non-renewable, compliance with national regulations, and each biogas digester<sup>21</sup> capacity is below 1% of 45 MW<sub>th</sub>, *etc.*—are demonstrated at the time of validation in this PoA-DD as well as by supportive reports/documents provided to the DOE.

It is also noted that the eligibility criterion (h) specified in the Standard:

- (h) *Conditions to provide an affirmation that funding from Annex I parties, if any, does not result in a diversion of official development assistance;*

cannot be judged by the DOE nor by the CDM/EB because this judgment is out of scope for these bodies as shown in the Marrakech Accords “Modalities and procedures for a clean development mechanism, as defined in Article 12 of the Kyoto Protocol”. This CMP Decision does not specify any entity to judge this condition. It means that only the host country DNA can judge it in the approval process of the project activity or programme of activities. Therefore, after obtaining the approval letter by Bangladesh DNA, this condition will be no more needed to be checked.

As for sampling-related criterion (i), the PoA designs the sampling in accordance with “Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities” (Version 02.0; EB 65 Report, Annex 2) and “Best Practices Examples Focusing on Sampling Size and Reliability Calculations” (Version 01.0; EB 67 Report, Annex 6). Please see E.6., E.7., and Annex 5 for details. Once this PoA-DD is validated and registered, this criterion is considered to be met.

Also as for de-bundling criterion (l), this criterion is met for any CPA as shown in A.4.4.1 (4).

**A.4.3. Description of how the anthropogenic emissions of GHG by sources are reduced by a SSC-CPA below those that would have occurred in the absence of the registered PoA (assessment and demonstration of additionality):**

>>

The information presented here shall constitute the demonstration of additionality of the PoA as a whole. Explanation that the following four conditions (i)–(iv) are met is given below:

<sup>20</sup> The default value is set as 2 burners per household conservatively. This can be justified by the fact that the available data for CPA 1 (301 households) consists of: one-burner household (60%), two-burner household (37%), three-burner household (3%) and four-burner household (0.3%).

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





- (i) *The proposed PoA is a voluntary coordinated action;*

There had been a National Domestic Biogas and Manure Programme (NDBMP) in Bangladesh, which aims to further develop and disseminate domestic biogas plants in rural areas with the ultimate goal to establish a sustainable and commercial biogas sector in Bangladesh. Infrastructure Development Company, Ltd. (IDCOL), a government-owned company, had implemented the programme with the involvement of several capable partners including GS.

GS and other implementers participating the programme have engaged in domestic biogas digesters dissemination in rural area voluntarily by their micro-crediting schemes.

In order to accelerate the dissemination of the biogas digesters through getting help from carbon credit, some of the partner organizations like GS is currently facing financial deficits to continue this programme, proposed to implement the PoA voluntarily.

The timetable for the PoA until now is shown below:

February 2010	Initial discussion with GS on the programme implementation with PEAR
September 2010	Tentative discussion with GS on the programme implementation with PEAR
February 2011	Further discussion with GS on the programme implementation with PEAR
April 2011	Signed an MOU by GS and PEAR on the programme implementation
October 2011	Global stakeholder consultation started
December 2011	Validation (global stakeholder consultation) and first CPA will be started
February 2012	Site visit by DOE was conducted

- (ii) *If the PoA is implementing a voluntary coordinated action, it would not be implemented in the absence of the PoA;*

We apply “Guidelines for Demonstrating Additionality of Microscale Project Activities” (version 3) for demonstrating this, as shown in the “Standard for Demonstration of Additionality, Development of Eligibility Criteria and Application of Multiple Methodologies for Programme of Activities” (version 01.0).<sup>21</sup>

As per the “Guidelines for Demonstrating Additionality of Microscale Project Activities” (paragraph 2, (c)), all CPAs are additional, because the capacity of each household biogas cookstove (independent sub-system) is around 1.65 kW<sub>th</sub> (for single burner), i.e., much less than the threshold 1,500 kW<sub>e</sub> (4,500 kW<sub>th</sub>) and all end users of the sub-systems are households.

It is noted that since all CPAs are regarded as additional, the aggregated PoA delivers additional emission reductions.<sup>22</sup> Therefore, without the PoA, the voluntary action of

<sup>21</sup> See <http://cdm.unfccc.int/UserManagement/FileStorage/EGTY7DMJ28WCCU5J0K3LA0HBO9RFN>.

<sup>22</sup> The additionality related to the criteria outlined in Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities and the Guidelines for Demonstrating Additionality of Microscale



promoting biogas digesters in rural Bangladesh would not occur as the consistent treatment within CDM scheme.

- (iii) *If the PoA is implementing a mandatory policy/regulation, this would/is not enforced;*  
Not applicable.
- (iv) *If mandatory a policy/regulation is enforced, the PoA will lead to a greater level of enforcement of the existing mandatory policy/regulation.*  
Not applicable.

#### **A.4.4. Operational, management and monitoring plan for the programme of activities (PoA):**

##### **A.4.4.1. Operational and management plan:**

- (0) Definition of the roles and terminology:

IDCOL is the CME of the PoA responsible for all requirements set forth for the CME.

Each CPA is defined as its “period of the start date of operation of the digesters” rather than some geographical boundary. Each CPA may cover most parts of Bangladesh.



Figure 6: Images of the definition of CPAs concerning the period of the start date of operation of biogas digesters

It is noted that a CPA includes plural implementers, most of them are partner organizations like GS. Implementation includes introduction of biogas digesters, monitoring, etc.

In order to avoid confusion, we do not use “CPA operator” which is a unique body responsible for the CPA.

- (1) Generic description of the operation and management system:

IDCOL is responsible for collection of all necessary information from implementers directly and compile them as the CME.

Project Activities are for the additionality of the CPA. Because the additionality is the concept to deliver emission reductions, if all CPA delivers additional emission reductions, then the PoA—as an aggregation of the activities of all CPAs—delivers additional emission reductions, by definition. It is noted that additionality check of each CPA is included in the eligibility criteria as clarified by the Board as “The Board clarified that a full additionality assessment is not required in the context of component project activities (CPA), rather the confirmation of additionality for CPAs should be conducted by means of the eligibility criteria.” in Annex 26 of the EB 60 Report.



There are a variety of partner organizations.<sup>23</sup> Most of them are much smaller than GS with simple structure. We do not specify them each by each in this document.

The CDM PoA includes both NDBMP (IDCOL's program) covered and non-covered digesters. For NDBMP covered digesters, IDCOL has already established its management system. This is extended to include the requirements by CDM. For non-covered digesters, a similar management system will be established by IDCOL.

It is noted that mainly for NDBMP non-covered digesters (> 4.8 m<sup>3</sup>/day), the digester delivers biogas not only to the digester owner but also to its neighbour households.

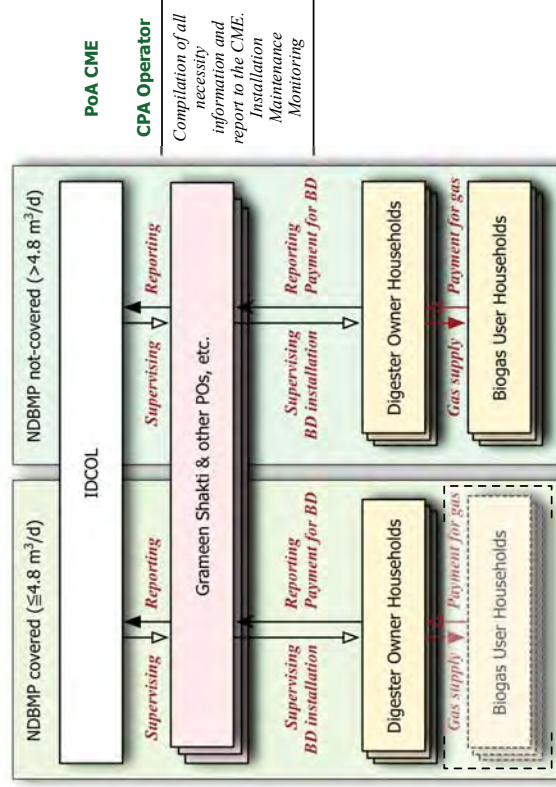


Figure 7: Managing and Reporting Structure of the PoA

Households/farms who voluntarily participate in a CPA have responsibility to provide necessary information for management of the PoA. They also promise to use biogas for the purpose of cooking.

For installation of biogas digesters, the implementers will sign an agreement (using a specific format) with the user giving all the relevant information, including system capacity, price, mode of payment, location/address of customer, maintenance, etc. Information of the agreements will be collected and compiled every month by the implementer.

<sup>23</sup> See [http://www.w.idcol.org/contact-LFO\\_%20CPO\\_MFO.php](http://www.w.idcol.org/contact-LFO_%20CPO_MFO.php), [http://www.idcol.org/biogass\\_installation.php](http://www.idcol.org/biogass_installation.php).



The local staff of the implementers will be in close touch with the customers, as they will periodically (once every month, during loan payment period which is typically 2 years, typically) visit the customers' houses both to collect the installments and to attend to any servicing requirements. For example, GS has its 5-year warranty of the biogas digester and will keep maintenance as requested by the digester owner even after the end of the warranty. It is contracted that as soon as the digester is not operational, the owner shall notify the implementer as soon as possible.

Under the (stratified) management structure, information detailing the agreements, installations, loan recovery and maintenance and other PoA-specific information is prepared every month by each implementer. The related database is constructed by the implementer consistent with the formats prepared by IDCOL.

(2) A record keeping system for each CPA under the PoA:

A well-designed record keeping system in full compliance with all relevant standards of the CDM EB<sup>25</sup> and the Bangladesh DNA will be operated for a timely completion of all activities in line with the project schedule and in accordance with the project objectives. The record keeping system consists of the method of data collection, the duty and roles of each player and the database including but not limited to schedule and ID number for each CPA, objective period for installations, size of each CPA, all necessary information/data of every single household in each CPA including:

For biogas digester:

- Name of implementer installing the digester
- ID number of the biogas digester,
- Name of the digester owner and address,
- ID number of the CPA,
- Biogas generation capacity of the biogas digester,
- Starting date of operation (= commencing date of using biogas defined as the date when the first down payment (instalment against loan) was collected),
- Status of operation (*incl.* maintenance record),
- Status of sludge and slurry treatment,
- User households ID number of the biogas (including owner's household), and other information not necessary for CDM, such as
  - Ordered equipment of the system (spec, price, etc.)
  - Contract type,
  - Payment status
  - Feedstock type and approximate number of cattle and/or chickens, and
  - Whether power generator is introduced (if yes, whether it is in off-grid area).

<sup>25</sup> These include "Clean Development Mechanism Project Standard", "Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities" and related measures for operation and management of Clean Development Mechanism Projects in Bangladesh.



For user household:

- ID number of the household,
- Name of targeted household representative, address and other household-related information,
- Digester ID from which biogas is delivered,
- Whether the household used ICS,<sup>26</sup> and
- Number of biogas cookstove burners.

It is noted that household ID and biogas digester ID shall be separately treated. One digester may deliver biogas to plural households (including owner's household) based on micro-utility model.

It is also noted that the management system does include other information than the required ones for CDM PoA. IDCOL and other organizations will consider which information/data are to be reported in addition to the ones needed for CDM.

In case some data is missing, a conservative number is applied for the calculation of emission reductions.

Related responsibilities and tasks of participants under the record keeping system are described in the Table 2 below.

Table 2: Responsibilities and tasks of players involved in the PoA

	Player(s)	Processes
Coordination of the PoA	IDCOL	IDCOL, as the CME, supervise implementers and will receive the relevant information provided by the implementer.
<i>Ex ante</i> and <i>ex post</i> data collection	Each implementer	Implementers conduct data collection. IDCOL specifies the required data/information to be collected before start and/or during implementation of each CPA.
Data storage and management	IDCOL are responsible for data storage and management in terms of: <ul style="list-style-type: none"> <li>– Develop database format of CPA</li> <li>– Check the reported data from each implementer</li> <li>– Calculate emission reductions based on the data reported by implementers</li> <li>– Implement data management of covered</li> </ul>	All collected data/information by implementers are submitted to IDCOL. IDCOL compiles the data in its database. The database is used by IDCOL for review of inclusion of CPAs including avoidance of double counting. IDCOL also merge CDM-related record and documentation control process to its exiting one.

<sup>26</sup> In this case, the emission reductions associated with ICS use is subtracted from the calculation of emission reductions in a conservative manner (see E.6).



	CPAs	Communication and reporting are conducted as per the managing and operating system formed based on the IDCOL's MRV system. IDCOL is responsible for coordinating between project implementers and communicating with DOE and CDM EB supported by PEAR. Implementers report collected information to IDCOL. Households report all related information to the implementer.
Communication and reporting	<ul style="list-style-type: none"> <li>– Store and maintain records</li> <li>– IDCOL</li> <li>– Implementers</li> <li>– Households</li> </ul>	Implement seminars for implementers and provide guides to households to meet the needs of the monitoring plan. These are integrated to existing training system under NDBMP.
CDM training and capacity building	IDCOL develops and establishes training program for the implementers and households	IDCOL review each type of CPAs and the PoA as a whole annually and assess the performance as its integrated part of the Users Survey. If necessary, it revises the current programme. The changes of the programme scheme are to be described in the monitoring plan by IDCOL.
PDCA cycle	– IDCOL	

(3) A system/procedure to avoid double accounting e.g., to avoid the case of including a new CPA that has been already registered either as a CDM project activity or as a CPA of another PoA.

As specified in the eligibility criterion (3), it is checked at the time of CPA inclusion that any biogas digester system under the CPA does not belong to another CPA under this PoA or another registered CDM project activity or another CDM PoA.

It is also checked whether there is any other CDM activity (targeting household-level cooking energy) that targeted the same households covered by the CPA proposed. The CPA may include the household covered by the existing CDM PoA 4791 for ICS but includes a procedural arrangement to avoid double counting, i.e., a checking system is introduced whether the household has already installed ICS (under registered PoA 4791 as well as by non-CDM programmes or independently). If so, the emission reductions for the households are discounted by subtracting the relevant CO<sub>2</sub> emission reductions by the ICS activities in a conservative manner.

(4) The SSC-CPA included in the PoA is not a de-bundled component of another CPA or CDM project activity.

“Guidelines on Assessment of De-bundling for SSC Project Activities (ver. 03)” specifies that:

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



If each of the independent subsystems/measures (e.g., biogas digesters, residential solar energy systems, kerosene or incandescent lighting replacements) included in one or more CDM project activities is no greater than 1% of the small scale thresholds defined by the applied methodology and the subsystems/measures are indicated in the PDDs to be each implemented at or in multiple locations (e.g., installed at or in multiple homes) then these CDM project activities are exempted from performing a de-bundling check, i.e., considered as being not a de-bundled component of a large scale activity.

The largest 100 m<sup>3</sup>/day biogas digester (independent subsystem) under a CPA of the PoA generates around 22 kW<sub>th</sub> in average. This figure is much less than 1% of the threshold of small scale CDM project (450 kW<sub>th</sub>). Therefore, any CPA of the PoA is exempt from performing a de-bundling check.

- (5) The provisions to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA:

Any CPA under the PoA is recommended and planned by IDCOL and PEAR. Moreover, as explained in Table 2 above, under the record keeping system, the implementers are to have a contract to undertake biogas digester penetration activities under the PoA—under supervision by IDCOL—are well aware of and have agreed to their activity under the PoA.

**A.4.4.2. Monitoring plan:**

>>

- (i) Description of the proposed statistically sound sampling method/procedure to be used by DOEs for verification of the amount of reductions of anthropogenic emissions by sources or removals by sinks of greenhouse gases achieved by CPAs under the PoA.

The procedures below shall be applied for verification of emission reductions for plural CPAs if every CPA will not be verified each-by-each.<sup>29</sup>

Suppose  $N$ : number of CPAs to be verified  
 $i$ : suffix to specify each CPA  
 $ER_i^{MR}$ : emission reduction specified in the monitoring report of CPA,  
 $ER_i^V$ : verified emission reduction of CPA,  
 $ER$ : total emission reductions of all CPAs through the procedures

- Step 1:** Select all CPAs as a group or 16 CPAs in a random manner as a sample group.  
**Step 2:** Undertake desk review of the monitoring reports of the (sample) group based on the applicable requirements of paragraph 62 of the CDM modalities and procedures.  
**Step 3:** In case the desk review process found some inconsistencies with the monitoring plan or incompleteness of one or more CPAs, the DOE shall ask the project participant to re-check and re-submit monitoring reports of all CPAs. Then, start with Step 1 again.

**Step 4:** Undertake on-site assessment of one or more CPA in the group. The DOE can choose any CPA in the group, preferably a CPA with unclear descriptions in the monitoring report or large CPA in the group. In case the DOE finds some significant problems, it shall ask the project participant to settle the issues and may ask to re-check and re-submit monitoring reports of all

<sup>29</sup> It is noted that the procedures does NOT describe the verification procedures of each CPA.



CPAs as needed.

**Step 5:** If all is settled in Step 4, undertake a numerical evaluation of the data and calculations specified in the monitoring reports of the CPAs in the sample group. Compile the verified results (shaded cells) in a following tabular format:

CPA ID in the sample group	$ER_i^{MR}$ (after Step 4)	$ER_i^V$	$\Delta = (ER_i^{MR} - ER_i^V) / ER_i^V$	$er = ER_i^{MR}$ (number of households)
1				
2				
3				
...				
16				
Average	–	–	$\Delta^{AV}$	$er^{AV}$

**Step 6:** For all  $N$  CPAs (monitoring reports), assess distribution of the mean value of emission reductions per household. For CPAs with the value above two times the standard deviation (under the 95% confidence interval), assess the monitoring report whether the reason is clearly shown. If not, the DOE shall ask the project participant to describe it in the monitoring report.

**Step 7-1:** If  $\Delta^{AV}$  is negative or zero, the procedures recognize that aggregated  $\sum_j ER_j^{MR}$  (after Step 4) over  $N$  CPAs is verified as  $ER$ .

**Step 7-2:** If  $\Delta^{AV}$  is positive, verified  $ER$  over  $N$  CPAs is recognized as  $(1 - 1.5 * \Delta^{AV}) * \sum_j ER_j^{MR}$ .

**Rationale of the above verification procedures:**

The procedures aim to provide efficient but reliable verification for many CPAs. The analysis is based on the emission reductions provided in the monitoring report and its verified value. If they are the same or conservative, the results of the monitoring reports are acceptable. If not, statistical adjustment with a conservative factor is applied.

Statistical testing theory shows that the sufficient number of sample group  $n$  is

$$n \geq \left( \frac{Z_{\alpha/2}}{d} \right)^2 \sigma^2$$

where  $\alpha$  is the significance level,  $d$  is the error level,  $\sigma$  is the standard deviation and  $Z_{\alpha/2}$  is the value where upper probability is  $\alpha/2$  for normal distribution.

Let  $\alpha = 5\%$  ( $Z_{\alpha/2} = 1.96$ ) and  $d = 5\%$ ,  $\sigma = 0.1$ , then the above formula will be  $n \approx 15.3$ .

As the assessment is for the normalized amount of emission reductions, and the emission reductions for each CPA, is simple summation of that of households in the CPA (and double checked for extreme cases in Step 6), it is conservative enough to set the standard deviation as 0.1 for the gap between  $ER_i^{MR}/ER_i^V$  and 1.

As the distances among the villages are very long and time-consuming for travel, it is unrealistic to visit plural villages. The DOE can choose any CPA based on its expertise.

In case  $ER_i^{MR} > ER_i^V$ , the adjustment factor is applied to reduce the value of emission reductions with the conservative factor 1.5.



- (ii) *In case the coordinating/managing entity opts for a verification method that does not use sampling but verifies each CPA (whether in groups or not, with different or identical verification periods) a transparent system is to be defined and described that ensures that no double accounting occurs and that the status of verification can be determined anytime for each CPA;*

Not applicable.

Project participants do not opt for the sampling of CPAs necessary for verification.

**A.4.5. Public funding of the programme of activities (PoA):**

Since a part of the PoA (currently, biogas digesters up to 4.8 m<sup>3</sup>/day) is undertaken as the IDCOL program (NDBMP), public funding is used mainly for the source of micro-financing (loan) which provides flexibility for the households for initial investment.<sup>30</sup> It is expected that around 80% of the households requires the loan. Designing the loan scheme is dependent on each partner organization (such as GS) of the IDCOL.

The current subsidy covers about 25% of the total investment requirements by households (biogas digester owners). The subsidy rate will be 9,000 Taka per plant (per household). Currently, the total subsidy amount required for the programme period is Euro 2.5 million of which KfW will provide 85% while the rest 15% will be contributed from the Government of Bangladesh. The total budget required to implement the NDBMP over 3 years (2010–12) will be Euro 10.76 million.<sup>31</sup>

IDCOL specifies the carbon financing opportunities by CDM as an attractive and sustainable source of funding. GS, which contributed around 57% (12,795 out of 22,549 biogas plants) of total construction up to April 2012, got approval by IDCOL to undertake CDM activities. It is noted that the PoA may cover activities of other partner organizations of IDCOL and also it covers larger biogas digesters (> 4.8 m<sup>3</sup>/day) not yet covered by IDCOL's program.

It is also noted that any Annex I Party government will not obtain CERs in compensation for the ODA.

<sup>30</sup> It is noted that IDCOL nor GS do not invest in the biogas digesters. Each household invests (in many cases by utilizing the micro-financing scheme operated by GS). CER revenue will be used for the programme (*i.e.*, used for the households). This is completely different from typical CDM project where project owner invests and obtain the revenue from CERs.

<sup>31</sup> National Domestic Biogas and Manure Programme Implementation Plan 2010–12, IDCOL, Dec. 2009. [http://www.idcol.org/Download/20100105/Implementation Plan 2010\\_12 NDBMP IDCOL1.pdf](http://www.idcol.org/Download/20100105/Implementation%20Plan%2010_12%20NDBMP%20IDCOL1.pdf). It says (p.20):

Out of the total amount required for implementing the programme, Government of Netherlands/DGIS/ABP provides Euro 1.35 million for programme operation cost whereas Government of Bangladesh is expected to contribute about Euro 0.37 million on part of subsidy at the rate of 15 percent of subsidy amount while KfW fund of about Euro 2.1 million will be utilized for covering the subsidy for the period of 2010–2012. In addition KfW will also provide Euro 3.1 million for refinancing.



**SECTION B. Duration of the programme of activities (PoA)**

**B.1. Starting date of the programme of activities (PoA):**

>> The starting date of operation for the first CPA. This date is 13/12/2011.

**B.2. Length of the programme of activities (PoA):**

>> 28 years 0 month



**SECTION C. Environmental Analysis**

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

- 1. Environmental Analysis is done at PoA level
- 2. Environmental Analysis is done at SSC-CPA level

Biogas digester promotion projects are seen to have few negative impacts on environment. Especially domestic biogas digester promotion projects are implemented at household level and their impact on environment is identical in most extension regardless of location; therefore, environmental clearance certificate will be gained at the PoA level.

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

It is noted that no environmental impact assessment is required by the Government for the activities implemented under the PoA. In reality, we see few negative impacts.

For benefits, biogas is a reliable, affordable, easy and a very useful source of household energy; hence, it is also a stable source of energy. In addition, biogas has several benefits. These benefits are the main motivating factors for households to use biogas.

Based on the findings of the survey by IDCOL/SNV, the assumed benefits from biogas are briefly discussed below<sup>32</sup>:

**Gender benefits:**

Biogas provides a direct benefit, especially to rural women, as a result of the reduction of the workload when shifting from cooking on conventional biomass to biogas.

Biogas is quicker and easier for cooking than biomass. Moreover, biogas is smokeless and does not require constant attention while cooking; therefore, women can do other activities simultaneously.

On average, biogas enables to save approximately 1 hour and 5 minutes per day per family due to the reduction of time used for collecting biomass, cooking and cleaning of utensils; this saved time can be used for childcare, income generating activities, education, recreation and other social works.

**Environmental benefits:**

From an individual perspective, the use of biogas significantly improves the indoor air quality by the avoidance of black carbon. In addition, construction of biogas plants results in better living condition due to appropriately treated solid wastes and avoiding bad smells in and around the community near landfills.

<sup>32</sup> Implementation Plan National Domestic Biogas and Manure Programme in Bangladesh, by Infrastructure Development Company Ltd (IDCOL) and Netherlands Development Organization (SNV).



It reduces a considerable amount of greenhouse gases from two perspectives: the carbon released from burning of biomass is minimized; and the saved forest can act as a sink-basin to absorb carbon dioxide.

**Health benefits:**

A major problem for rural people especially for the housewives is indoor air pollution due to exposures to smoke inside the kitchen while cooking with biomass.

Poor indoor air quality (especially black carbon) is one of the major risks factors for acute respiratory infections especially with housewives and children. Biogas reduces the smoke exposures and significantly improves the air condition inside the kitchen which will ultimately improve the health conditions by reducing the incidences of eye infection, respiratory diseases, coughing, dizziness and headache.

IDCOL expected that better sanitation (toilets) is for around 20% of the total households, while reduction of indoor air pollution is for all households.

For the user's perception on merits, see the survey results shown in Table 3 below:

Table 3: User's perception on merits of biogas plant<sup>33</sup>

Benefits	Rank	Mean
Easy and comfortable cooking	1	19.66
Environment friendly/Protection of forest	2	17.46
Saves time and workload	3	17.30
Nutrient rich fertilizer	4	12.14
Economically beneficial	5	11.78
Health benefits	6	8.58
Fuel saving	7	8.46
Comfort in cleaning cooking vessels	8	8.34
Utilizes waste materials	9	8.02
Readily available cooking fuel	10	7.24
Eliminates the problem due to wet-freewood during rainy season	11	5.26
Encourages livestock development	12	4.72
Easy to handle/operate	13	4.14
Enhances prestige in society	14	4.00
Clean kitchen and cooking environment	14	4.00

<sup>33</sup> Final Report on Technical Study of Biogas Plants Installed in Bangladesh, Report submitted to IDCOL/SNV, P.C. Ghimire, Dec. 2005. ([http://www.idcol.org/Download/Final\\_Survey\\_Report\\_Bangladesh.pdf](http://www.idcol.org/Download/Final_Survey_Report_Bangladesh.pdf)) Survey was conducted as follows (Sec. 4.5.2):

Users were asked to mention three main merits and demerits of biogas plants based upon their experience with the technology. Weights were then allocated according to the number of responses. The highest was given 20 points while subsequent answers were allocated 19,18,17,... points each.



Safe to use	16	3.98
Helps to enhance quality of rural life	16	3.98
No need of storage places for firewood	16	3.98
Reduces foul odor from poultry farm	19	3.80

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

>

In “The Environment Conservation Rules of Bangladesh” the industrial units and projects, in consideration of their site and impact on the environment, are classified into the following four categories:

- (a) Green (Environmental Clearance Certificate (ECC) will be issued to all existing industrial units and projects and to all proposed industrial units and projects falling in the Green Category);
- (b) Orange – A (For industrial units and projects falling in this category firstly a Location Clearance Certificate and thereafter an ECC shall be issued)
- (c) Orange – B (For industrial units and projects falling in this category firstly a Location Clearance Certificate and thereafter an ECC shall be issued. Initial Environmental Examination (IEE) is need);
- (d) Red (For industrial units and projects falling in this category firstly a Location Clearance Certificate and thereafter an ECC shall be issued. Environmental Impact Assessment (EIA) is needed).

Biogas digester promotion projects have not been included in the list of either category. To date, the government of Bangladesh has never requested IDCOL, GS or other organization to undertake environmental impact assessments for the microscale biogas digesters.



**SECTION D. Stakeholders’ comments**

>

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

- 1. Local stakeholder consultation is done at PoA level
- 2. Local stakeholder consultation is done at SSC-CPA level

Since CPAs under the PoA will be implemented dispersedly in all rural Bangladesh, which is also the geographical boundary for the PoA and the program design, distribution and implementation aspects including the CDM issues are essentially uniform across the country with no CPA specific characteristics, hence it is appropriate to conduct a stakeholder consultation at a PoA level. It is undertaken on 03/10/2011 in Mowna, Gazipur.

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

As per CDM and the Gold Standard requirement and procedure, the local stakeholder consultation meeting was held on 3 October 2011, at the Conference room of Proshiku Training Center in Mowna, Gazipur, Bangladesh. Stakeholders were invited by invitation letters, e-mails and posters. Participants included representatives from both Project Participants, local NGOs, biogas digester experts, households and poultry farm owners. Invitations and attendance lists are available upon request. As the programme is also applied for the Gold Standard, therefore the local stakeholder consultation was conducted as per requirements of the Gold Standard process. A brief programme introduction was given by the representatives of the project participants followed by giving clarifications to questions and comments. The floor was then open for the stakeholders for their sustainable development assessment on the programme and then for evaluation the consultation process.



Figure 8: Local stakeholders’ meeting



**D.3. Summary of the comments received:**

Total 39 participants attended the local stakeholders consultation process and during the open/discussion session the most of the potential poultry farm owners unfolded their interests to have access to microcredit facility for installation of biogas digesters with the size (capacity) of above 4.8 m<sup>3</sup>/day. Till now, GS, under IDCOL program, has been offered microcredit facility to the biogas digesters below 4.8 m<sup>3</sup> in capacity. Stakeholders also requested clarifications of benefits for them from the programme. All participants showed their positive attitudes to the programme and there were no comments regarding objections to the proposed PoA.

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

Comments of stakeholders and due accounts of the comments received are given in the table below. All comments are clarified to the local stakeholders.

Table 4. Assessment of Comments

Stakeholders' comments	Was comment taken into account (Yes/No)?	Explanation (Why? How?)
Is there possibility to provide subsidies for the biogas digesters bigger than 4.8 m <sup>3</sup> in capacity?	Clarification	Under the current IDCOL program there has been no subsidy for the biogas digesters bigger than 4.8 m <sup>3</sup> in size; we would like to propose expansion of subsidies for bigger size biogas digesters to IDCOL. Moreover, the PoA will encourage installation of bigger digesters through the micro utility scheme.
What are the benefits from the program?	Clarification	For households, additional carbon benefit will ease their loan burden. For poultry farmers, the additional carbon benefit will also be used to ease their risks in some extent. Furthermore, some portion of the carbon benefits could be used for sustainable maintenance and management of biogas digesters that will also minimize technical risks on the lifetime of biogas digester operation.
How to deal with the sludge and slurry?	Clarification	The sludge and slurry can be used as organic fertilizer/soil conditioner to one's own field or can be sold to others if one has no own field. Regarding organic fertilizer sales, Grameen Shakti who has a license for selling organic fertilizer, will provide support to biogas digester owners in the terms of information and other issues.



**SECTION E. Application of a baseline and monitoring methodology**

**E.1. Title and reference of the approved SSC baseline and monitoring methodology applied to a SSC-CPA included in the PoA:**

AMS-I.E. (ver. 05) "Switch from non-renewable biomass for thermal applications by the user"

**E.2. Justification of the choice of the methodology and why it is applicable to a SSC-CPA:**

In the proposed CPAs, GHG emission reduction is gained mainly through replacing non-renewable biomass with renewable biogas. Therefore, the methodology of AMS-I.E. will be applied for CPAs under the PoA.

Justification of applicability of the methodology is given in the table below.

Table 5: Justification of applicability of the methodology

Applicable conditions	Justifications
<b>AMS-I.E.</b>	Typical CPA
1. This category comprises activities to displace the use of non-renewable biomass by introducing renewable energy technologies.	1. The CPA is to employ domestic biogas digesters to produce biogas and provide to households for thermal use through replacing non-renewable biomasses with renewable biogas.
2. Project participants are able to show that non-renewable biomass has been used since the 31 <sup>st</sup> of December 1989, using survey methods.	2. Since the 1980s, Bangladesh has been facing steady population growth, placing pressure on the forest resources. A study conducted in Bangladesh between 1986 and 1998 published by the Federal Research Division of the Library of Congress, found that deforestation conditions, and thus the use of non-renewable biomass, existed in the 1980s. <sup>34</sup>
3. The total installed/rated thermal energy generation capacity of the project equipment is equal to or less than 45 MW <sub>th</sub> .	3. This is a designing point of each CPA. This condition will be confirmed by the DOE based on an eligibility criterion (5) of the CPA.

<sup>34</sup> <http://www.countrystudies.us/bangladesh/72.htm>





**E.3. Description of the sources and gases included in the SSC-CPA boundary**

The boundary of a CPA is the geographical areas where the domestic biogas digester systems are installed and targeted households are located. The GHGs and sources being considered within the boundary are concluded in the table below.

Table 6: Emission sources included in or excluded from the project boundary

Source	Gas	Included?	Justification / Explanation
Baseline	Emissions from non-renewable biomass use	Yes	Major emission source
		No	Not significant. Excluded for simplification
		No	Not significant. Excluded for simplification
Project Activity	CO <sub>2</sub> emissions from non-renewable biomass use	Yes	In case household still uses non-renewable woody biomass after use of biogas
		No	Zero emission source
		No	Zero emission source

**E.4. Description of how the baseline scenario is identified and description of the identified baseline scenario:**

The methodology utilizes the following baseline scenario for calculation of emission reductions:

– It is *assumed* that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs (Paragraph 4 of AMS- I.E, ver.05)

**Baseline determination for AMS-I.E.**

The baseline scenario for AMS-I.E can be determined as follows.

All possible options (for thermal energy demand mainly for cooking) comply with all applicable and enforced legislation, technically feasible and accessible for households as the main energy source include:

- (a) Continuation of current practice (use of fuel wood as the main fuel);
- (b) Fossil fuels currently not used mainly (LPG, coal, fuel oil, kerosene, etc.);
- (c) Grid electricity;
- (d) Renewable biomass (tree leaves, crop residue, dung, sawdust) use;
- (e) Use of renewable energy from biogas digester.
- (f) Use of other renewable energies.

Options (b)–(g) implies *fuel switch* from the current practice. Based on many literatures, e.g., reports shown in the footnotes 1, 2 and 3, households in rural Bangladesh currently use mainly biomass (non-renewable and renewable), because these fuels are the only accessible fuels in the region. Figure 9 below shows around 99.9% of the cooking (including parboiling) energy comes



from biomass.<sup>35</sup>

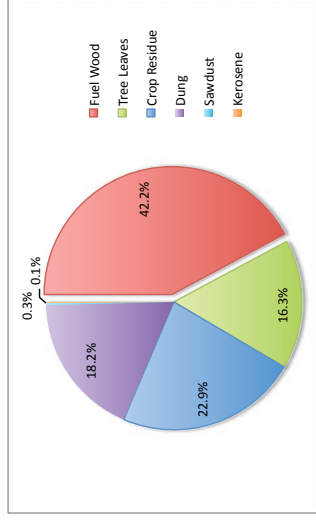


Figure 9: Household energy consumption for cooking and parboiling in rural Bangladesh<sup>35</sup>

The survey shows that most households have not used fuel oil or kerosene for cooking, because the fuels are expensive to access and moreover the fuels are not suitable for cooking. Therefore, in option (b) switching to coal, fuel oil or kerosene cannot be an applicable scenario as a baseline.

Electricity has not been used for cooking at households in rural Bangladesh due to the costs of electronic cooking appliances and the use of electricity itself. It is also noted that only 30% of rural households can access to grid electricity.<sup>35</sup> Therefore, option (c) cannot be a credible scenario for a baseline.

Renewable biomass, which is outside of the fuel market, is used as supplemental fuel. However, switching from fuel wood to other biomass is difficult because of the lack of supply (with high burden for collection) and difficult accessibility. Therefore, option (d) also cannot be a baseline scenario.

It is difficult for households to install biogas digesters by themselves outside of the IDCOL program. Moreover, 84 million people live in rural area of Bangladesh. Only 0.7% of people have enjoyed the benefits of the biogas so far.<sup>36</sup> “Guidelines for objective demonstration and assessment of barriers” (ver. 01) specifies that the barrier can be demonstrated by showing the penetration rate of the technology in similar circumstances (Guidance 3). Therefore, option (e) cannot be a baseline scenario.

Because of the high cost to install solar energy or wind energy, and also unsuitable for cooking purposes, it is difficult for rural households to switch to them. Therefore, option (f) cannot be a

<sup>35</sup> See, e.g., [http://www.worldenergyoutlook.org/database\\_electricity/electricity\\_access\\_database.htm](http://www.worldenergyoutlook.org/database_electricity/electricity_access_database.htm)

<sup>36</sup> It is uncertain how many households have introduced biogas digesters in Bangladesh. Considering GS’s accumulated installation number to date as 20,000 as well as pre-NDBMP number (around 25,000 as shown in Annex 6 of “Implementation Plan—National Domestic Biogas and Manure Programme in Bangladesh”, 2006 [http://www.idcol.org/news/download/Final%20%20NDBMP%20Implementation%20Plan\\_25%20Mar.2006\\_.pdf](http://www.idcol.org/news/download/Final%20%20NDBMP%20Implementation%20Plan_25%20Mar.2006_.pdf)), there may be less than 70,000 digesters. Assuming that there are around 10 million households, the biogas digester has penetrated 0.7% of households nowadays. It is noted that “Guidelines for objective demonstration and assessment of barriers” shows the application of the Guidance 3 by using an example of 10%. Therefore, 0.7% is strong enough to demonstrate the existence of the prohibitive barriers.



baseline scenario.

Therefore, continuation of current practice seems to be the most plausible scenario for baseline.<sup>37</sup>

**E.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the SSC-CPA being included as registered PoA (assessment and demonstration of additionality of SSC-CPA):** >>

**E.5.1. Assessment and demonstration of additionality for a typical SSC-CPA:**

If a CPA that employs renewable energy under the PoA is up to 5 MW<sub>e</sub>, then the CPA is demonstrated to be additional by following the Guidelines specified in “Guidelines for demonstrating additionality of microscale project activities” (version 03) approved in the 63<sup>th</sup> meeting of EB.

The Guidelines states:

*Paragraph 2 (c). The project activity is designed for distributed energy generation (not connected to a national or regional grid)<sup>38</sup> with both conditions (i) and (ii) satisfied;*

- (i) *Each of the independent subsystems/measures in the project activity is smaller than or equal to 1500 kW electrical installed capacity;*

<sup>37</sup> The most plausible baseline fuel is continuation of current practice, i.e., non-renewable biomass (fuel wood). Therefore, *theoretically* it is correct to use the CO<sub>2</sub> emission factor of the non-renewable biomass in the calculation of emission reductions. However, the methodology does not allow to use such emission factor but requests to use that of (most plausible) fossil fuel by *assuming* that the use of such fossil fuel is the baseline scenario (para. 4 of the methodology). AMS-IE ver. 04 specifies the default factor as 81.6 tCO<sub>2</sub>/TJ.

Historical background of this un-theoretical treatment is the requirement by the Marrakech Accords (Modalities and Procedures for CDM: Decision 17/CP.7); “(CMP) decides: (a) That the eligibility of land use, land-use change and forestry project activities under the clean development mechanism is limited to afforestation and reforestation” (para. 7). Switching from non-renewable biomass to renewable energy is to reduce CO<sub>2</sub> but it may be recognized also as a “land use, land-use change and forestry”-type project activity.

After two years’ negotiations, CMP 3 decides that “24. (CMP) Requests the Executive Board to approve, at its first meeting in 2008, the simplified methodologies for “Switch from non-renewable biomass for thermal application by the user” and “Energy efficiency measures in thermal applications of non-renewable biomass”, as recommended by the Executive Board, for use for clean development mechanism project activities, as contained in annexes 3 and 4 to document FCCC/KP/CMP/2007/3 (Part II), incorporating the necessary changes to ensure that the application of these methodologies introduces new or improves existing end-user technologies and that, in the case of the methodology “Energy efficiency measures in thermal applications of non-renewable biomass”, the baseline energy efficiency is measured or is based on referenced literature values” (Decision 2/CMP.3).

Therefore, a *skewed* treatment is incorporated in the methodology such as “It is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs (Paragraph 4 of AMS-IE, ver 04)” even if the real baseline scenario is continuation of use of non-renewable biomass. The “CDM methodology booklet” prepared by the CDM Secretariat also shows that the real baseline is continuation of non-renewable biomass use.

It is noted that the CO<sub>2</sub> emission factor of the (non-renewable) biomass is around twice of that of LPG (63.0 tCO<sub>2</sub>/TJ). Therefore, this treatment is very conservative.

<sup>38</sup> This means that projects applying AMS-IE-D are not eligible.



- (ii) *End users of the subsystems or measures are households/communities/small and medium enterprises (SMEs).*

The Guidelines also states that:

*Paragraph 6. Project activity’ in paragraphs 2–4 means a small scale or large scale CDM project activity or a project activity under a programme of activities (CPA of a PoA).*

Because the capacity of each household biogas cookstove (independent sub-system) is around 1.65 kW<sub>th</sub> (for single burner), i.e., much less than the threshold 1,500 kW<sub>e</sub> (4,500 kW<sub>th</sub>) and all end users of the sub-systems are households that each CPA satisfies the condition stipulated in the “Guidelines for demonstrating additionality of microscale project activities”.

Therefore, according to the Guidelines mentioned above, any CPA under the PoA is additional.

**E.5.2. Key criteria and data for assessing additionality of a SSC-CPA:**

As mentioned in section E.5.1, the additionality of a CPA under the PoA can be cleared if conditions given in “Guidelines for demonstrating additionality of microscale project activities” are satisfied. Bangladesh is a LDC country. So if a CPA belongs to the microscale project activity category or not becomes the key criterion to judge the additionality of the CPA. Key data or information and criteria in assessing additionality are also provided in Table 7 below:

Table 7: Key Criteria for Assessing Additionality of a CPA

Steps	Key data/information	Key criteria
Step 1. Check thermal capacity of biogas cookstoves under the CPA	Aggregated thermal capacity of all biogas cookstoves under the CPA	Less than 15 MW <sub>th</sub>

**E.6. Estimation of emission reductions of a CPA:**

**E.6.1. Explanation of methodological choices, provided in the approved baseline and monitoring methodology, applied, selected for a typical SSC-CPA:**

Selection of options in the AMS-IE. (ver. 05)

According to the methodology (AMS-IE., ver. 04), emission reductions ER<sub>y</sub> is calculated as:

$$ER_y = B_y \cdot \int_{NRE,y} \cdot NCF_{biomass} \cdot EF_{projected\_fossilfuel} \quad (1)$$

where

B<sub>y</sub> :

Quantity of woody biomass that is substituted or displaced (ton).  
See the calculation method below.

∫<sub>NRE,y</sub> :

Fraction of woody biomass used in the absence of the project activity that can be established as non-renewable biomass using survey methods or government data or approved default country specific fraction of non-renewable woody biomass values available on the CDM website (no dimension). Fixed (time-independent)



parameter. See the definition below.

$NCV_{biomass}$ : Net calorific value of the non-renewable woody biomass that is substituted. IPCC default factor for wood fuel (0.015 TJ/ton) is applied.

$EF_{projected\_fossilfuel}$ : Emission factor for the substitution of non-renewable woody biomass by similar consumers. Default value of 81.6 (CO<sub>2</sub>/TJ) is applied per the methodology.

For calculation of  $B_y$ , option (a) is applied:

(a) Calculated as the product of the number of appliances multiplied by the estimate of average annual consumption of woody biomass per appliance (tonnes/year). This can be derived from historical data or estimated using survey methods.

It is noted that SSC\_538 clarified that

*The SSC WG agreed to clarify that the expression “per appliance” does not preclude the survey to be done “per household”. As long as it is known how many appliances there are in the surveyed households, the data per household may be used in the calculation. However, the data per household may need to be corrected if the service provided by the project technology is only part of the service provided by the biomass in the baseline, e.g. a biogas cooking stove is introduced whereas biomass in the baseline has been used for both cooking and room heating.*

For  $f_{NRB,y}$ , it is defined as

$$f_{NRB,y} = NRB / (NRB + DRB) \quad (2)$$

where

$NRB$ : Share of non-renewable woody biomass used in the absence of the project activity,

$DRB$ : Share of (demonstrably) renewable woody biomass used in the absence of the project activity.

For leakage, we choose option (c) specified in the methodology:

(c) As an alternative to subparagraphs (a) and (b),  $B_y$  can be multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

**Specific elements for this PoA**

**Evaluation of  $B_y$**

$B_y$  is the aggregated mass of woody biomass substituted by the CPA, i.e., aggregated baseline woody biomass consumption ( $B_{HH,y}^{BL}$ ) minus aggregated project woody biomass consumption ( $B_y^{PJ}$ ):

$$B_y = (B_{HH,y}^{BL} - B_y^{PJ}) \cdot 0.95 \quad (3)$$

taking account of the leakage factor 0.95 for  $B_y$ .

It is apparent that summation over appliances (cookstoves) is identical to summation over user



households for a CPA.<sup>39</sup>

Let us consider the baseline woody biomass consumption ( $B_{HH,y}^{BL}$ ) first:

$$B_{HH,y}^{BL} = \sum_{\text{cookstove}} (\text{baseline woody biomass consumption per cookstove}),$$

$$= B_{HH,y}^{BL} \cdot N_{HH,y}^{OP} \quad (4)$$

where

$B_{HH,y}^{BL}$ :

Baseline woody biomass consumption per household in a year [ton]. This parameter is fixed by using a reliable survey report.

$N_{HH,y}^{OP}$ :

Number of user households which successfully utilizing the biogas from an operating biogas digester in the CPA in a year  $y$ . This factor can be a fraction if some digester is out of order for a certain period and is adjusted to the starting date of operation (as shown below).

It is noted that if some biogas digesters are out of order or not be used, they are not included in the calculation.

The parameter  $B_{HH,y}^{BL}$  is set as the default as specified by the SSC WG on standardized approaches for facilitating the baseline emission calculations under AMS-I.E.<sup>40</sup> the regional default value for Asia (excluding high forest areas and mountainous areas) is applied:

$$B_{HH,y}^{BL} = 3.29 \text{ [ton of fuelwood consumption per household per year]} \quad (5)$$

This default value is tentative one and to be replaced by a new one when the CDM Executive Board approve it.

It is noted that even if some biogas is used for power generation, this is not counted for emission reductions (by counting diesel power replacement, etc.) This treatment is conservative.

For the project woody biomass consumption ( $B_y^{PJ}$ ), we recognize that most biogas users do not use woody biomass anymore after use of biogas except for some climatic events. Therefore, even if it exists, it is a minor portion in the calculation of emission reductions.

IDCOL will undertake a survey for more than 100 current biogas users annually (as a component of its Annual Biogas Users Survey) whether they used woody biomass and if used, how much it was during the latest year.

$$B_y^{PJ} = B_{HH,y}^{PJ} \cdot N_{HH,y}^{OP} \quad (6)$$

$$B_{HH,y}^{PJ} = \text{Average}_y (B_{HH,y}^{PJ}) + 1.96 \cdot (1/(N_{\text{sample},y})^{1/2}) \cdot \sigma^{PJ}_{\text{sample},y} \quad (7)$$

where

$B_{HH,y}^{PJ}$ :

Project woody biomass consumption per household in a year  $y$  in

<sup>39</sup> This implies that the number of (conventional) cookstoves per household is a *dummy* parameter, i.e., no need in the calculation of emission reductions. However, since it is required by SSC\_538, some report will be looked for which will be specified in the first monitoring report.

<sup>40</sup> See [http://cdm.unfccc.int/Panels/ssc\\_wg/meetings/033/033\\_an08.pdf](http://cdm.unfccc.int/Panels/ssc_wg/meetings/033/033_an08.pdf).



average [ton]. This parameter is monitored by IDCOL by undertaking a sample survey of more than 100 households which have been using biogas already in order to keep (95/10) confidence/precision level for the sampling method.<sup>41</sup>

Number of sample biogas user households covered by the annual sampling survey.

Project woody biomass consumption for household  $j$  covered by the sample survey in a year  $y$  [ton/year].

Average  $(X_j)$  implies the average value of  $X_j$  over  $j$ .

Standard deviation of the sampling survey of  $B_{HH,y}^{PI}$  for a year. This factor is for conservativeness. The factor 1.96 is for the confidence level of 95%.

It must be noted that we do not include the case where biogas is not used due to some trouble of the biogas digester, etc., by multiplying the factor  $N_{HH,y}^{OP}$ .

$N_{HH,y}^{OP}$  is the most important and time-dependent parameter. It is an aggregation of each household:

$$N_{HH,y}^{OP} = (1/365) \cdot r_{y,y}^{OP} \cdot \sum_i n_{i,HH,y} \cdot ADJ_{ICS,i} \quad (8)$$

$$r_{y,y}^{OP} = 1 - (1/365) [ \text{Average} (n_{HH,y}^{NOP}) + 1.96 \cdot (1/(N_{\text{sample},y})^{1/2}) \cdot \sigma_{\text{sample},y}^{NOP} ] \quad (9)$$

$$ADJ_{ICS,i} = 1 \quad (\text{if the household } i \text{ is not an ICS ex-user) or} \\ = (1 - 1.1 \cdot ER_{ICS,i}/3.83) \quad (\text{if the household } i \text{ is an ICS ex-user}) \quad (10)$$

where

$r_{y,y}^{OP}$  : Ratio of user (including owner) households supplied by properly operating digesters in a year  $y$ . This factor reflects malfunction state and discarded state of the digesters. This ratio is determined by annual survey of more than 100 households in order to keep (95/10) confidence/precision level for the sampling method.

$i$  : Index to denote each household belonging to the CPA. This is based on the report prepared by each implementer *ex post* to IDCOL and compiled in the database of IDCOL. All households of the CPA are covered.

$n_{i,HH,y}$  : Number of days during which user household (specified as  $i$ ) utilizing the biogas from a biogas digester in the CPA in a year  $y$ . It reflects the starting date of operation if the digester started within one year. If the digester has been operated more than one year,  $n_{i,HH,y} = 365$  for the household  $i$ .

<sup>41</sup> (95/10) is sampling requirements for PoA for (confidence/precision) by “Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities” (ver. 02.0) as well as shown in AMS-LE (ver. 05). We consider that this requirement should be for “principal” parameter of emission reductions. In other words, it is meaningless to require this level for “minor” correction factor, in theory. However, we apply this level for minor correction factors in this document because no such theoretical consideration is provided in the Standard.



Number of sample biogas user households covered by the annual sampling survey. This number should be more than 100.

Number of days during which the supplying digester is not operated for household  $j$  covered by the sample survey in a year  $y$ .

Index to denote each household belonging to the sample group to be undertaken in the Annual Biogas Users Survey. (*cf.*  $i$  above denoting household index of all households in the CPA)

Standard deviation of the sampling survey of  $n_{HH,y}^{NOP}$  for a year. This factor is for conservativeness. The factor 1.96 is for the confidence level of 95%.

Adjustment factor concerning the ex-user of improved cookstove (ICS) for the household  $i$ .

Annual Emission reductions by ICS introduction per household. The value will be obtained from the first verification report of the ICS PoA 4791.

1.1 : A conservative factor (10%) for adjustment related to ICS.

3.83 : Annual emission reductions per household without ICS without project emissions as provided by equation (13).

It is noted that the summation is over the *user households* of biogas and not summation over biogas digesters. Some biogas digester may deliver biogas to several households. On the other hand, judgment of ‘operation’ is related to the status of the associated *biogas digester*, i.e.,  $n_{i,HH,y}^{OP}$  belonging to the same biogas digester is the same, in principle.

It must be noted that the above formula is assuming that a monitoring report and verification would be undertaken for a period of one year. Even if some CPA has been implemented less than a year during the monitoring period, the above formula can be applied because the calculation is based on number of days of operation of each digester and associated households.

#### Evaluation of $f_{NRB,y}$

According to a unanimous agreement from a range of experts, there are no examples of sustainably managed forest areas, despite the existence of formally protected areas in Bangladesh.

From a study, commissioned by JPMorgan Climate Care conducted in Bangladesh on non-renewable biomass (footnote 2), interviews with wood sellers indicated how collection distances have been increasing radically, with many trucks nowadays travelling more than 100 km with wood fuel cargo.<sup>42</sup> The study also found that wood fuel prices have been rising sharply in recent years, and that the mixing in of secondary fuels (dung, leaves, and crop residue) is partly a result of difficulties in procuring wood. With the strong evidence that land across the country is deforesting rapidly and the absence of any evidence for renewable resources sustainably managed, all woody biomass or fuelwood used in households can be seen as non-renewable biomass (NRB).

In addition, we see that woody biomass is traded in the market. This implies that even if some woody biomass is from sustainably managed forest, the consumption of such renewable biomass

<sup>42</sup> This fact implies that the calculation of emission reduction is conservative by ignoring the transportation-related baseline emissions.



drives avoidance of other person's use of renewable biomass, in theory.<sup>43</sup>

In addition, the PoA-DD of the registered PoA 4971: "Improved Cooking Stoves in Bangladesh (footnote 17), shows the value is 1.0 (page 22–23).

Therefore, we can conclude that

$$f_{NRB,y} = 1.0 \quad (11)$$

in Bangladesh.

**E.6.2. Equations, including fixed parametric values, to be used for calculation of emission reductions of a SSC-CPA:**

>

On the basis of E.6.1, emission reductions  $ER_y$  is given by:

$$\begin{aligned} ER_y &= B_y \cdot f_{NRB,y} \cdot NCI'_{biomass} \cdot EF_{projected\_fossilfuel} \\ &= 0.95 \cdot N^{OP}_{HH,y} \cdot (3.29 - B_{HH}^{PJ}) \cdot 1.0 \cdot 0.015 \cdot 81.6 \\ &= 1.163 \cdot N^{OP}_{HH,y} \cdot (3.29 - B_{HH}^{PJ}) \end{aligned} \quad (12)$$

For  $N^{OP}_{HH,y}$  please see equations (8)–(10) for definition.

In case  $B_{HH}^{PJ} = 0$  and for non-ICS ex-user, per household emission reductions for non ex-ICS user household is calculated as

$$(\text{emission reductions per household}) = 3.83 \text{ [tCO}_2\text{/yr/household]} \quad (13)$$

**E.6.3. Data and parameters that are to be reported in CDM-SSC-CPA-DD form:**

<b>Data / Parameter:</b>	$B_{HH}^{BH}$
Data unit:	ton/household/year
Description:	Woody biomass consumption per household per year
Source of data used:	Standardized approaches for facilitating the baseline emission calculations under AMS-IE
Value applied:	3.29
Justification of the choice of data or description of measurement methods and procedures actually applied:	The default value is set by the SSC WG report: <a href="http://cdm.unfccc.int/Panels/ssc_wg/meetings/033/ssc_033_an08.pdf">http://cdm.unfccc.int/Panels/ssc_wg/meetings/033/ssc_033_an08.pdf</a> This default value is tentative one and to be replaced by a new one when the CDM Executive Board approve it.

<sup>43</sup> This is backed by the fact that the woody biomass is traded in market and the renewable biomass supply into the market is limited (and not influenced by the project activity).



applied:	
Any comment:	This value is applied for all CPAs.
<b>Data / Parameter:</b>	$f_{NRB}$
Data unit:	No dimension
Description:	$NRB$ : Share of non-renewable woody biomass used in the absence of the project activity $DRB$ : Share of (demonstrably) renewable woody biomass used in the absence of the project activity
Source of data used:	Fraction of non-renewable woody biomass used among whole woody biomass in the absence of the project activity, defined as $f_{NRB} = \frac{NRB}{NRB + DRB}$ where $NRB$ is the non-renewable woody biomass and $DRB$ is the demonstrable renewable woody biomass.
Value applied:	1.0 (JPMorgan Climate Care report and World Bank "Restoring Balance—Bangladesh's Rural Energy Realities")
Justification of the choice of data or description of measurement methods and procedures actually applied:	Because Bangladesh is a LDC, available official documents are limited. Therefore, JPMorgan conducted a comprehensive study considering CDM-specific requirements into account. In addition, the World Bank Report (footnote 3) and other materials (see footnote 2) support this result. This is also supported by the registered PoA 4971: "Improved Cooking Stoves in Bangladesh (footnote 11), shows the value is 1.0 (page 22–23).
Any comment:	–

<b>Data / Parameter:</b>	$NCI'_{biomass}$
Data unit:	TJ/ton
Description:	Net calorific value of the woody biomass
Source of data used:	Methodology
Value applied:	0.015
Justification of the choice of data or description of measurement methods and procedures actually applied:	Default value specified in the AMS-IE. (ver. 04)
Any comment:	–
<b>Data / Parameter:</b>	$EF_{projected\_fossilfuel}$
Data unit:	t CO <sub>2</sub> /TJ
Description:	Emission factor for substitution of woody biomass
Source of data used:	Methodology
Value applied:	81.6



Justification of the choice of data or description of measurement methods and procedures actually applied:	Default value specified in the AMS-I.E (ver.04)
Any comment:	–
<b>Data / Parameter:</b>	$ER_{CS}$
Data unit:	t CO <sub>2</sub> /household/yr
Description:	Annual emission reductions by ICS introduction per household
Source of data used:	First verification report of registered CDM PoA 4791
Value applied:	To be obtained from above mentioned reference
Justification of the choice of data or description of measurement methods and procedures actually applied:	Most appropriate amount of emission reductions by introduction of ICS can be provided for registered CDM project activity. It is noted that in the calculation of emission reductions, this value is multiplied by 110% (as shown in eq. (10)) in order to provide a conservative estimation. It is also noted that this factor is also applied to ICS ex-users not covered by the above-mentioned CDM PoA in order to provide a conservative figure. The value will be fixed once obtained.
Any comment:	–

<b>Data / Parameter:</b>	$n_{CS}$
Data unit:	number
Description:	Number of conventional cookstoves per household
Source of data used:	This parameter is provided by some report/document
Value applied:	To be obtained from above mentioned reference
Justification of the choice of data or description of measurement methods and procedures actually applied:	The report/document is shown at the time of first verification to the DOE. The value will be fixed once obtained. If no report/document is found, a survey is conducted and the result will be described in the first monitoring report.
Any comment:	This parameter is a dummy and not used in the calculation of emission reductions.

**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:**

The following data are those specific to the CPA:

<b>Data / Parameter:</b>	$N_{HH,y}^{OP}$
Data unit:	Number of user households
Description:	Number of user households which are successfully utilizing the biogas from

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Source of data to be used:	operating biogas digesters in the CPA in a year $y$ . This value is specified in the database of the management of the PoA. This parameter is calculated <i>ex post</i> by using the dataset of $n_{i,HH,y}^{OP}$ below mainly and other factors. This value can be a fraction if some digester is out of order for a certain period or a digester starts its operation in the middle of the verification period.
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:	IDCOL constructs a database for the PoA. The database includes the information of the household which introduced a biogas digester and the user households of the biogas digester. This parameter is calculated as an aggregation of each household: $N_{HH,y}^{OP} = (1/365) \cdot t^{OP} \cdot \sum n_{i,HH,y} \cdot ADJ_{ICS,i}$ as shown in eq. (8). (For notations, see the following monitoring items) It also includes the starting date of operation of the biogas digester for $n_{i,HH,y}$ . This parameter is automatically calculated in the database.
QA/QC procedures to be applied:	–
Any comment:	It is noted that the summation is over the <i>user household</i> of biogas and not summation over biogas digester. Some biogas digester may deliver biogas to several households. On the other hand, judgment of 'operation' is related to the status of the associated <i>biogas digester, i.e., <math>n_{i,HH,y}</math></i> belonging to the same biogas digester is the same.

<b>Data / Parameter:</b>	$n_{HH,y}$
Data unit:	Number of days
Description:	Number of days during which user household (specified as $i$ ) is utilizing the biogas from a biogas digester in the CPA in a year $y$ .
Source of data to be used:	This parameter is based on the status reports by implementers.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	365
Description of measurement methods and procedures to be applied:	Implementers shall prepare a database of the installation of biogas digesters as well as the user households. The database includes the start date of operation defined as the commencing date of using biogas defined as the date when the first down payment (instalment against loan) was collected. From this date, $n_{i,HH,y}$ is calculated as the remaining number of days during the monitoring period for each user household. If the digester has been operated more than one year, $n_{i,HH,y} = 365$ for the household $i$ .
QA/QC procedures to be applied:	Monitoring, recording and reporting by each implementer is integrated to

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be applied:	existing IDCOL's management system. Database managed by IDCOL is to collect all the data for calculation of $N_{HH,j,y}^{OP}$ .
Any comment:	Not-in-use state of the digester is calculated in $r_{j,y}^{OP}$ , not by this parameter.

<b>Data / Parameter:</b>	$AD_{ICS}$
Data unit:	No dimension
Description:	Adjustment factor concerning the ex-user of improved cookstove (ICS) for the household $i$
Source of data to be used:	This parameter is based on the status reports by implementers.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	1
Description of measurement methods and procedures to be applied:	This parameter is based on the binary questions whether the user household was ex-user of ICS. The entire household data is collected. If this information is missing for some household, this household shall be regarded as ex-ICS user for conservativeness.
QA/QC procedures to be applied:	–
Any comment:	This is applied not only for ICS CDM PoA but also for any other ICS programmes for conservativeness.

<b>Data / Parameter:</b>	$n_{i, burner}$
Data unit:	Number of burners of biogas cookstove
Description:	Number of biogas cookstove burners per each household $i$
Source of data to be used:	Order sheet of the biogas digester system to be compiled in the status report by the implementers
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:	Usually, specs and numbers of the biogas cookstoves are shown in the order sheet of the biogas system. In case the data is missing, “2” (double burner biogas cookstove) is set for conservativeness for the household
QA/QC procedures to be applied:	Inspected after installation of the biogas digester system. The biogas digester owner shall communicate with GS unit office if additional biogas cookstoves were installed after the installation of the system.
Any comment:	This parameter is used to judge whether the CPA complies with the eligibility criterion (5). The maximum number of the burners per a CPA is 9,096 in order to meet the threshold of Microscale CDM, while the eligibility criterion set the limit as 8,000 (around 88% of the threshold); it has the safety margin.

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	In the Annual Biogas Users Survey 2010 states that “Single burner is the dominant form of using biogas in the surveyed households; 216 out of 300 households use single burners.” Therefore setting “2” is conservative.
--	--

The following data are those for sampling survey:

<b>Data / Parameter:</b>	$n_{HH,j,y}^{NOP}$
Data unit:	Number of days
Description:	Number of days during which the supplying digester is not operated for household $j$ covered by the sample survey in a year $y$
Source of data to be used:	IDCOL's Annual Biogas Users Survey
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0
Description of measurement methods and procedures to be applied:	IDCOL undertakes a sample survey of this ratio in its Annual Biogas Users Survey. The number of sample user households should be more than 100 in order to keep (95/10) confidence/precision level for the sampling method. This parameter is used to calculate $r_{j,y}^{OP}$ per eq. (9). It is noted that if the user household stopped using biogas anymore because of abandoning of the digester or some other reasons, $n_{HH,j,y}^{NOP} = 365$ for the household.
QA/QC procedures to be applied:	In case some irregular data is found, IDCOL will analyse the data and correct them if necessary. This process should be recorded if undertaken.
Any comment:	See Annex for the sampling method. It is noted that the owner household usually tries to fix the malfunction as soon as possible.

<b>Data / Parameter:</b>	$N_{sample,y}$
Data unit:	Number of households
Description:	Number of sample biogas user households covered by the annual sampling survey.
Source of data to be used:	IDCOL's Annual Biogas Users Survey
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:	This number should be more than 100 in order to keep (95/10) confidence/precision level for the sampling method. This sampling survey is common for the surveys of $r_{HH,j,y}^{NOP}$ and $B_{HH,j,y}^{pj}$ .
QA/QC procedures to be applied:	In case some irregular data is found, IDCOL will analyse the data and correct them if necessary or discard the data. Even if some data are discarded, the

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Any comment:	number should be more than 100. This process should be recorded if undertaken.
<b>Data / Parameter:</b>	$B_{HH}^{PI} / y$
Data unit:	ton/household/year
Description:	Project woody biomass consumption for household / covered by the sample survey in a year.y
Source of data to be used:	IDCOL's Annual Biogas Users Survey.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0
Description of measurement methods and procedures to be applied:	IDCOL undertakes a sample survey of this ratio in its Annual Biogas Users Survey. The number of sample user households should be more than 100 in order to keep (95/10) confidence/precision level for the sampling method. This parameter is used to calculate $B_{HH}^{PI}$ per eq. (7).
QA/QC procedures to be applied:	In case some inconsistency is found, the reason shall be clarified. If the reason is not clarified, the data shall not be included.
Any comment:	The woody biomass is the tree cut by the household or the wooden biomass (incl. charcoal) purchased in the market. It does not include the pick-up twigs because they are recognized as renewable.

**E.7.2. Description of the monitoring plan for a SSC-CPA:**

1. Monitoring framework

IDCOL will manage whole activities under the PoA as the CME. The monitoring management system is integrated part of the implementation management system as shown in A.4.4.

The operation and management structure for monitoring is based on IDCOL's existing monitoring system with involvement of implementers (partner organizations). IDCOL will act as the overall supervisor and prepare a monitoring report periodically (typically annually) to the DOE by using the reports by GS and other implementers.

The implementers will undertake the monitoring (especially preparing the monthly and annual status report) based on the operation and monitoring manual prepared by IDCOL. Results will be reported to IDCOL. IDCOL have the responsibility to manage and operate all of the CPA.

Each CPA is basically sequential for the period of its starting dates of digesters (see Figure 6) and covers whole Bangladesh.



Figure 6 (revisited): Image of the definition of CPAs concerning the period of the start date of operation of biogas digesters

**2. The role of CME and implementers**

The following table shows the roles of the CME and implementers for monitoring.

Table 8: Functions of IDCOL (CME) and implementers

	IDCOL (supported by PEAR)	Implementers (GS and other organizations)
Monitoring management	<ul style="list-style-type: none"> <li>- Develop the operation and monitoring manual for activities.</li> <li>- Develop and establish data collection and reporting system for parameters monitored in every CPAs.</li> <li>- Implement and manage monitoring of CPAs.</li> </ul>	<ul style="list-style-type: none"> <li>- Implement and manage monitoring of activities (information related to installation of biogas digesters and biogas use, undertaking maintenance services, etc.).</li> <li>- This can be supported by monthly collection of installments.</li> </ul>
Data collection	<ul style="list-style-type: none"> <li>- Establish and maintain data collection systems for parameters monitored.</li> <li>- Check data quality and collection procedures regularly.</li> </ul>	<ul style="list-style-type: none"> <li>- Implement data collection; especially at the time of biogas digester installation and operation start.</li> <li>- Check internal data quality and collection procedures regularly.</li> </ul>
Data storage and management	<ul style="list-style-type: none"> <li>- Develop database format of CPA.</li> <li>- Check the reported data from each CPAs.</li> <li>- Calculate emission reductions based on the data reported by the implementers.</li> <li>- Implement data management of CPAs.</li> <li>- Store and maintain records.</li> </ul>	<ul style="list-style-type: none"> <li>- Enter collected data to a computer database.</li> <li>- Implement data management of the activities.</li> <li>- Store and maintain records.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>- Analyze data and compare project performances.</li> <li>- Prepare and forward monthly or annual reports.</li> </ul>	<ul style="list-style-type: none"> <li>- Report electronic data to the program coordinator (IDCOL).</li> <li>- Households report related information and any malfunctions happened on biogas digesters to the implementer</li> </ul>
CDM training and capacity building	<ul style="list-style-type: none"> <li>- Develop and establish training program for implementers and prepare a manual for households.</li> </ul>	<ul style="list-style-type: none"> <li>- Implement simple training for households for operation of the digester and biogas use.</li> </ul>
Quality	<ul style="list-style-type: none"> <li>- Undertake Annual Biogas Users</li> </ul>	<ul style="list-style-type: none"> <li>- Undertake regular check of biogas</li> </ul>





<p>assurance and verification</p> <p>Survey to grasp the status of the program which includes monitoring related to CDM.</p> <ul style="list-style-type: none"> <li>- Establish and maintain quality assurance system with a view to ensuring transparency and allowing for verification.</li> <li>- Prepare for, facilitate and coordinate verification process.</li> </ul>	<p>digestor for 2 years (monthly for households utilizing micro-finance), including assurance for 5 years maintenance as well as to make contract to inform malfunction to the implementer after that period for recovery.</p> <ul style="list-style-type: none"> <li>- All of these information are recorded and reported to IDCOL.</li> </ul>
--	---

**3. Monitored data**

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

**4. Data collection**

Data collection regarding households will mainly be carried out by implementers. The role of IDCOL in data collection is checking the quality of the data collected by implementers.

**5. Data management**

Data management is the most important step in the monitoring process to ensure transparent and credible emission reduction calculations.

Each implementer (GS or other organization) shall collect data described in section E.7.1 and archive these electronically using the common template developed by the program coordinator (IDCOL). The electronic files and the hard copy shall be sent to IDCOL.

IDCOL will develop an appropriate electronic template for archiving all data of every activity. After reporting data from implementers, IDCOL shall check the data. If there are any errors found, they will be checked against original data and carry out interview with farmers if necessary.

IDCOL will calculate emission reductions for each CPA supported by PEAR, and store the outputs in hard disks as well as hard copy printouts.

**E.8 Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)**

>>

20/06/2012

Dr. Naoki Matsuo: PEAR Carbon Offset Initiative, Ltd.  
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Dr. Wutikuer Hujiaxi: PEAR Carbon Offset Initiative, Ltd.  
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[Note] PEAR carbon Offset Initiative, Ltd. is a project participant of the PoA.



Annex 1

**CONTACT INFORMATION ON COORDINATING/MANAGING ENTITY and PARTICIPANTS IN THE PROGRAMME of ACTIVITIES**

Coordinating and Managing Entity and Joint Focal Point

Organization:	Infrastructure Development Company Limited
Street/P. O. Box:	8, Panthapath, Kawran Bazar
Building:	UTC Building, 16 <sup>th</sup> Floor.
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State/Region:	Dhaka
Postfix/ZIP:	1215
Country:	Bangladesh
Telephone:	9102171-8
FAX:	+880-2-8116663
E-Mail:	<a href="mailto:contact@idcol.org">contact@idcol.org</a>
URL:	<a href="http://www.idcol.org/">http://www.idcol.org/</a>
Represented by:	Islam Sharif
Title:	Executive Director and CEO
Salutation:	Mr.
Last Name:	Sharif
Middle Name:	
First Name:	Islam
Department:	
Mobile:	
Direct FAX:	+880-2-8116663
Direct tel:	
Personal E-Mail:	<a href="mailto:islamsharif@idcol.org">islamsharif@idcol.org</a>

Project Participant and Joint Focal Point

Organization:	Grameen Shakti
Street/P. O. Box:	Mirpur-2
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Postfix/ZIP:	1216
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E-Mail:	<a href="mailto:g_shakti@grameen.net">g_shakti@grameen.net</a>
URL:	<a href="http://www.gshakti.org/">http://www.gshakti.org/</a>
Represented by:	Abser Kamal
Title:	Managing Director
Salutation:	Mr.
Last Name:	Kamal
Middle Name:	
First Name:	Abser
Department:	



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Project Participant

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Personal E-Mail:	n.matsuo@pear-carbon-offset.org

**Annex 2**

**INFORMATION REGARDING PUBLIC FUNDING**

Since a part of the PoA (currently, biogas digesters up to 4.8 m<sup>3</sup>/day) is undertaken as the IDCOL program (NDBMP), public funding is used mainly for the source of micro-financing (loan) which provides flexibility for the households for initial investment.<sup>44</sup> It is expected that around 80% of the households requires the loan. Designing the loan scheme is dependent on each partner organization (such as GS) of the IDCOL.

The current subsidy covers about 25% of the total investment requirements by households (biogas digester owners). The subsidy rate will be 9,000 Taka per plant (per household). Currently, the total subsidy amount required for the programme period is Euro 2.5 million of which KfW will

<sup>44</sup> It is noted that IDCOL nor GS do not invest in the biogas digesters. Each household invests (in many cases by utilizing the micro-financing scheme operated by GS). CER revenue will be used for the programme (i.e., used for the households). This is completely different from typical CDM project where project owner invests and obtain the revenue from CERs.



provide 85% while the rest 15% will be contributed from the Government of Bangladesh. The total budget required to implement the NDBMP over 3 years (2010–12) will be Euro 10.76 million.<sup>45</sup>

IDCOL specifies the carbon financing opportunities by CDM as an attractive and sustainable source of funding. GS, which contributed around 57% (12,795 out of 22,549 biogas plants) of total construction up to April 2012, got approval by IDCOL to undertake CDM activities. It is noted that the PoA may cover activities of other partner organizations of IDCOL and also it covers larger biogas digesters (> 4.8 m<sup>3</sup>/day) not yet covered by IDCOL's program.

It is also noted that any Annex 1 Party government will not obtain CERs in compensation for the ODA.

**Annex 3**

**BASELINE INFORMATION**

The baseline study consisted of a literature review, which provided the *ex ante* parameter values given in section E.6.3 above.

**Annex 4**

**MONITORING INFORMATION**

Please refer to B.6.1.

**Annex 5**

**SAMPLING AND SURVEY PLAN**

Sampling survey for the parameters

$$-B_{HH,j}^{P_i,y} \text{ (project woody biomass consumption for household } j \text{ in a year } y\text{), and}$$

$$-t_{HH,j}^{NOP,y} \text{ (number of days during which the supplying digester is not operated for household } j \text{ in a year } y\text{)}$$

is undertaken annually as an integrated element of IDCOL's Annual Biogas Users Survey.

<sup>45</sup> National Domestic Biogas and Manure Programme Implementation Plan 2010–12, IDCOL, Dec. 2009. [http://www.idcol.org/Download/20100105ImplementationPlan2010\\_12\\_NDBMPIDCOL1.pdf](http://www.idcol.org/Download/20100105ImplementationPlan2010_12_NDBMPIDCOL1.pdf). It says (p.20):

Out of the total amount required for implementing the programme, Government of Netherlands/DGIS/ABP provides Euro 1.35 million for programme operation cost whereas Government of Bangladesh is expected to contribute about Euro 0.37 million on part of subsidy at the rate of 15 percent of subsidy amount while KfW fund of about Euro 2.1 million will be utilized for covering the subsidy for the period of 2010–2012. In addition KfW will also provide Euro 3.1 million for refinancing.



(a) Sampling Design

(i) Objectives and Reliability Requirements

The sampling and survey plan is to obtain the reliable mean value as well as its statistical uncertainties of  $B_{HH,j,y}$  and its  $n^{NOP}_{HH,j,y}$  in order to calculate project emissions and baseline emissions, respectively.

The survey is undertaken once a year as an integrated (and extended from current annual survey) element of the IDCOL's Annual Biogas Users Survey. The latest results are used for the calculation of emission reductions.

The associated values are determined by annual survey of more than 100 households in order to keep (95/10) confidence/precision level as per the requirements for PoA, although the values are minor correction factors for whole emission reductions (see the explanation in footnote 11).

(ii) Target Population

The target population is all biogas user households<sup>46</sup> implemented under this PoA.

(iii) Sampling Method

Sampling of households for survey is undertaken using a stratified random sampling approach. The minimum number of households for this specific CDM purpose is 100 (typically much more than 100).

For sampling purposes, the country has been divided in 4 major regions representing the former Divisions of the country, i.e., Dhaka, Chittagong, Rajshahi and Khulna. The required numbers of households have been selected from each region to reach the total sample size of 100 or more although the Annual Biogas Users Survey for NDBMP covers more households in general (300 for 2010 Survey). The sample size for each region is proportionate to the number of total households using biogas plants in the region.

The sampling is done through the following steps:

**Step 1:** From each of the 4 regions, 3 districts have been selected randomly to cover the major ecological and socio-cultural variations prevailing in the region. The random sampling has been repeated until the selected districts sufficiently represented the variations.

**Step 2:** The number of households in each region has been divided by 3 to get the required number of households to be surveyed in each of the 3 districts of each region. The districts having fewer households than the required number have not been considered.

**Step 3:** In case of large number and spread of households in a district, further stratification in selecting sub-districts or communities has been undertaken to select the households from a randomly selected *upazila*.

**Step 4:** From the list of households having biogas in the selected district/*upazila*, the required number of households has been sampled randomly for the survey.

<sup>46</sup> To date, the Annual Biogas Users Survey targeted biogas digester owner households who introduced the digester within a year under the NDBMP. On the other hand, this CDM-specific survey targets all biogas user (including digester owner) households covered by the PoA (i.e., including non-covered households by the NDBMP supplied by over 4.8 m<sup>3</sup>/day digester).



(iv) Sample Size

As shown in the following theoretical calculations, minimum sampling size is set as 100 in order to keep (95/10) confidence/precision level.

Table 9: Sample size calculation

Population	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Margin of error	10%	10%	5%	5%	5%
Confidence level	95%	90%	90%	90%	95%
Critical value for the confidence level	1.96	1.64	1.64	1.64	1.96
The number of sample	97	68	271	271	384

It is noted that the number of sample is almost independent for large population size (e.g., 96 for the population size of 100,000 for (95/10)).

(v) Sampling frame

The sampling list is the whole available listing of all biogas user households (including digester owner households) covered by the PoA until the designing date of the Annual Biogas Users Survey in the year.

(b) Data

(i) Field Measurement

The parameters to be monitored are:

–  $B_{HH,j,y}$  (project woody biomass consumption for household  $j$  in a year  $y$ ), and

–  $n^{NOP}_{HH,j,y}$  (number of days during which the supplying digester is not operated for household  $j$  in a year  $y$ ).

The frequency is once a year.

The method is conducting detailed interview with the households (together with subjects specified in the Annual Biogas Users Survey).

(ii) QA/QC

The interviewer is to check the obtained information from various aspects. If some inconsistencies are found in the interview, the interviewer is trying to clarify such inconsistencies. If the interviewer concluded that the obtained data is not reliable, the household should be outside of the sample group.

(iii) Analysis

In addition, the obtained results will be checked against the historical trend. If some specific aspects is found, some analysis would be undertaken and the results will be explained in the monitoring report. Experts' opinion may also be included.

Using the result, IDCOL will calculate the associated parameters and describe them in the monitoring report.

(c) Implementation

(i) Implementation Plan

IDCOL will choose a consultant firm with the expertise every year and ask it with the requirements shown above for CDM and other routine elements to be surveyed. Typically, the survey would be undertaken in April to June.



The results will be compiled as the Annual Biogas Users Survey Report.

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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

Annexes

- Annex 1: Contact information on entity/individual responsible for the CPA
- Annex 2: Information regarding public funding
- Annex 3: Baseline information
- Annex 4: Monitoring plan
- Annex 5: Information of the biogas digesters and user households

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)<sup>1,2</sup> 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.

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

<sup>2</sup> 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)**

[Note] Throughout this generic CPA-DD, [explanation] implies this CPA-specific term of explanation is inserted for specific CPA-DD.

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

>> **Domestic Biogas CPA-[ID number of CPA] in Rural Bangladesh** (*[period of the starting date of operation of the biogas digesters covered by the CPA specified as D1/M1/Y1–D2/M2/Y2]*)

Ver.: *[version number of the CPA-DD comes here]*

Date: *[date of completion of this document comes here specified as D/M/Y]*

ID number of CPA is set as “n.m.y” where “n” is the serial number of the CPA under the PoA, “m” is the month when the CPA starts and “y” is the year when the CPA starts.

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

>>

Under the PoA entitled “Programme for Promotion of Access to Domestic Biogas in Rural Bangladesh”, the CPA introduces micro-type biogas digesters and supply biogas for households in rural Bangladesh as shown in A.4.2 of the PoA-DD.

This CPA is characterized as follows:

Period of the starting date of operation* of the biogas digesters covered by the CPA	[D1/M1/Y1–D2/M2/Y2]
Number of biogas digesters	[number]
Average of biogas generation capacity of digesters	[number] m <sup>3</sup> /day
Number of user households	[number]
Number of cookstove burners	[number]
Household which used ICS before using biogas <sup>3</sup>	[number]
Number of micro-utility model <sup>4</sup>	[number]
CPA operator	IDCOL
CPA implementers (abbreviation)	[abbreviations of the implementers]

\*It is noted that starting date of operation is the commencing date of using biogas defined as the date when the first down payment (instalment against loan) was collected.

<sup>3</sup> In case some household used ICS before use of biogas, the household is judged to be ineligible and excluded from the CPA (i.e., not counting in calculation of emission reductions).

<sup>4</sup> Micro-utility model is a business model that a biogas digester owner delivers biogas to his/her neighbor households.

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A typical CPA will provide sustainable clean energy (biogas) for households through replacing the non-renewable biomass so that reduces GHG emissions. At the same time it contributes to the sustainable development of Bangladesh that is explained as below:

Most of the population in rural areas in Bangladesh still heavily rely on fuelwood, dung, and crop residues for their cooking needs. The impacts of biomass reliance include deforestation, drudgery from needing to collect and prepare the biomass for use and also health impacts from indoor air pollution to rural women and children.<sup>3</sup>

In order to prevent further environmental deterioration, it is required to promote non-conventional energy technologies in this country. Biogas generated from animal manure and/or other organic wastes is undoubtedly one of the most appropriate sources of energy.

A typical CPA will contribute to reduce deforestation as the biogas generated will be used to replace mostly non-renewable biomass consumed by households; and also improve the environment of target rural area and households using animal manures which causes indoor air pollution as well.

It also set the trajectory of no carbon development pathway by utilizing indigenous renewable energy source in rural Bangladesh.

More detailed information of the biogas digesters and user households are provided in Annex 5.

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

>>

Brief information of the CPA operator is as follows.

Name of the CPA operator	IDCOL
Whether is it a project participant?	Yes
Whether is it the CME?	Yes
Name and Position in charge of the CPA	[name] [position]
Location of the office	UTC Building (Level-16), 8 Panthapath, Kawranbazar, Dhaka-1215, Bangladesh

The PoA has only one CPA operator which is IDCOL. CPA operator is defined as the unique entity responsible for the CPA.

Implementers of the CPA are GS and other organizations (typically, partner organizations of IDCOL) which implement the activities of the CPA under the CME. The information of the

<sup>3</sup> Domestic Health Hazard and Indoor Air-Pollution: An Approach to Find Alternative Energy Source for Rural Bangladesh to Minimize the Threat, S. M. Reazul Ahsam, et al.

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partner organization is shown in <http://www.idcol.org/contact-LPO.%20CPO.MPO.php>.<sup>6</sup> The list of organizations will increase over time. Implementation includes introduction of biogas digesters, monitoring, etc.

Apart from the terminology of CDM, the management role of the PoA as well as each CPA is to be undertaken by IDCOL, supported by PEAR. Implementation of the activities is done by GS and other organizations (i.e., they are called implementers) in general. The implementers are required to send the necessary information to IDCOL. (In order to avoid confusion, we do not use the terminology ‘CPA implementer’).

Brief information of other implementer(s) of the CPA not specified in the Web-url above are shown below: [if needed, add tables]

Organization of the implementer	[name of organization]
Whether is it a project participant?	No
Whether is it the CME?	No
Name and Position of contact person	[name] [position]
Address of the office	[Postal address]
Partner organization of IDCOL?	[Yes or No]
Organization of the implementer	[name of organization]
Whether is it a project participant?	No
Whether is it the CME?	No
Name and Position of contact person	[name] [position]
Address of the office	[Postal address]
Partner organization of IDCOL?	[Yes or No]

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

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

A.4.1.1. Host Party:

Bangladesh

<sup>6</sup> Partner organization-wise biogas plant installation status under the NDBMP is given in [http://www.idcol.org/biogas\\_installation.php](http://www.idcol.org/biogas_installation.php). On the other hand, it is noted that the PoA includes non-covered biogas digester with the capacity over 4.8 m<sup>3</sup>/day (less than 100 m<sup>3</sup>/day) as well.



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

Each location of the biogas digester and user households in Bangladesh covered by this CPA are summarized in Annex 5 and specified in the attachment file.

The entity responsible for the CPA is IDCOL as specified in A.3.

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

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

[The first date of the period specified in A.1 and A.2 comes here as D/M/Y] which is defined as the starting date of operation of the first biogas digester in the CPA.

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

20 years 0 month

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

Renewable crediting period

A.4.3.1. Starting date of the crediting period:

[The first date of the period specified in A.1 and A.2 comes here as D/M/Y] which is defined as the starting date of operation (i.e., real action) of the first biogas digester in the CPA.

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

7 years (as crediting period for the PoA is 28 years, the total crediting period of any CPA through renewing should be limited to the end date of the PoA crediting period)

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

Year	Estimation of overall emission reductions (tonnes of CO <sub>2</sub> e)
Year A	
Year A+1	
Year A+2	
Year A+3	



Year A+4
Year A+5
Year A+6
Year A+7
<b>Total</b> (tonnes of CO <sub>2</sub> e)

[Note] It is noted that 8 calendar years are required for the 7-year crediting period unless the CPA started on Jan.1.

>> **A.4.5. Public funding of the CPA:**

Since a part of the PoA is undertaken as the IDCOL program (NDBMP), public funding—whose source comes from several industrialized countries—is used mainly for the source of micro-financing (loan) which provides flexibility for the households for initial investment. On the other hand, it is noted that IDCOL nor implementers do not invest in the biogas digesters. Each household invests (in many cases by utilizing the micro-financing scheme operated by the implementers).

It is also noted that any Annex I Party government will not obtain CERs in compensation for the ODA.

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

The largest 100 m<sup>3</sup>/day biogas digester (independent subsystem) under a CPA of the PoA generates around 22 kW<sub>e</sub> in average. This figure is much less than 1% of the threshold of small scale CDM project (45 MW<sub>e</sub>). Therefore, as per “Guidelines on Assessment of De-bundling for SSC Project Activities” (version 03) (paragraph 10)<sup>7</sup>, any CPA of the PoA is exempt from performing a de-bundling check.

>> **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 third eligibility criteria specifies the procedures to confirm this point as follows:

- (3) *The CPA is not a part of a registered CDM project or not a CPA under another PoA.*  
Regarding inclusion of any CPA to the PoA, IDCOL identifies if there is any registered CDM project activity or CPA of a registered PoA that targeting the same households in Bangladesh.

<sup>7</sup> If each of the independent subsystems/measures (e.g., biogas digester, solar home system) included in the CPA of a PoA is no larger than 1% of the small-scale thresholds defined by the methodology applied, then that CPA of PoA is exempted from performing de-bundling check i.e., considering as not being a de-bundled component of a large scale activity.



DOE is to check whether the information of all current registered CDM project activities and CPAs under PoAs in Bangladesh provided by the CME cover the cooking energy use of targeted households in general.

For this purpose, IDCOL is to prepare the database in order to meet this criterion for the cases mentioned below:

- (a) User households of the CPA are not covered by other existing CPAs of this PoA, by checking that the period to define the CPA is different from others. Basically this is true, but if some overlap is set for the period, the households in the overlapping period is checked to avoid double-counting; and
- (b) User households of the CPA used ICS before use of biogas will not result in double counting of emission reductions, by introducing checking system in the database.

It is noted that there is a registered PoA for installation of improved cookstoves (ICS)<sup>8</sup>. The CPA may include the household covered by this PoA but includes a procedural arrangement to avoid double counting, i.e., a checking system is introduced whether the household has already installed ICS (under registered PoA 4791 as well as by non-CDM programmes or independently). If so, the emission reductions for the households are discounted by subtracting the relevant CO<sub>2</sub> emission reductions by the ICS activities in a conservative manner.

In addition, each biogas digester is equipped with some physical mark specifying that the digester be installed under the CDM PoA.

If this procedure is introduced at the time of the first CPA and no changes from that time, this criterion is met.

The information in Annex 5 as well as attachment file shows the related information for the items (a) and (b) above.

This ICS PoA is the only PoA which targets thermal energy use of household in rural Bangladesh to date. [This paragraph will be modified if other PoAs, which may target the thermal energy use of the same household, will be implemented in rural Bangladesh. The method how to avoid overlapping will be described as well in this case.]

**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:**

Title: Programme for Promotion of Access to Domestic Biogas in Rural Bangladesh  
Ver.: 3.0  
Date: 20/06/2012

<sup>8</sup> PoA 4791: “Improved Cooking Stoves in Bangladesh”. See [http://cdm.unfccc.int/ProgrammeOfActivities/poa\\_db/SE7XIMKF8NYOTLL16BW3U45C9ZDGA/view](http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/SE7XIMKF8NYOTLL16BW3U45C9ZDGA/view).



NAME /TITLE OF THE PoA:

Programme for Promotion of Access to  
Domestic Biogas in Rural Bangladesh



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

All of the eligibility criteria are met as shown below:

- (1) *The CME (IDCOL) define the period during which the biogas digester systems covered by the CPA are installed (e.g., 1/4/2012–31/9/2012). The CME provides a list of all user information with starting date of the service as well as the associated biogas digester and cookstoves for use. Summary list is attached to the CPA-DD and the electronic file is provided also to the DOE with full relevant information.*

DOE is to desk review that the period is consistent with the defined starting date of the CPA as well as to review whether the information is consistent.

It is noted that the starting date of CPA can be an earlier date of inclusion if it is after the starting date of the PoA.<sup>9</sup>

Location of each household is also shown in the file. DOE is to confirm all of them are in the geographical area of Bangladesh (i.e., geographical area of the CPA).

As shown in sub-section A.2, backed by Annex 5 and attachment file, this condition is met.

- (2) *The CPA includes installation/construction of biogas digester systems, biogas delivery lines and biogas cookstoves at rural households or small and medium farms in Bangladesh. IDCOL has records and documentation control processes for each CPA as a part of its management system.*

CPA-DD with the relevant list of information is submitted for inclusion after installation of all biogas systems in the CPA.

IDCOL will inspect installation of biogas digesters and watch their operation regularly. Inspection procedures have been introduced in NDBMP by IDCOL for proper installation of the system. Each partner organization already has the maintenance system/service for proper operation of the biogas digesters as the eligibility requirements by IDCOL to be a partner organization.

IDCOL keeps information of digesters in a CPA such as locations, ID numbers, names of user households including that of the digester owner and number of biogas cookstove burners and starting date of operation. IDCOL shall demonstrate that it prepares the management system and has operated it properly to the DOE at the time of first verification.

<sup>9</sup> “Glossary of CDM terms” (ver. 05) ([http://cdm.unfccc.int/Reference/Guide/inf/glbs\\_CDM.pdf](http://cdm.unfccc.int/Reference/Guide/inf/glbs_CDM.pdf)) specifies that

**Starting date of a CDM programme activity (CPA - All types)**

The starting date of a CDM programme activity is the earliest date at which either the implementation or construction or real action of a programme activity begins. The starting date of the CPA cannot be prior to the commencement of validation of the programme of activities, i.e. the date on which the CDM-POA-DD is first published for global stakeholder consultation.

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NAME /TITLE OF THE PoA:

Programme for Promotion of Access to  
Domestic Biogas in Rural Bangladesh



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DOE is to check whether IDCOL prepared the management system and operates it properly with the relevant reporting arrangement and can be verifiable at the time of verification. DOE can desk review of this criterion by checking all relevant information provided by IDCOL. If all of them are met for the first CPA and no changes from that time, this criterion is considered to be met. DOE’s check does not include whether some specific data is missing for some specific household.

It is noted that proper operation of the management system will be checked at the time of verification again in more detail. In case verification identifies some improper functions in the management system, new CPA inclusion cannot be done until the CME will demonstrate to fix all identified issues.

The management system has not been changed after the validation process. *[If some changes was made, explain how it has been changed. It is also needed to state that all of the requirements for CDM have been maintained as before.]* No significant problems have been observed. *[If some significant problems occurred, please specify what it is. It is also needed to state that all of the necessary data was recovered or emission reductions are not claimed for the data lost.]*  
In addition, as shown in sub-section A.2, backed by Annex 5 and attachment file, this condition is met.

- (3) *The CPA is not a part of a registered CDM project or not a CPA under another PoA.*

See sub-section A.4.7 for confirmation.

- (4) *Installations/operations of biogas digesters shall be in compliance with related national and sectorial standards and regulations.*<sup>10</sup>

DOE is to check whether the CME provided all related documents. For proper operation, providing relevant handbook with suitable instruction and establishment of maintenance system are considered to be the evidences. If all of them are provided for the first CPA and no changes from that time, this criterion is met.

It is noted that a monitoring system—incl. annual survey—is introduced to include only properly operating biogas digesters in the calculation of emission reductions. The latest survey report is provided to the DOE.

The national and sectoral standards and regulations, which set requirements to the PoA activities, has not been changed after the validation process. *[If some changes was made, explain how it has been changed. It is also needed to state that all requirements by them are met.]* Therefore, this condition is met.

<sup>10</sup> Infrastructure Development Company Ltd. (IDCOL) Model Biogas Plant Construction Manual, IDCOL/SNV, April 2006.

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(5) The aggregated capacity of biogas cookstoves under a CPA is less than 15 MW<sub>th</sub> i.e., the aggregated number of burners of cookstoves is less than 8,000.<sup>11</sup>

Bearing the threshold in mind, IDCOL construct the database of digester systems (including cookstoves and related equipment) for each CPA to and provide all specific information of biogas digester system to DOE through the CME.

DOE is to desk review the specification of the system (esp., number of burners of biogas cookstoves) and ex ante calculation of GHG emission reductions specified or attached to the CPA-DD. If the data of the number of burners is missing, a conservative default value<sup>12</sup> is applied.

As shown in sub-section A.2. backed by Annex 5 and attachment file, this condition is met. See A.2. for the cookstove numbers.

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

Please see sub-section E.5.1 of the PoA-DD which is referred as below:

If a CPA that employs renewable energy under the PoA is up to 5 MW<sub>e</sub>, then the CPA is demonstrated to be additional by following the Guidelines specified in “Guidelines for demonstrating additionality of microscale project activities” (version 03) approved in the 63<sup>th</sup> meeting of EB.

The Guidelines states:

- Paragraph 2 (c). The project activity is designed for distributed energy generation (not connected to a national or regional grid)<sup>13</sup> with both conditions (i) and (ii) satisfied;
- (i) Each of the independent subsystems/measures in the project activity is smaller than or equal to 1500 kW electrical installed capacity.;
  - (ii) End users of the subsystems or measures are households/communities/small and medium enterprises (SMEs).

The Guidelines also states that:

Paragraph 6. Project activity<sup>14</sup> in paragraphs 2–4 means a small scale or large scale CDM project activity or a project activity under a programme of activities (CPA of a PoA).

Because the capacity of each household biogas cookstove (independent sub-system) is around 1.65 kW<sub>th</sub> (for single burner), i.e., much less than the threshold 1,500 kW<sub>e</sub> (4,500 kW<sub>th</sub>) and all end users

<sup>11</sup> See footnotes 8 and 10 for calculations (of the PoA-DD).

<sup>12</sup> The default value is set as 2 burners per household conservatively. This can be justified by the fact that the available data for CPA 1 (301 households) consists of: one-burner household (60%), two-burner household (37%), three-burner household (3%) and four-burner household (0.3%).

<sup>13</sup> This means that projects applying AMS-I-D are not eligible.



of the sub-systems are households that each CPA satisfies the condition stipulated in the “Guidelines for demonstrating additionality of microscale project activities”.

Therefore, according to the Guidelines mentioned above, any CPA under the PoA is additional.

**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.**

As shown in sub-section E.3 of the PoA-DD, the boundary of a CPA is the physical, geographical site of renewable energy (biogas) is used through installation and operation of biogas digesters at households. The GHGs and sources being considered within the boundary are concluded in the table below.

Table: Emission sources included in or excluded from the project boundary

Source	Gas	Included?	Justification / Explanation	
			Major emission source	
Baseline	CO <sub>2</sub>	Yes	Major emission source	
	CH <sub>4</sub>	No	Not significant. Excluded for simplification	
	N <sub>2</sub> O	No	Not significant. Excluded for simplification	
Project Activity	CO <sub>2</sub>	Yes	In case household still uses non-renewable woody biomass after use of biogas	
	CH <sub>4</sub>	No	Zero emission source	
	N <sub>2</sub> O	No	Zero emission source	

As the CPA targets households in rural Bangladesh, it is obvious that the CPA is located within the geographical boundary of the registered PoA.

**B.5. Emission reductions:**

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

Data / Parameter:	B <sub>th</sub> <sup>BL</sup>
Data unit:	ton/household/year
Description:	Woody biomass consumption per household per year
Source of data used:	Standardized approaches for facilitating the baseline emission calculations under AMS-I-E
Value applied:	3.29
Justification of the choice of data or description of measurement methods and procedures actually	The default value is set by the SSC WG report: [to be replaced] <a href="http://cdm.unfccc.int/Panels/ssc_wg/meetings/033/ssc_033_an08.pdf">http://cdm.unfccc.int/Panels/ssc_wg/meetings/033/ssc_033_an08.pdf</a> This default value is tentative one and to be replaced by a new one when the CDM Executive Board approve it.



applied:	
Any comment:	This value is applied for all CPAs.
<b>Data / Parameter:</b>	$f_{NRB}$
Data unit:	No dimension
Description:	NRB: Share of non-renewable woody biomass used in the absence of the project activity DRB: Share of (demonstrably) renewable woody biomass used in the absence of the project activity
Source of data used:	Fraction of non-renewable woody biomass used among whole woody biomass in the absence of the project activity, defined as $f_{NRB} = \frac{NRB}{NRB + DRB}$ where NRB is the non-renewable woody biomass and DRB is the demonstrable renewable woody biomass.
Value applied:	1.0 (JPMorgan Climate Care report and World Bank “Restoring Balance—Bangladesh’s Rural Energy Realities”)
Justification of the choice of data or description of measurement methods and procedures actually applied:	Because Bangladesh is a LDC, available official documents are limited. Therefore, JPMorgan conducted a comprehensive study considering CDM-specific requirements into account. In addition, the World Bank Report (footnote 3 of PoA DD) and other materials (see footnote 2 of PoA DD) support this result. This is also supported by the registered PoA 4971: “Improved Cooking Stoves in Bangladesh (footnote 11), shows the value is 1.0 (page 22–23).
Any comment:	–

<b>Data / Parameter:</b>	$NCV_{biomass}$
Data unit:	TJ/ton
Description:	Net calorific value of the woody biomass
Source of data used:	Methodology
Value applied:	0.015
Justification of the choice of data or description of measurement methods and procedures actually applied:	Default value as per AMS-IE. (ver. 04)
Any comment:	–

<b>Data / Parameter:</b>	$EF_{project, fossilfuel}$
Data unit:	1 CO <sub>2</sub> /TJ

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Description:	Emission factor for substitution of woody biomass
Source of data used:	Methodology
Value applied:	81.6
Justification of the choice of data or description of measurement methods and procedures actually applied:	Default value as per AMS-IE (ver.04)
Any comment:	–

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

>

The sub-section E.6.2 of the PoA-DD (eq. 12 and 13) shows:

$$ER_y = 1.163 \cdot N_{HH,y}^{OP} \cdot (3.29 - B_{HH}^{PI})$$

For  $N_{HH,y}^{OP}$ , please see equations (8)–(10) in the PoA DD for definition.

In case  $B_{HH}^{PI} = 0$  and for non-ICS ex-user, per household emission reductions for non ex-ICS user household is calculated as

$$(\text{emission reductions per household}) = 3.83 \text{ [tCO}_2\text{/yr/household]}$$

The amount of emission reductions  $ER$  in a typical year (assuming that one year has passed from installation of the last biogas digester and all digesters functions properly) is calculated as

$$ER_y = 3.83 \cdot N_{HH,y}^{OP} \text{ [tCO}_2\text{/yr]}$$

$$= [\textit{insert calculated value from below}] \text{ [tCO}_2\text{/yr]}$$

by inserting that

$$N_{HH,y}^{OP} = (1/365) \cdot r_y^{OP} \cdot \sum_i n_{i,HH,y} \cdot AD_{ICS,i}$$

*(defined in eq. (8) of the PoA-DD for ex post calculation)*

$$= (r_y^{OP} \text{ for latest year}^{14}) \cdot (\text{number user households covered by the CPA})$$

*(average of AD<sub>ICS,i</sub> for the user households covered by the CPA)*

$$= [\textit{insert the associated calculations from below}]$$

*(for the purpose of ex ante calculation)*

where

$$(r_y^{OP} \text{ for latest year}) = [\textit{insert calculated value using the latest Annual Biogas Users Survey}]$$

<sup>14</sup> If the latest Annual Biogas Users Survey does not include this information,  $r_y^{OP}$  is set as 1 for ex ante calculation.

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$r_y^{OP}$  is the ratio of user (including owner) households supplied by properly operating digesters in a year  $y$ . This factor reflects malfunction state and discarded state of the digesters. This ratio is determined by annual survey of more than 100 households in order to keep (95/10) confidence/precision level for the sampling method. Please see eq. (9) of the PoA-DD.

(number user households covered by the CPA) = *[insert this number consistent with A.2. and Annex 5]*

(average of  $AD_{iCS_j}$  for the user households covered by the CPA) = *[insert this number consistent with A.2. and Annex 5]*

B.5.3. Summary of the ex-ante estimation of emission reductions:				
Year	Estimation of project activity emissions (tonnes of CO <sub>2</sub> e)	Estimation of baseline emissions (tonnes of CO <sub>2</sub> e)	Estimation of leakage (tonnes of CO <sub>2</sub> e)	Estimation of overall emission reductions (tonnes of CO <sub>2</sub> e)
Year A			0	
Year A+1			0	
Year A+2			0	
Year A+3			0	
Year A+4			0	
Year A+5			0	
Year A+6			0	
Year A+7			0	
Total (tonnes of CO <sub>2</sub> e)			0	

[Note] It is noted that 8 calendar years are required for the 7-year crediting period unless the CPA started on Jan.1.

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

**B.6.1. Description of the monitoring plan:**

>>

<sup>15</sup> If the latest Annual Biogas Users Survey does not include this information,  $r_y^{OP}$  is set as 1 for ex ante calculation.



1. Monitoring framework

1.1. Monitoring framework

IDCOL will manage whole activities under the PoA as the CME. The monitoring management system is integrated part of the implementation management system as shown in A.4.4.

The operation and management structure for monitoring is based on IDCOL's existing monitoring system with involvement of implementers (partner organizations). IDCOL will act as the overall supervisor and prepare a monitoring report periodically (typically annually) to the DOE by using the reports by GS and other implementers.

The implementers will undertake the monitoring (especially preparing the monthly and annual status report) based on the operation and monitoring manual prepared by IDCOL. Results will be reported to IDCOL. IDCOL have the responsibility to manage and operate all of the CPA.

Each CPA is basically sequential for the period of its starting dates of digesters and covers whole Bangladesh.



2. The role of implementers

The following table shows the roles of the CME and implementers for monitoring.

Table: Functions IDCOL (CME) and implementers

	IDCOL (supported by PEAR)	Implementers (GS and other organizations)
Monitoring management	<ul style="list-style-type: none"> <li>- Develop the operation and monitoring manual for activities.</li> <li>- Develop and establish data collection and reporting system for parameters monitored in every CPAs.</li> <li>- Implement and manage monitoring of CPAs.</li> </ul>	<ul style="list-style-type: none"> <li>- Implement and manage monitoring of activities (information related to installation of biogas digesters and biogas use, undertaking maintenance services, etc.).</li> <li>- This can be supported by monthly collection of installments.</li> </ul>
Data collection	<ul style="list-style-type: none"> <li>- Establish and maintain data collection systems for parameters monitored.</li> <li>- Check data quality and collection procedures regularly.</li> </ul>	<ul style="list-style-type: none"> <li>- Implement data collection, especially at the time of biogas digester installation and operation start.</li> <li>- Check internal data quality and collection procedures regularly.</li> </ul>
Data storage and	<ul style="list-style-type: none"> <li>- Develop database format of CPA.</li> <li>- Check the reported data from each</li> </ul>	<ul style="list-style-type: none"> <li>- Enter collected data to a computer database.</li> </ul>



management	<p>CPAs.</p> <ul style="list-style-type: none"> <li>- Calculate emission reductions based on the data reported by the implementers.</li> <li>- Implement data management of CPAs.</li> <li>- Store and maintain records.</li> </ul>	<ul style="list-style-type: none"> <li>- Implement data management of the activities.</li> <li>- Store and maintain records.</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>- Analyze data and compare project performances.</li> <li>- Prepare and forward monthly or annual reports.</li> </ul>	<ul style="list-style-type: none"> <li>- Report electronic data to the program coordinator (IDCOL).</li> <li>- Households report related information and any malfunctions happened on biogas digesters to the implementer</li> </ul>
CDM training and capacity building	<ul style="list-style-type: none"> <li>- Develop and establish training program for implementers and prepare a manual for households.</li> </ul>	<ul style="list-style-type: none"> <li>- Implement simple training for households for operation of the digester and biogas use.</li> </ul>
Quality assurance and verification	<ul style="list-style-type: none"> <li>- Undertake Annual Biogas Users Survey to grasp the status of the program which includes monitoring related to CDM.</li> <li>- Establish and maintain quality assurance system with a view to ensuring transparency and allowing for verification.</li> <li>- Prepare for, facilitate and coordinate verification process.</li> </ul>	<ul style="list-style-type: none"> <li>- Undertake regular check of biogas digester for 2 years (monthly for households utilizing micro-finance), including assurance for 5 years maintenance as well as to make contract to inform malfunction to the implementer after that period for recovery.</li> <li>- All of these information are recorded and reported to IDCOL.</li> </ul>

### 3. Monitored data

The data to be collected once not specific to the CPA is as follows:

<b>Data / Parameter:</b>	$ER_{RCS}$
Data unit:	t CO <sub>2</sub> /household/yr
Description:	Annual emission reductions by ICS introduction per household
Source of data used:	First verification report of registered CDM PoA 4791
Value applied:	To be shown in the above mentioned reference
Justification of the choice of data or description of measurement methods and procedures actually applied:	<p>Most appropriate amount of emission reductions by introduction of ICS can be provided for registered CDM project activity.</p> <p>It is noted that in the calculation of emission reductions, this value is multiplied by 110% (as shown in eq. (10) of the PoA-DD) in order to provide a conservative estimation.</p> <p>It is also noted that this factor is also applied to ICS ex-users not covered by the above-mentioned CDM PoA in order to provide a conservative figure.</p> <p>The value will be fixed once obtained.</p>

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Any comment:	-
<b>Data / Parameter:</b>	$n_{RCS}$
Data unit:	number
Description:	Number of conventional cookstoves per household
Source of data used:	This parameter is provided by some report/document
Value applied:	To be shown in the above mentioned reference
Justification of the choice of data or description of measurement methods and procedures actually applied:	<p>The report/document is shown at the time of first verification to the DOE.</p> <p>The value will be fixed once obtained.</p> <p>If no report/document is found, a survey is conducted and the result will be described in the first monitoring report.</p>
Any comment:	This parameter is a dummy and not used in the calculation of emission reductions.

The following data are those specific to the CPA:

<b>Data / Parameter:</b>	$N_{HH,y}^{OP}$
Data unit:	Number of user households
Description:	Number of user households which are successfully utilizing the biogas from operating biogas digesters in the CPA in a year $y$ .
Source of data to be used:	<p>This value is specified in the database of the management of the PoA.</p> <p>This parameter is calculated <i>ex post</i> by using the dataset of <math>n_{i-HH,y}^{OP}</math> below mainly and other factors.</p> <p>This value can be a fraction if some digester is out of order for a certain period or a digester starts its operation in the middle of the verification period.</p>
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:	<p>IDCOL constructs a database for the PoA.</p> <p>The database includes the information of the household which introduced a biogas digester and the user households of the biogas digester.</p> <p>This parameter is calculated as an aggregation of each household:</p> $N_{HH,y}^{OP} = (1/365) \cdot r_y^{OP} \cdot \sum n_{i-HH,y} \cdot ADJ_{ICSY}$ <p>as shown in eq. (8) in the PoA-DD. (For notations, see the following monitoring items)</p> <p>It also includes the starting date of operation of the biogas digester for <math>n_{i-HH,y}</math>.</p> <p>This parameter is automatically calculated in the database.</p>
QA/QC procedures to be applied:	

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Any comment:	It is noted that the summation is over the <i>user household</i> of biogas and not summation over biogas digester. Some biogas digester may deliver biogas to several households. On the other hand, judgment of ‘operation’ is related to the status of the associated <i>biogas digester</i> , i.e., $n_{i,HH,y}$ , belonging to the same biogas digester is the same.
<b>Data / Parameter:</b>	$n_{i,HH,y}$
Data unit:	Number of days
Description:	Number of days during which user household (specified as $i$ ) is utilizing the biogas from a biogas digester in the CPA in a year $y$ .
Source of data to be used:	This parameter is based on the status reports by implementers.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	365
Description of measurement methods and procedures to be applied:	Implementers shall prepare a database of the installation of biogas digesters as well as the user households. The database includes the start date of operation defined as the commencing date of using biogas defined as the date when the first down payment (instalment against loan) was collected. From this date, $n_{i,HH,y}$ is calculated as the remaining number of days during the monitoring period for each user household. If the digester has been operated more than one year, $n_{i,HH,y} = 365$ for the household $i$ .
QA/QC procedures to be applied:	Monitoring, recording and reporting by each implementer is integrated to existing IDCOL’s management system. Database managed by IDCOL is to collect all the data for calculation of $N_{i,HH,y}^{OP}$ .
Any comment:	Not-in-use state of the digester is calculated in $r^{OP}$ , not by this parameter.
<b>Data / Parameter:</b>	$AD_{i,ICS}$
Data unit:	No dimension
Description:	Adjustment factor concerning the ex-user of improved cookstove (ICS) for the household $i$
Source of data to be used:	This parameter is based on the status reports by implementers.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	1
Description of measurement methods and procedures to be applied:	This parameter is based on the binary questions whether the user household was ex-user of ICS. The entire household data is collected. If this information is missing for some household, this household shall be

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applied:	regarded as ex-ICS user for conservativeness.
QA/QC procedures to be applied:	–
Any comment:	This is applied not only for ICS CDM PoA but also for any other ICS programmes for conservativeness.
<b>Data / Parameter:</b>	$n_{i,burner}$
Data unit:	Number of burners of biogas cookstove
Description:	Number of biogas cookstove burners per each household $i$
Source of data to be used:	Order sheet of the biogas digester system to be compiled in the status report by the implementers
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:	Usually, specs and numbers of the biogas cookstoves are shown in the order sheet of the biogas system. In case the data is missing, “2” (double burner biogas cookstove) is set for conservativeness for the household.
QA/QC procedures to be applied:	Inspected after installation of the biogas digester system. The biogas digester owner shall communicate with GS unit office if additional biogas cookstoves were installed after the installation of the system.
Any comment:	This parameter is used to judge whether the CPA complies with the eligibility criterion (5). The maximum number of the burners per a CPA is 9,096 in order to meet the threshold of Microscale CDM, while the eligibility criterion set the limit as 8,000 (around 88% of the threshold); it has the safety margin. In the Annual Biogas Users Survey 2010 states that “Single burner is the dominant form of using biogas in the surveyed households: 216 out of 300 households use single burners.” Therefore setting “2” is conservative.

The following data are those for sampling survey:

<b>Data / Parameter:</b>	$n_{i,HH,y}^{NOP}$
Data unit:	Number of days
Description:	Number of days during which the supplying digester is not operated for household $j$ covered by the sample survey in a year $y$
Source of data to be used:	IDCOL’s Annual Biogas Users Survey
Value of data applied for the purpose of calculating expected emission reductions in	0

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section B.5	IDCOL undertakes a sample survey of this ratio in its Annual Biogas Users Survey. The number of sample user households should be more than 100 in order to keep (95/10) confidence/precision level for the sampling method. This parameter is used to calculate $r_{HH,j}^{PI}$ per eq. (9) of the PoA-DD. It is noted that if the user household stopped using biogas anymore because of abandoning of the digester or some other reasons, $n_{HH,j}^{NOP} = 365$ for the household.
QA/QC procedures to be applied:	In case some irregular data is found, IDCOL will analyse the data and correct them if necessary. This process should be recorded if undertaken.
Any comment:	See Annex for the sampling method. It is noted that the owner household usually tries to fix the malfunction as soon as possible.

<b>Data / Parameter:</b>	$N_{sample,y}$
Data unit:	Number of households
Description:	Number of sample biogas user households covered by the annual sampling survey.
Source of data to be used:	IDCOL's Annual Biogas Users Survey
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:	This number should be more than 100 in order to keep (95/10) confidence/precision level for the sampling method. This sampling survey is common for the surveys of $n_{HH,j}^{NOP}$ and $B_{HH,j}^{PI}$ .
QA/QC procedures to be applied:	In case some irregular data is found, IDCOL will analyse the data and correct them if necessary or discard the data. Even if some data are discarded, the number should be more than 100. This process should be recorded if undertaken.
Any comment:	–

<b>Data / Parameter:</b>	$B_{HH,j}^{PI}$
Data unit:	ton/household/year
Description:	Project woody biomass consumption for household $j$ covered by the sample survey in a year $y$
Source of data to be used:	IDCOL's Annual Biogas Users Survey.
Value of data applied for the purpose of calculating expected	0

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emission reductions in section B.5	IDCOL undertakes a sample survey of this ratio in its Annual Biogas Users Survey. The number of sample user households should be more than 100 in order to keep (95/10) confidence/precision level for the sampling method. This parameter is used to calculate $B_{HH,j}^{PI}$ per eq. (7) in the PoA-DD.
Description of measurement methods and procedures to be applied:	In case some inconsistency is found, the reason shall be clarified. If the reason is not clarified, the data shall not be included.
QA/QC procedures to be applied:	The woody biomass is the tree cut by the household or the wooden biomass (incl. charcoal) purchased in the market. It does not include the pick-up twigs because they are recognized as renewable.
Any comment:	

#### 4. Data collection

Data collection regarding households will mainly be carried out by implementers. The role of IDCOL in data collection is checking the quality of the data collected by implementers.

#### 5. Data management

Data management is the most important step in the monitoring process to ensure transparent and credible emission reduction calculations.

Each implementer (GS or other organization) shall collect data described above and archive these electronically using the common template developed by the program coordinator (IDCOL). The electronic files and the hard copy shall be sent to IDCOL.

IDCOL will develop an appropriate electronic template for archiving all data of every activity. After reporting data from implementers, IDCOL shall check the data. If there are any errors found, they will be checked against original data and carry out interview with farmers if necessary.

IDCOL will calculate emission reductions for each CPA supported by PEAR, and store the outputs in hard disks as well as hard copy printouts.

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SECTION C. Environmental Analysis

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

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.

Biogas digester promotion projects are seen to have few negative impacts on the environment. Especially domestic biogas digester promotion projects are implemented at household level and their impact on the environment is identical in most extension regardless of location; therefore, environmental clearance certificate will be gained at the PoA level.

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

Please refer sub-section C.2 of the PoA-DD. There is no specific elements to this CPA.

**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:**

No EIA is required for activities under the PoA.



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.

Since CPAs under the PoA will be implemented dispersedly in all rural Bangladesh, which is also the geographical boundary for the PoA and the program design, distribution and implementation aspects including the CDM issues are essentially uniform across the country with no CPA specific characteristics, hence it is appropriate to conduct a stakeholder consultation at a PoA level.

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

**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**

Coordinating and Managing Entity and Joint Focal Point

Organization:	Infrastructure Development Company Limited
Street/P.O.Box:	8 Panthapath, Kawran Bazar
Building:	UTC Building, 16 <sup>th</sup> Floor,
City:	Dhaka
State/Region:	Dhaka
Postfix/ZIP:	1215
Country:	Bangladesh
Telephone:	9102171-8
FAX:	+880-2-8116663
E-Mail:	contact@idcol.org
URL:	http://www.idcol.org/
Represented by:	Islam Sharif
Title:	Executive Director and CEO
Salutation:	Mr.
Last Name:	Sharif
Middle Name:	
First Name:	Islam
Department:	
Mobile:	
Direct FAX:	+880-2-8116663
Direct tel:	
Personal E-Mail:	islamsharif@idcol.org

Project Participant and Joint Focal Point

Organization:	Grameen Shakti
Street/P.O.Box:	Mirpur-2
Building:	Grameen Bank Bhaban (19 <sup>th</sup> Floor)
City:	Dhaka
State/Region:	Dhaka
Postfix/ZIP:	1216
Country:	Bangladesh
Telephone:	88029004314
FAX:	88028035345
E-Mail:	g_shakti@grameen.net
URL:	http://www.gshakti.org/
Represented by:	Absar Kamal
Title:	Managing Director
Salutation:	Mr.
Last Name:	Kamal

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Middle Name:	Absar
First Name:	
Department:	
Mobile:	+8801711567042
Direct FAX:	
Direct tel:	
Personal E-Mail:	g_shakti@grameen.com

For other implementers, please see [http://www.idcol.org/biogass\\_installation.php](http://www.idcol.org/biogass_installation.php) for IDCOL partner organizations as implementers. *[In case other organizations than IDCOL's POs participate in this CPA, specify the details here.]*

Annex 2

**INFORMATION REGARDING PUBLIC FUNDING**

Please refer Annex 2 of the PoA-DD.

Annex 3

**BASELINE INFORMATION**

Please see B.5 and Annex 5 for details of information.

Annex 4

**MONITORING INFORMATION**

Please refer to B.6.1 of the PoA-DD.

Annex 5

**INFORMATION OF THE BIOGAS DIGESTERS AND USER HOUSEHOLDS**

The necessity information for CDM specified in A.4.4.1 (2) for this PoA are summarized. In addition, a database spread sheet file is provided for more detailed biogas digester-wise and household-wise information.

*[The following templates are used for the spread sheet]*

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Summary Table of the CPA

CPA title: Domestic Biogas CPA (ID number of CPA) in Rural Bangladesh  
(Period of the starting date of operation of the biogas digesters covered by the CPA specified as D1/M1/Y1–D2/M2/Y2)

CPA-ID: [sequential number given by IDCOL]

Period of starting date\* of operation of covered digesters: [D1/M1/Y1] – [D2/M2/Y2]

\* Commencing date of using biogas defined as the date when the first down payment (instalment against loan) was collected

Digester numbers (by capacity)

Total	
1.2, 1.6 m <sup>3</sup> /day	
2.0 m <sup>3</sup> /day	
2.4 m <sup>3</sup> /day	
3.2 m <sup>3</sup> /day	
4.8 m <sup>3</sup> /day	
> 4.8 m <sup>3</sup> /day	

Use household\* numbers (by capacity) \* User household of biogas includes owner household

Total	
1.2, 1.6 m <sup>3</sup> /day	
2.0 m <sup>3</sup> /day	
2.4 m <sup>3</sup> /day	
3.2 m <sup>3</sup> /day	
4.8 m <sup>3</sup> /day	
> 4.8 m <sup>3</sup> /day	

ICS ex-user household\* numbers (by capacity) \* In case info is lacking, put "Yes" for conservativeness

Total	
1.2, 1.6 m <sup>3</sup> /day	
2.0 m <sup>3</sup> /day	
2.4 m <sup>3</sup> /day	
3.2 m <sup>3</sup> /day	
4.8 m <sup>3</sup> /day	
> 4.8 m <sup>3</sup> /day	

Biogas cookstove burner\* numbers (by capacity) \* In case info is lacking, put "2" for conservativeness

Total	
1.2, 1.6 m <sup>3</sup> /day	
2.0 m <sup>3</sup> /day	
2.4 m <sup>3</sup> /day	
3.2 m <sup>3</sup> /day	
4.8 m <sup>3</sup> /day	
> 4.8 m <sup>3</sup> /day	

[note] In case some other capacity options are added, the table is modified.



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List of Digesters and User Households

Plant Capacity: 1.2 and 1.6 m<sup>3</sup>/day

\*\* If info is lacking, put "2" for estimation of total number for conservativeness (specified in red)

Plant ID (cattle, poultry, birds, others)	Digester Owner's Name	Address	Upazilla	District	User's Name	Phone number	Number of cookstove burners*	Ex User of operation	Starting date of operation	Whether the date is in the period of the CPA?
Total										
Plant Capacity: 1.2 m <sup>3</sup> /day										
** If info is lacking, put "2" for estimation of total number for conservativeness										
Total										

List of Digesters and User Households

Plant Capacity: 2.0 m<sup>3</sup>/day

\*\* If info is lacking, put "2" for estimation of total number for conservativeness

Plant ID (cattle, poultry, birds, others)	Digester Owner's Name	Address	Upazilla	District	User's Name	Phone number	Number of cookstove burners*	Ex User of operation	Starting date of operation	Whether the date is in the period of the CPA?
Total										
Plant Capacity: 2.0 m <sup>3</sup> /day										
** If info is lacking, put "2" for estimation of total number for conservativeness										
Total										

List of Digesters and User Households

Plant Capacity: 2.4 m<sup>3</sup>/day

\*\* If info is lacking, put "2" for estimation of total number for conservativeness

Plant ID (cattle, poultry, birds, others)	Digester Owner's Name	Address	Upazilla	District	User's Name	Phone number	Number of cookstove burners*	Ex User of operation	Starting date of operation	Whether the date is in the period of the CPA?
Total										
Plant Capacity: 2.4 m <sup>3</sup> /day										
** If info is lacking, put "2" for estimation of total number for conservativeness										
Total										

List of Digesters and User Households

Plant Capacity: 4.8 m<sup>3</sup>/day

\*\* If info is lacking, put "2" for estimation of total number for conservativeness

Plant ID (cattle, poultry, birds, others)	Digester Owner's Name	Address	Upazilla	District	User's Name	Phone number	Number of cookstove burners*	Ex User of operation	Starting date of operation	Whether the date is in the period of the CPA?
Total										
Plant Capacity: 4.8 m <sup>3</sup> /day										
** If info is lacking, put "2" for estimation of total number for conservativeness										
Total										

List of Digesters and User Households

Plant Capacity: > 4.8 m<sup>3</sup>/day

\*\* If info is lacking, put "2" for estimation of total number for conservativeness

Plant ID (cattle, poultry, birds, others)	Digester Owner's Name	Address	Upazilla	District	User's Name	Phone number	Number of cookstove burners*	Ex User of operation	Starting date of operation	Whether the date is in the period of the CPA?
Total										
Plant Capacity: > 4.8 m <sup>3</sup> /day										
** If info is lacking, put "2" for estimation of total number for conservativeness										
Total										

Annex 6. 匿名組合契約と任意組合契約の事例

## 匿名組合契約

### 第 1 条 定義

本契約中では下記の用語は、文脈により他の意味を必要とする場合及び本契約において特に別の意味を付した場合を除き、以下の意味を有する。

「本件匿名組合員」	株式会社〇〇。
「本件営業者」	〇〇株式会社。
「本契約締結日」	平成 24 年〇月〇日。
「一般管理口座」	〇〇銀行〇〇支店に営業者名義で開設される口座。
「営業日」	銀行法（昭和 56 年法律第 59 号。改正法を含む）に従い、日本において銀行の休日として定められた日以外の日。
「計算期間」	本契約第 6 条第 1 項に定める計算期間。
「契約終了日」	本契約第 11 条または第 12 条に従い本契約が終了する日。
「財務報告書」	本契約第 5 条第 3 項に基づき、本件営業者が本件匿名組合員に対し、本事業の状況を報告するために作成する報告書。
「指定口座」	文脈により、標記記載の本件匿名組合員又は本件営業者名義の銀行口座。
「出資金」	本契約第 4 条第 2 項に従って拠出された本件匿名組合員による出資金。
「出資払込期日」	標記記載の年月日。
「出資持分」	本契約に基づく出資金に係る本契約上の地位並びに本契約及び前法に定める匿名組合員の権利及び義務。
「出資割合」	本契約に基づく出資の口数及び他の匿名組合契約に基づく出資の口数の合計に占める本契約に基づく出資の口数の割合。なお、出資の口数は、追加出資がある場合はその口数を言及するが、出資の返還がある場合はそれを考慮しないものとする。
「事務代行会社」	本件営業者がその事務の管理等を委託する目的で適宜選任する者。
「事務代行契約」	本件営業者と事務代行会社の間で、本件営業者の会計帳簿類作成事務、税務の委託、本件営業者の資金管理事務等に関して締結される事務管理契約。
「他の匿名組合員」	他の匿名組合契約における匿名組合員である第三者。
「他の匿名組合契約」	本件営業者が自らを営業者とし第三者を匿名組合員として現在締結しており又は将来締結する匿名組合契約。
「匿名組合損益」	本利益又は本損失。
「本財産」	本事業の遂行のために本件営業者により取得される全ての財産を意味する。尚、出資金を含む。「匿名組合損益」とは、本利益又は

## 匿名組合契約

〇〇匿名組合

本損失。  
本契約第2条第二項に定めるところを意味する。  
日本における一般に公正妥当と認められる企業会計原則に従って決定される本件営業者による本事業の遂行により生じる純損失（税引前当期純損失）を意味する。ただし、一般に公正妥当と認められる会計原則が税法上許容される会計処理の方法と相違する場合には、税法上許容される会計基準を適用するものとする。  
日本における一般に公正妥当と認められる企業会計原則に従って決定される本件営業者による本事業の遂行により生じる純利益（税引前当期純利益）を意味する。ただし、一般に公正妥当と認められる会計原則が税法上許容される会計処理の方法と相違する場合には、税法上許容される会計基準を適用するものとする。  
本件営業者が本契約に関連して他の本件匿名組合員に対して負う債務以外の債務の全てを意味する。

「劣後債務」 本契約第13条第1項に定めるところを意味する。

第2条 本契約の目的、本事業

1. 本件営業者と本件匿名組合員は、本契約の各条項に従い、本件匿名組合員が本事業のために出資をなし、本件営業者が本事業より生ずる利益を本件匿名組合員に分配すべきことに合意する。

2. 本件営業者は、本契約に従い以下の各号に掲げる事業を行う。

(ア) 日量4.8立米超のバイオガス・ダイジェスターを購入する個人（以下「BD購入者」という。）に対し、月賦12回払い、固定金利10%のローンを提供する（以下「BDローン」という。）

(イ) BD購入者に対する保守・補修サービスの提供

(ウ) 資金回収

(エ) 割賦契約に基づく債権者としての権利の行使及び義務の履行

(オ) 融資先顧客情報の開示

(カ) その他上記各号に関連又は付随する一切の行為

3. 本件営業者は、適用のある法令に従って事業を営み、本事業及び本事業に関連する事業以外の事業は行わないものとする。

第3条（本財産の所有権、本事業の遂行、債権債務の帰属、損益の帰属）

1. 本財産にかかる所有権、本事業の遂行、債権債務の帰属、損益の帰属は、本財産にかかる所有権その他の権利は全て本件営業者に帰属する。  
2. 本件営業者は、自己の名の下に、その裁量に従い本事業を遂行するために必要と判断する行為をすることができる。本事業に関連する第三者に対する全ての義務及び債務は本件営業者に帰属し、本件営業者は当該第三者に対して責任を負う。なお、本件営業者は本事業遂行の

業務に対する報酬として、計算期間あたり金〇万円（消費税及び地方消費税を除く。）（1年に満たない計算期間の営業者報酬については、1年を365日とする日割計算（1円未満切捨て）により算出）を本財産より受け取る。

3. 本件匿名組合員は、本事業の遂行に関するいかなる権限も有さず、事業に関して意思決定する権利を有さず、本件営業者を代理する権限を有しない。

4. 本件匿名組合員は、本契約及び商法に従って、本契約に規定されている限度で本利益を享受し、本損失を負担するものとする。

5. 本件匿名組合員の損失の分担額は、出資金を限度とする。

6. 本件営業者は、本件匿名組合員に出資金相当額の返還を保證せず、また、利益の分配を保障しない。

第4条 出資金

1. 出資金は1〇〇万円とし、1口以上とする。

2. 本件匿名組合員は、出資金として表記記載の金額を出資払込期日までに本件営業者の指定口座に払い込むものとする。

3. 本件営業者は出資金を本事業の遂行に関連する目的のみ使用するものとする。

第5条 会計

1. 本件営業者は、日本の一般に公正妥当と認められる企業会計原則に基づいて本事業に関する全ての取引に関する正確な帳簿及び記録を作成し、かつ、保持するものとする。

2. 本件営業者は、本事業の事業年度を本件営業者の会計年度と同一の毎年〇月〇日から翌年〇月末日とし、かつ、匿名組合員計算のために各事業年度毎に決算を行い、当該決算について公認会計士の監査を受けるものとする。

3. 本件営業者は本件匿名組合員に対して、本契約終了日後3カ月後の末日までに、直前の事業年度の終了日の翌日から本契約終了日までの期間に係る財務報告書を提出するものとする。

4. 本契約が最初の事業年度中に終了した場合には、本件営業者は第4項の財務報告書を提出すれば足りるものとする。

第6条 損益の分配

1. 本事業の計算期間は、毎年〇月〇日から翌年〇月末日までとする。但し、最後の計算期間は直前の計算に間の末日の翌日から本契約の終了日までとする。

2. 本事業の会計上、各計算期間末において、当該計算期間に対応する匿名組合員損益一切は、本件匿名組合員の各計算期間末の出資割合に応じて、本件匿名組合員に帰属するものとし、本事業に関する損益計算とその帰属は以下の通りとする。

記

イ) 本事業の収益

本事業の収益は、以下の項目から得られる金銭の合計とする。

① BDローンの金利収入

② BD購入者に対する保守費用

- ③ 本財産中の金銭の運用から得られる受取利息その他の果実
- ④ 本事業に係るその他の収益

ロ) 本事業の費用

本事業の費用は、以下の項目の合計とする。

- ① 本財産中の金銭の運用による負担する損失
- ② 本財産の取得、管理及び処分に必要な諸費用
- ③ 本事業の日常的な経理業務(事務代行契約及び業務委託契約に基づく報酬・費用、その他の事務代行手数料を含むが、これらに限られない。)や一般管理業務に要する費用その他の一切の営業費用(経常的に発生する弁護士費用、一般管理等を含むが、これらに限られない。)
- ④ 本事業の遂行にかかる営業者報酬
- ⑤ 本事業に係る弁護士・司法書士等の費用
- ⑥ 本件営業者に帰属するその他の費用

ハ) 損益の計算

- ① 本件営業者は、各計算期間において、本事業から生じる損益を算出する。
- ② 本事業から生じる損益とは、第 2 項第 (イ) 号及び第 (イ) 号に記載された収益及び費用の項目に関して、日本国において一般に公正妥当と認められる企業会計の基準に従い算出される損益をいう。但し、一般に公正妥当と認められる会計原則が税法上許容される会計処理の方法と相違する場合には、税法上許容される会計基準を適用するものとする。

- ③ 本事業から生じる損益は、本件匿名組合員に帰属する。また、これに係る公租公課は本件匿名組合員の負担とする。

- ④ 本契約の各当事者は、本契約により企図される取引に関し各当事者に課される租税のすべて(第 6 条ないし第 7 条に基づき本件匿名組合員に対して行われる分配に課される税金を含む。)につき、自らこれを負担する。

- 3. 本件匿名組合員は、本事業に関して、第 2 項第 (ア) 号及び第 (イ) 号によって計算された本事業から生じる利益を本件匿名組合員の各計算期間末の出資割合に応じて分配を受け、あるいは損失を本件匿名組合員の各計算期間末の出資割合に応じて負担する。但し、本件匿名組合員が負担する損失は、本件匿名組合員の出資金を限度とする。また、本事業から生じる利益がある場合、本件匿名組合員において負担した未処理の累積損失額がある場合には、当該利益はまず累積損失額に充当する。

- 4. 前 2 項において本件匿名組合員に対する損益の帰属及び分配の対象となる最初の計算期間

は、平成 24 年 0 月 0 日を初日とする計算期間とする。

- 5. 本件営業者は、本件匿名組合員の出資割合に応じて各計算期間の本件匿名組合員の匿名組合員損失の額を確定し、各計算期間末日の 3 カ月後の末日(休日の場合は前営業日)までに、本件匿名組合員に書面で報告する。

- 6. 本件営業者の法人税法上の所得計算に関して本事業に係る損益について、申告調整を行う項目(本件営業者の法人税申告期限後に判明したものを含む。)に関しては、本件営業者は本件匿名組合員にその項目及び金額を通知し、本件匿名組合員は当該申告調整項目に記載された金額を負担するものとする。

第 7 条 金銭の分配

- 1. 本件営業者は、第 6 条第 5 項に基づいて損益が確定されたことを前提に、本件匿名組合員に対する当該計算期間の匿名組合員分配金として相当と判断する金額を決定し、第 6 条第 5 項の報告と同時に、本件匿名組合員に書面で報告する。

- 2. 本件営業者は、前項の決定後すみやかに匿名組合員分配金を第 8 条第 1 項に定める方法によって本件匿名組合員に支払うものとする。

第 7 条 支払方法

- 1. 本件営業者による本件匿名組合員に対する金銭の支払いは、本件匿名組合員が指示した標記記載の銀行口座に送金する方法により行われるものとし、当該口座に支払った場合、本件営業者は支払義務を免れるものとする。本件匿名組合員が自然人である場合、同人について相続が開始されたときも同様とする。

- 2. 本件匿名組合員による本件営業者に対する金銭の支払は、指定口座に送金する方法により行われるものとする。

- 3. 前 2 項に定める支払いに係る費用は、それぞれ支払いをする者が負担する。

- 4. 第 1 項及び第 2 項の規定は本件営業者の供託する権利を妨げるものではない。

- 5. 本件営業者が、適用ある法令(日本国所得税法 210 条を含むがこれに限らない。)により、本契約に基づき本件匿名組合員に対する支払いについて何らかの金額を減額又は控除しなればならない場合、本件営業者は当該金額を減額又は控除する。本件匿名組合員はかかる減額又は控除がなされることにあらかじめ同意する。この場合、本件匿名組合員は本件営業者に対して支払額の増額又は追加の支払いを要求する権利を有しない。

第 9 条 譲渡等

- 1. 本件匿名組合員は、本契約上の出資時分を第三者に譲渡し又は担保に供するなどいかなる処分もできない。

- 2. 本件匿名組合員の相続人は、以下の各号に従う場合のみ、本契約上の権利を行使することができる。なお、本件匿名組合員が自然人でない場合には、本項は適用されない。

- イ) 本件匿名組合員の相続人は、その全員が共同して、相続開始後速やかに、本件営業者が定める様式により、次の事項を届け出なければならない。

- ① 相続開始の年月日
- ② 本契約上の権利に関する遺産分割協議の内容及びその成立の年月日
- ③ 相続人中、本契約上の権利を承継する者(以下「権利承継者」という。)の住所・氏名
- ④ 権利承継者の代表者(以下「承継者代表者」という。)の住所・氏名



配当の手続に参加することができている債権のうち、本件匿名組合員及び他の本件匿名組合員が本件匿名者に対して有する債権を除くすべての債権が、各中間配当及び最後配当によって、その債権額につき全額の満足（配当、供託を含む。）を受けることとなったこと。

#### ロ) 民事再生の場合

本件匿名者について再生計画認可の決定が確定したときにおける再生計画に記載された変更されるべき権利のうち、本件匿名組合員及び他の本件匿名組合員が本件匿名者に対して有する債権を除くすべての債権が、その債権額について全額の弁済を受けたこと。

3. 本件匿名者につき再生手続が開始された場合には、本件匿名組合員は、再生計画案に前項の趣旨が反映されるよう、その決議において議決権を行使するものとする。

4. 破産法、民事再生法その他類似の法律の改正又は解釈により、本項の目的を達することができなくなった場合には、本契約の両当事者は、その目的に沿って本項の変更を合意しなければならぬものとし、合意が整わない場合にも、本項は本項の趣旨が達成されるよう解釈されるものとする。

#### 第 14 条 責任財産限定特約

1. 本契約に基づく本件匿名者の本件匿名組合員に対する支払は、優先債務が完済されるまでに、匿名者が管理する一般管理口座内の金銭及び預金（利息を含む。）払戻請求権のみを引当てとし、その範囲でのみ行われ、本件匿名者の他の資産には及ばないものとする。

2. 本契約に基づく本件匿名者の本件匿名組合員に対する支払は、優先債務が完済された場合でも、本事業の遂行のために匿名者により取得、保有されるすべての財産のみを引当てとし、その範囲でのみ行われ、匿名者の他の財産には及ばないことを承認する。責任財産から充當した後に、なお、本件匿名組合員の本件匿名者に対する債権が残存する場合には、本件匿名組合員はその残存する債権を放棄したものとみなす。

3. 本状は、本契約終了後も協力を有するものとする。

#### 第 15 条 破産申立権等の放棄

1. 本件匿名組合員は、自己の債権の満足のために本件匿名者の財産について強制執行又は保全処分を行わず、かつ、かかる強制執行及び保全命令を申立てる権利を予め放棄する。

2. 本件匿名組合員は、本件匿名者について、破産手続が開始、民事再生手続開始又はこれらに類する倒産手続（日本国外における手続及び将来制定されるものを含む。）開始についての申立を行わないことを約する。

#### 第 16 条 本契約のリスク認識

本件匿名組合員は、以下の事項について十分に理解しており、自己の判断と責任により本契約に基づく匿名組合出資を行うことを、ここに表明し、確認する。

(1) 出資金は、元本が保証されるものではなく、本件匿名者により支払われる金額の総額（利益の分配及び出資金の払戻を含む。）は、本事業の運営状況により出資金の総額又は出資時分の購入額より少ない場合がある得ること。

(2) 本契約上の地位又は本契約上の権利義務は、原則として譲渡できないこと。

(3) 本契約の有効期間中、本件匿名組合員が本契約の解約及び出資金の払戻の請求を行うことはできず、また、本契約の期間終了後においても出資金の払戻には制約があること。

#### 第 17 条 準拠法

本契約は、日本の法律に準拠し、日本の法律に基づき解釈され、日本の法律に基づき執行されるものとする。

#### 第 18 条 管轄

本契約に関して争いが生じた時は、本件匿名者の本店所在地の管轄地方裁判所を第一審の専属的合意管轄裁判所とする。

#### 第 19 条 規定外事項

本契約に定めのない事項については、本件匿名者及び本件匿名組合員協議の上で定めるものとする。

本匿名組合契約は、本契約締結日付にて、本件営業者と本件匿名組合員との間で締結された。  
本契約の契約事項を証するため、本契約書 2 通を作成し、各自記名押印の上、各 1 通を保有するものとする。

本件営業者の連絡先	
本件営業者の住所	
本件営業者の法人名	
本件営業者の連絡先番号	

本件匿名組合員の連絡先	
本件匿名組合員の住所	印鑑
本件匿名組合員の氏名又は法人名	
本件匿名組合員の役職及び代表者氏名	
匿名組合員の連絡先番号	TEL
	FAX
初回出資希望金額	
初回出資希望金額支払日	
本件匿名組合員口座	

## 投資事業組合契約



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別紙 1

## 投資事業組合契約

### 第1条 定義

1. 本契約中では下記の用語は、文脈により他の意味を必要とする場合及び本契約において特に別の意味を付した場合を除き、以下の意味を有する。

「組合員」	本契約第5条に規定する者。
「業務執行組合員」	〇〇株式会社及び同人の後任者として本契約に基づき選任された組合員。
「非業務執行組合員」	業務執行組合員以外の組合員。
「出資金額」	各組合員において本契約第6条に基づき本組合に出資することを合意した金額。
「出資金総額」	各組合員の出資金額の総計。
「出資割合」	各組合員について、当該組合員の出資金総額に対する割合。
「投資会社」	本契約第4条に定める目的のために、その発行する株式、新株予約権付社債、新株予約権又はその他に類似する証券等を取得することにより組合財産を投資した会社(但し、企業再編により、当該会社の承継会社又はその投資証券との交換により取得した証券の発行会社を意味することがある。)
「投資証券」	投資会社が発行する株式、新株予約権付社債、新株予約権又はその他に類似する証券等で本組合が取得したもの(但し、企業再編により、当初投資会社の承継会社の発行する株式又は当初の投資証券との交換により取得した証券で本組合が保有するものを意味することがある。)
「有価証券」	金融商品取引法第2条第1項及び第2項に定める有価証券。
「実現損益」	本契約第18条に定める事業年度中に発生した投資証券の実現損益(売却価額又は日本において一般に公正妥当と認められた会計原則に準拠して投資会社の資産状態が著しく悪化したこと等を理由に相当の減額がなされた評価後の価格。)とそれらに対応する取得原価との差額。)又は現物分配される投資証券の評価額とそれに対応する取得原価との差額。
「公開会社」	その発行する株式が、(i) 日本国内の証券取引所に上場されている株式会社、(ii) 日本証券業協会の規則の定めるところにより、その店頭売買につき、その売買値段を公表するものとして登録されている株式会社、又は、(iii) 外国において上記(i)若しくは(ii)に相当すると認められるところの上場若しくは登録されている株式会社。
「組合財産」	出資金並びにこれを運用して取得した投資証券、権利、現金その他の財産で本組合に帰属すべきもの。
「組合口座」	本組合の事業のためにのみ利用される、業務執行組合員の指定する銀行若しくは信託銀行に開設された本組合名義の口座、又は業務執行組合員がこれに代えて随時開設し組合員に適式に通知した本組合名義のその他の銀行口座。
「監査人」	監査法人〇〇/又は業務執行組合員が同人に代え又は同人に加えて

適宜選任し、その旨組合員に適式に通知しその他の監査法人又は公認会計士。

「払込日」 平成〇〇年〇月〇日又は業務執行組合員がかかる日以前に払込の延期を決定した場合は、業務執行組合員が決定しその旨組合員に適式に通知した日。

「本契約期間」 平成〇〇年〇月〇日から平成〇〇年〇月〇日までの期間。但し払込の延期があったときは払込日の翌日から5年間。

2. 本契約の課題は便宜的なものに過ぎず、関連規定の解釈には影響を与えないものとする。

3. 本契約中では:

(1) ある法令の規定に関する言及は、当該規定の法令による修正又は改正すべてに及ぶものとみなす。

(2) 報酬、原価及び費用等に関する言及は、これらに關して課される消費税、付加価値税又はそれと類似の税を含むものとする。

### 第2条 名称

本組合は日本国民法上の組合であり、本組合の名称を、〇〇投資事業組合とする。

### 第3条 所在地

本組合の事務所は、東京都〇〇、〇〇株式会社内に設置する。

### 第4条 目的

本組合は、日本国内で設立された公開会社が発行する有価証券を、新株発行、自己株式処分、相対売買等の方法により取得して投資し、投資会社の企業価値の向上をはかり、当該投資証券を市場を通じて売却する等して投下資本を増殖回収することを目的とする。

### 第5条 組合員

本組合の組合員は、業務執行組合員、及び本契約に調印する非業務執行組合員のすべてから構成される。本組合の組合員の業務執行組合員・非業務執行組合員の区別、及び氏名・住所・出資口数・出資金額は、本契約添付別紙1の様式に記載されるものとし、業務執行組合員は非業務執行組合員に本契約の副本とともに送付し、各非業務執行組合員はかかる措置に同意するものとする。なお、本契約は、非業務執行組合員毎に別個の、但し内容は同一である投資事業組合契約書に署名することにより締結される。それぞれの非業務執行組合員が署名した契約書は、不可分一体とし、全体で一つの投資事業組合を構成するものとする。非業務執行組合員は、自己に關し、別紙1の記載事項の変更がある場合は、速やかに業務執行組合員に書面で通知するものとする。業務執行組合員は係る通知若しくは本契約第33条の通知があった場合又は自己に同様の変更がある場合には速やかに別紙1を変更するものとする。

## 第2章 出資

### 第6条 出資金額

各組合員の出資金額は、一口〇〇円単位として、本契約添付別紙1記載の各口数とする。

### 第7条 出資の時期及び方法

1. 組合員は各自の出資金を払込日までに組合口座に入金して払い込むものとする。なお、当該払込金は、本契約の効力発生日に出資金額の払い込みに振替充当される。
2. 払込済出資金は、本契約第21条及び第31条第1項に定めるほか、払い戻さないものとする。

### 第8条 出資払込の連滞

1. 組合員は、本契約第7条第1項に規定する出資払込を遅滞した場合、払込日の翌日から当該出資金に対する年率〇〇％の割合による遅延損害金を本組合に対し支払うものとする。

但し、当該遅延損害金は、全組合員の共有持分として組合財産に組み入れられるものとし、当該遅延損害金の支払をなした当該組合員の出資金額には組み入れられないものとする。

2. 組合員は、他の組合員の出資払込遅滞を理由に、自己の出資払込を拒絶することはできない。

#### 第9条 非業務執行組合員の個別性

本契約がいずれかの非業務執行組合員との関係で無効とされ又は取消された場合でも、本契約は他の組合員との関係では有効であり、かかる他の組合員は出資義務を含め本契約上のすべての義務に拘束されるものとする。

### 第3章 組合業務の執行

#### 第10条 業務執行組合員の権限

1. 業務執行組合員は、本組合の目的達成のため、本契約に定める制限に従い、下記の事項に関し、全組合員共同の名において、本組合の名において、又は業務執行組合員の名において、本組合の業務を執行し本組合を代表する裁判上及び裁判外の一の権限を有する。

- (1) 組合財産の運用、管理及び処分に関する事項
  - (2) 投資会社の育成、投資証券に関する議決権行使等、投資会社に対する投資に関する事項
  - (3) 組合財産の分配及び持分払戻に関する事項
  - (4) 会計帳簿及び記録等の作成及び保管等、本組合の会計に関する事項
  - (5) 本組合の事業に関して発生し、本組合の負担すべき費用、経費及び報酬等、債務の支払に関与する事項
  - (6) その他、本組合の目的達成のため必要な一切の事項
2. 本組合は、目的の如何を問わず、組合員を含めたいかなる者からも、金員を借り入れることができず、かつ、いかなる保証もすることができない。
3. 業務執行組合員は、本組合の業務執行に必要又は有用な場合、その自ら適切と考える方法で、金銭の授受を含め、自らその行為を為す代わり、弁護士、公認会計士、鑑定人その他の専門家を、本組合の費用で、顧問又は代理人として利用することができる。
4. 業務執行組合員は、投資対象の取得及び売却等の組合財産の運用及び処分に関する判断を除き、必要に応じて、自ら相当と認める第三者に、本組合の事務の全部又は一部を委任又は準委任することができる。
5. 業務執行組合員は、本組合の目的達成のため、適宜投資会社の業務状況を調査し、その経営に關し助言を与え、合理的に可能な範囲内で、その裁量により適切と考える行為を為すことができるものとする。

#### 第11条 組合員集会・非業務執行組合員の権限等

1. 非業務執行組合員は、本契約に明文をもって定められている場合を除き、前条に規定する事項を含め、業務の執行に關し又は本組合を代表するいかなる権限も有しない。
2. 業務執行組合員が通知必要と判断したときは、業務執行組合員は全組合員に対し、書面による10日以上の事前の通知をなして組合員集会を召集することができる。組合員集会において、業務執行組合員は、本組合の運営及び組合財産の運用につき報告をすることができ、また非業務執行組合員は業務執行組合員に対し、それにつき意見を述べることができる。
3. 非業務執行組合員は、本契約第18条第3項及び第5項に規定する財務諸表及び投資会社業務報告書の発送後20日以内に、業務執行組合員に対して、書面、本組合の財産状況及び業務

執行組合員の業務執行状況につき質問することができる。かかる場合、業務執行組合員は適切な方法で当該質問に答えるものとする。なお、業務執行組合員が何ら応答しない場合又は応答が不相当である場合、当該非業務執行組合員は、業務執行組合員に対して事前に書面で通知した後、自己の費用で選任した監査法人に本組合の事業を監査させることができるとし、かかる監査のため、当該監査法人は業務執行組合員に対して事前に書面で通知した後、本契約第18条第2項に規定する会計帳簿及び記録を、業務執行組合員の通常の業務時間内に閲覧することができる。但し、かかる監査は、監査実施の通知が本契約第18条第3項及び第5項に規定する財務諸表及び投資会社業務報告書の発送後45日以内に到達した場合に限り、かつ、当該発送後45日を超え90日以内の期間内に1回限り行なえるものとし、監査実施の通知をした組合員が2名以上の場合は、共同で1回限り行なえるものとする。

4. 本条第1項の規定にかかわらず、非業務執行組合員による本条第3項、本契約第12条第3項但書、並びに第16条第5項の規定に基づく権限の行使は、本組合の業務執行に該当しないものとする。

#### 第12条 組合員の自己固有の業務

1. 組合員は、自己若しくは第三者のために、本組合の事業の部類に属する取引を為し、又は同種の事業を目的とする他の組合若しくは会社の組合員、無限責任社員若しくは取締役となることができる。
2. 非業務執行組合員は、自己又は第三者のために、本組合と取引をすることを制限されない。
3. 業務執行組合員は、自己又は第三者のために、本組合と取引をすることができない。但し、出資割合の合計が2分の1以上に相当する非業務執行組合員がかかる取引を承認した場合はこの限りではない。業務執行組合員はかかる承認を求めるときには、非業務執行組合員に対し、予め書面により当該取引の内容を通知するものとする。
4. 本組合は、同一の業務執行組合員又は無限責任組合員を有する同一の事業を目的とする他の組合と取引をすることができない。
5. 本組合の業務執行組合員若しくは本組合と同一の業務執行組合員又は無限責任組合員を有する他の組合又はその関係者は、本組合に類似する業務から生じ得る投資機会を本組合に提供する義務を負わないものとする。但し、同一の投資証券につき、本組合及び本組合と同一の業務執行組合員又は無限責任組合員を有する他の組合が、取得又は処分することを妨げない。

### 第4章 組合員の責任

#### 第13条 非業務執行組合員の責任

非業務執行組合員は、組合員相互間においては、本契約第6条乃至第8条に関する出資義務以外に、本組合の債務を弁済する責任を負わない。

但し、本組合の債務が、全組合財産による弁済後も残存する場合、業務執行組合員は、その裁量により必要と判断する範囲内で、非業務執行組合員に対して、組合持分の割合に応じて本契約第21条に基づき既に分配済の組合財産の全部又は一部の返還を請求することができる。かかる返還は、現金による分配に關しては現金で、投資証券による分配に關しては返還する者の選択により当該投資証券若しくは返還請求時の当該投資証券の価額のいずれか又は両方により、為されるものとする。返還すべき投資証券の価額とは、本組合が本組合の費用で選任した鑑定人による公正な評価額とし(但し、市場価格がある場合には返還請求時の市場価格を持って公正な評価額とする。)、かかる評価額は組合員を絶対的に拘束するものとする。なお、かかる分配の返還を請求する場合には、業務執行組合員は本組合に対して、当該分配に關して自己が分配を受けた組合財産及び本契約第25条(3)に規定する報酬の全額を返還しなければならない。この場合、組合員は業務執行組合員が当該報酬の全額を返還していないことを理由に分配済みの組合財産の返還を拒むことはできない。

但し、業務執行組員は、かかる保管に至るまでの間、必要な場合は、その裁量により保管目的のため適切と考えられる方法で仮保管することができる。

1. 業務執行組員は、故意又は重大な過失がない限り、本組合の業務の執行の結果生じた損失又は損害に関して、本組合又は非業務執行組員に対して、いかなる責任も負わないものとする。
2. 業務執行組員は、本契約上の一切の裁量権の行使又は不行使の結果生じた損失又は損害に関して、それが本組合の利益になると信じて善意で善意で行なわれたものである限り、本組合又は非業務執行組員に対して、いかなる責任も負わないものとする。
3. 業務執行組員は、出資義務以外に、本組合の債務を弁済する責任を負わない。

#### 第18条 会計

1. 本組合の事業年度は、毎年1月1日から12月31日までとする。  
但し、本組合の第一期の事業年度は〇〇年〇月〇日（払込の延期があつたときは払込日の翌日）から同年12月31日までの期間とする。
2. 業務執行組員は、本組合の事業に属するあらゆる取引に関する正確な会計帳簿及び記録を作成し、保管するものとする。
3. 業務執行組員は、毎事業年度終了後90日以内に、本組合の当該事業年度に関する、日本において一般に公正妥当と認められた会計原則に準拠した貸借対照表、損益計算書及び付属明細表（以下、「財務諸表」という。）を作成し、監査人による監査を経た後、組員に送付するものとする。
4. 業務執行組員は、毎事業年度の半期終了後可能な限り速やかに当該半期に関する中間財務諸表を作成し、組員に送付するものとする。
5. 業務執行組員は、本条第3項又は第4項に基づき各組員に対し、本組合の財務諸表を送付する場合は、同時に、収入、支出、資産及び負債等を組合持分の割合に応じて分割し、当該組員に帰属すべき収入、支出、資産及び負債等に基づいて作成した当該組員用の財務諸表並びに各投資会社の投資証券の状況、事業の状況及び育成方針その他適切と考ええる事項を記載した投資会社状況報告書を送付するものとする。

#### 第16条 組合財産の運用

1. 業務執行組員は、その裁量により本契約第4条に定める目的のため、組合財産のうち本契約書で定める費用及び報酬を控除した金額を運用するものとする。
2. 業務執行組員は、投資証券を取得した場合及び売却した場合、遅滞なく、当該投資証券の状況、当該投資会社の財務内容及び事業の状況、投資証券の取得又は売却の理由、その保管に関する事項その他適切と考ええる事項を、投資報告書として書面で組員に通知するものとする。
3. 業務執行組員は、組合財産を投資及び組合の経費等の支払等適切な各種の目的に随時運用できるものとする。また、業務執行組員は、投資に運用される組合財産のうち未だ投資されていない部分を、投資証券を除く有価証券、譲渡可能定期預金証券及びMMF等に、その裁量により適切と考えられる非投機的方法で運用することができる。
4. 前三項に定めるほか、投資の時期及び方法、投資証券の売却並びに新株予約権の行使等組合財産の運用に関する事項はすべて、業務執行組員の裁量により行われるものとする。
5. 非業務執行組員は業務執行組員に対し組合財産の運用について意見を申し述べるべきことができる。

#### 第17条 組合財産の管理

1. 投資証券を含め組合財産に属するすべての有価証券は、記名式又は無記名式の如何を問わず、業務執行組員が、その旨組員に適式に通知した日本の銀行、信託銀行、証券会社（業務執行組員を除く。）等の保護預りその他安全な保管方法により保管する（以下、かかる保管場所を「保管先等」という。）ものとし、当該有価証券の所有権は組合員の共有に属するものとする。業務執行組員はかかる保管先等を変更する場合又は変更した場合、遅滞なくその旨組員に適式に通知するものとする。

#### 第19条 組合財産の所有権帰属

1. 組合財産は、組合員の共有とし、各組員は、各自の出資割合に応じた組合持分を有する。
2. 組員は、組合の清算前に組合財産の分割を請求することができない。

#### 第20条 損益帰属割合

1. 本組合の事業に関する、配当・利息等収益、実現損益、費用及び損失等組合財産の増減は、本契約第21条第2項に定める場合を除き、すべて、各組員にその組合持分に応じて帰属するものとする。
2. 本組合の事業に関して組員が各自負担すべき公租公課は、各組員が組合持分に応じて負担すべきものとし、組合としては、一切負担しない。
3. 本組合の事業に関して組員が各自負担すべき公租公課に関して、組員が、当該組員に対し適用される税法又は管轄権を有する政府若しくはその機関により、資料、書類、証明書その他必要とされる物件の提出を求められた場合、業務執行組員は、適切と判断する範囲内で、必要とされるあらゆる物件を当該組員の要求する様式で作成し、当該組員に送付するものとする。  
但し、業務執行組員は、かかる物件の作成送付に関する費用を、その裁量により適切と考えられる方法で、組員に負担させることができるものとする。

#### 第21条 組合財産の持分と分配

1. 各事業年度において、実現損益を含むすべての期間損益の決算がなされ、各組員にその組合持分に応じて割当てられる。
2. 各事業年度において、更に、本契約第25条の目的のために、実現損益のみの計算がなされる。

## 第7章 費用及び報酬

### 第24条 費用

1. 本組合の業務に関して発生する本組合の負担すべきすべての費用、原価、報酬その他の債務(以下、「費用等」という。)は、組合財産より支払われるものとする。
2. 業務執行組合員が、本組合の業務に関して、本組合の負担すべき費用等を支出した場合、本組合に対し求償できるものとする。

### 第25条 業務執行組合員に対する報酬

業務執行組合員は、組合業務執行の役務に対する報酬として、組合財産からそれぞれ以下各号の一に定めるものをそれぞれに規定する時期に受領するものとする。

- (1) 組成時管理報酬として、第一期事業年度開始時の出資金総額の〇〇％に相当する金銭(本契約第18条第1項に規定する第一期の事業年度末。)
- (2) 管理報酬として、出資金総額の年率〇〇％に相当する金銭(半期毎に前払い。)
- (3) 成功報酬として、本契約第21条第2項に規定する割合の現物又は金銭(業務執行組合員が相当と認める時。)

但し、業務執行組合員の裁量により、業務執行組合員に対する割当・分配の全部又は一部を現物によって行う場合、業務執行組合員はその取得する現物の選択を含め、その裁量により上記割合の現物又は金銭の取得等の清算方法を決定することができる。

## 第8章 組合員の地位の変動

### 第26条 持分処分禁止

組合員は、組合財産に対する共有持分権を、裁判上及び裁判外等事由の如何を問わず、譲渡、質入れその他一切処分することができない。組合員の為した共有持分権の処分は無効とし、本組合はかかる処分に関し譲受人その他第三者に対していかなる義務も負わない。

### 第27条 組合員の地位の譲渡

1. 組合員は、業務執行組合員の書面による承諾がある場合を除き、組合員たる地位を譲渡することできない。
2. 前項の譲渡に関する業務執行組合員の承諾は、その裁量により行われるものとする。

(1) 他の組合員に対する地位の譲渡の場合は、当該譲渡が本組合の事業目的遂行のために支障がある場合を除き承諾を与えるものとする。なお、業務執行組合員は、当該地位の譲渡を承認したときは、その内容を遅滞なく全組合員に通知しなければならない。

(2) 組合員以外の者に対する地位の譲渡の場合は、業務執行組合員は、当該地位の譲渡を承認したときは、その内容及び解除条件を遅滞なく全組合員に通知しなければならない。

但し、当該通知を発信した後4週間以内に出資割合の合計が2分の1以上に相当する組合員から業務執行組合員に対し当該譲渡承諾につき書面による反対の意思表示が到達したときは、当該承諾は直ちに効力を失う。

3. 前項の規定に関わらず、業務執行組合員は、その保有する組合持分を第三者に譲渡することはできない。

4. 業務執行組合員は、組合員の地位の譲渡に関し、その斡旋、仲介、代理等いかなる義務も負わないものとする。

5. 本条第2項に基づき組合員の地位を譲渡する場合であっても、組合員は自らの地位の一部を譲

渡した場合は、繰越損失がなくなるまで翌事業年度以降に繰越される。純利益(繰越損失がある場合は、繰越損失控除後)が発生した場合、純利益分については、業務執行組合員に20%相当額を割当・分配し、業務執行組合員を含む組合員にその組合持分にに応じて80%相当額を割当てる。

3. 業務執行組合員は、その裁量により、各事業年度終了後3ヶ月以内に、各組合員に割当てた組合持分を、取得原価相当地分も含め自由に、現金、現物又はその両方で組合員に分配することができる。また、各事業年度中であっても、配当収入、投資証券の売却代金その他各組合員に分配すべき組合財産が存在する場合、業務執行組合員はその裁量により、当該組合財産の一部又は全部に基づき、業務執行組合員を含む組合員にその組合持分に応じて割当・分配することができる(本規程に定める場合、業務執行組合員は、当該期中割当・分配)といふ。期中割当・分配される金額を、以下「期中分配財産額」といふ。)但し、上記期中割当・分配すべき組合財産が投資証券の売却代金である場合、業務執行組合員は、当該期中分配財産額にかかる実現利益(当該割当・分配決定時において繰越損失がある場合は繰越損失控除後。)の4分の1を上限として、本契約第25条(3)に定める成功報酬の仮払いを受けることができる。なお、当該仮払いを実施した事業年度において算定される本条第2項に規定する純益分の〇〇％相当額の業務執行組合員への割当額が、当該仮払い金額を下回ったことが判明したときは、業務執行組合員は、当該差額を速やかに組合に対し返還しなければならない。なお、返還額に利息は付さない。

4. 前項に従い分配を行う場合、業務執行組合員の裁量により、現金、現物又はその両方で行うことができる。現物分配に際しては、組合員の希望により、現金化して分配を行うこともできるが、希望に応ずるかどうかは業務執行組合員の裁量に依る。分配を現金で為す時は、業務執行組合員は、遅滞なく当該投資証券を市場で売却し、売却費用等の経費を控除した売却手取金を組合持分に従い組合員に分配するものとする。売却の時期、方法等売却に関する事項はすべて業務執行組合員が決定する。業務執行組合員は、売却に関する売却価値を含め、いかなる責任も負わないものとする。

但し、業務執行組合員は、自己又は第三者のために当該投資証券を買い取ることはできない。また現物分配に際しては、業務執行組合員は、合理的に可能な範囲内で速やかに、当該投資証券の名義変更など必要変更を行うものとする。さらに、業務執行組合員は、その裁量により、相当と認める端数調整を行うことができる。

5. 業務執行組合員は、投資会社に対する経営支援、資金提供及びその他の役務提供から得る利益を、本組合に対し分配する義務を負わないものとする。

6. 組合員は、本契約に明文の定めがある場合を除き、事由の如何を問わず、本組合の解散前に組合財産を分配することを請求することはできない。

### 第22条 滞納税の控除

1. 組合員が正当な事由なく本組合の事業に関して各自が負担すべき公租公課を滞納した場合、業務執行組合員は、その裁量により、本契約第21条に基づき分配に当り、当該組合員に分配すべき財産の中から当該滞納額に相当する現金又は現物を控除し、当該組合員に代わって当該公租公課を支払うことができるものとする。

2. 前項の控除が現物でなされた場合、業務執行組合員はその裁量により適切と考える方法で現金化することができる。かかる現金化の結果につき、その売却価額及び為替の変動を含めて、いかなる責任も負わないものとする。この場合、本契約第21条第4項及び第5項の規定を準用する。

### 第23条 分配財産の所有権帰属

1. 本契約第21条の規定に基づき分配された組合財産は、分配実施日の翌日から各組合員の単独所有に属する。

2. 業務執行組合員は分配実施後の分配財産の価額及び為替の変動に関し、いかなる責任も負わないものとする。

渡することはできないものとし、自らの地位を一括して譲渡する場合を除いては譲渡できない。また、前項に基づき自らの地位を一括して譲渡する場合には、本契約第 42 条各号に定める事項を書面をもって譲受人に告知しなければならない。

#### 第28条 組合員の加入及び脱退

1. いかなる者も、前条第 2 項 (2) に定める場合を除いては、本組合に新たに加入することはできない。
2. 組合員は、正当な事由がある場合に限り、業務執行組合員に対し(業務執行組合員が脱退する場合)は非業務執行組合員全員に対し、書面による 30 日以上の事前の通知を為して、本組合を脱退することができる。
3. 組合員に下記の事由がある場合、当該組合員は本組合を脱退したものとみなす。

(1) 解散(但し、本契約第 29 条第 2 項の規定による場合を除く。)

(2) 破産手続きの開始

(3) 本契約第 30 条の規定による除名

4. 業務執行組合員が脱退した場合、後任の業務執行組合員が選任され又は本契約第 34 条第 1 項の規定により本組合が解散するまでの間、出資割合の合計が 2 分の 1 以上に相当する非業務執行組合員の異議がない限り、当該業務執行組合員が暫定的に業務を執行するものとする。

#### 第29条 組合員の死亡、後見開始及び合併

1. 自然人である非業務執行組合員が死亡し又は適用ある法令に基づき後見開始の審判を受けた場合、相続人又は法定代理人等適用ある法令に基づき当該組合員の本契約上の権利義務を承継又は代理する者が当該組合員の地位を承継又は代理するものとする。

2. 組合員が合併(当該組合契約が属する営業につき会社分割がなされた場合も含む。以下同じ。)した場合、合併後の存続会社又は承継会社(以下、「新会社」という。)は当該組合員の地位を承継し、本契約に拘束されるものとする。なお、当該組合員が合併後存続する会社である場合を除き、新会社は遅滞なく正当な代表者により本契約に署名するものとし、新会社が当該組合員の地位の承継又は本契約に対する署名を拒絶した場合、当該組合員は、業務執行組合員の書面による通知により、合併の時に脱退したものとみなす。

#### 第30条 組合員の除名

組合員に下記の事由がある場合、業務執行組合員は、出資割合の合計が 3 分の 2 以上に相当する非業務執行組合員の同意を得て、当該非業務執行組合員を除名することができる。この場合、業務執行組合員は、除名の対象となった当該業務執行組合員に対し、除名されたことを速やかに通知するものとする。また、業務執行組合員に下記の事由がある場合、非業務執行組合員は全員的一致で当該業務執行組合員を除名することができる。

- (1) 理由の如何を問わず、本契約第 7 条第 1 項に規定する出資義務を履行しない場合
- (2) 正当な事由なく、本組合に対し、その業務を妨害する等重大な背信行為を為した場合
- (3) その他本契約上の重大な義務に違反した場合

#### 第31条 除名・脱退組合員の特分及び責任

1. 除名・脱退組合員は、その選択により業務執行組合員に対し、(i) 除名・脱退時における組合財産の自らが有する組合持分に相当する組合財産の払戻、または(ii) 本契約第 27 条に基づき組合員たる地位の譲渡の請求、のいずれかを請求することができる。業務執行組合員は当該脱退組合員に対し(当該除名組合員については前条の通知と併せて)合理的期間を指定した上、(i) または(ii)の選択をすべき旨を催告するものとし、当該除名・脱退組合員が合理的期間を指定し、脱退の事実が発生した後 30 日以内にかかる選択を行わない場合(譲渡先の指定もできない場合も含む。)には、業務執行組合員は、当該組合員が(i) を選択したものと取り扱うものとする。

2. 前項 (i) の請求に基づき組合財産の価額は、業務執行組合員の判断に基づき公正と認める評価方法による評価額とし、当該組合財産の払戻にあたっては、本契約第 21 条の規定を準用し、除名・脱退時において本組合の債務が存在する場合は除名・脱退組合員の組合持分の割合に応じた債務額を上記払戻金から差引くものとする。また、業務執行組合員は、払戻しに際しては合理的範囲で期限を指定・変更することができる。

3. 除名・脱退組合員が第1項で本契約第27条に基づき請求をした場合でかつ、除名・脱退組合員の指定する譲受人に対する譲渡を業務執行組合員が承認しない場合、業務執行組合員は当該除名・脱退組合員の譲渡請求時点での公正価格による譲渡先として他の組合員または組合員以外第三者を指定しなければならない。この場合の公正価格とは、業務執行組合員の判断に基づき公正と認める評価方法による評価額とする。

4. 除名・脱退組合員が除名・脱退前に本組合に対し負担していた債務は、除名・脱退によってその効力に影響を受けない(本契約第7条第1項の払込義務も含む。)

#### 第32条 業務執行組合員の辞任及び解任

1. 業務執行組合員は、正当な事由がある場合に限り、全組合員に対して書面による 30 日以上の事前の通知をして、その地位を辞任することができる。

2. 業務執行組合員は、以下の各号の一に定める場合に限り、非業務執行組合員の全員一致により解任されるものとする。

(1) 理由の如何を問わず、本契約第 7 条第 1 項に規定する出資払込義務を 30 日以上遅滞した場合

(2) 本契約第 12 条第 3 項の規定に故意に違反した場合

(3) 業務を執行するに当り又は本組合を代表するに当り違法の行為を為した場合

(4) その他本契約上の重大な義務に違反した場合

3. 業務執行組合員の辞任及び解任は、組合員の中から後任の業務執行組合員が、出資割合の合計が 4 分の 3 以上に相当する非業務執行組合員により選任されるまで効力を生じないものとする。

4. 業務執行組合員の辞任、解任、又は脱退による後任として業務執行組合員に選任された組合員は、当該選任以前に生じた本契約上の業務執行組合員としての責任を負担しないものとし、辞任、解任、又は脱退した当該業務執行組合員が、かかる責任を負担するものとする。

#### 第33条 組合員の地位の変動の通知

1. 組合員は、自己に関し本章に規定する地位の変動があった場合、速やかに業務執行組合員に書面で通知するものとする。

2. 業務執行組合員は、前項の通知があった場合、遅滞なく当該地位の変動を他の組合員に通知するものとする。

#### 第 9 章 解散及び清算

#### 第34条 解散

1. 本組合は、以下の各号の一に該当する事由がある場合に限り、解散するものとする。

(1) 本契約期間の満了

- (2) 本契約期間の満了以前においても、業務執行組合員が、その裁量により、本組合が本契約第 4 条に定める本組合の目的を達成したと判断した場合、又は業務執行組合員が、出資割合の合計が 3 分の 2 以上に相当する非業務執行組合員の同意を得て決定した場合

(3) 組合員が一人となった場合

- (4) 出資割合の合計が 4 分の 3 以上に相当する組合員との関係で本契約が無効とせられ又は取消

された場合

- (5) 業務執行組合員が辞任し、解任され、又は脱退した後、30日以内に組合員の中から後任の業務執行組合員が出資割合の合計が4分の3以上に相当する非業務執行組合員により選任されない場合
- (6) 出資割合の合計が3分の2以上に相当する非業務執行組合員により解散が決定された場合
- (7) 本契約第4条に定める目的が達成不能であると業務執行組合員が合理的に判断した場合

2. 組合員が解散前に本組合に対し負担していた債務は、解散によってその効力に影響を受けない  
清算人の選任

1. 本組合が解散した場合、業務執行組合員の辞任、解任、又は脱退による解散の場合を除き、業務執行組合員は清算人となる。業務執行組合員の辞任、解任、又は脱退による解散の場合、出資割合の合計が2分の1以上に相当する非業務執行組合員の合意をもって清算人を選任する。
2. 清算人は、その役務の提供に対する報酬として、組合財産から本契約第25条(2)に規定する金額に相当する金銭を、同条の規定する方法をもって受領することができる。

#### 第36条 清算人の権限

清算人は、下記の事項に関し、職務を執行し本組合を代表する裁判上及び裁判外の一の権限を有する。

- (1) 現務の結了
- (2) 債権の取立て及び債務の弁済
- (3) 残余財産の分配
- (4) その他上記の職務を行うため必要な一切の行為

#### 第37条 清算手続

1. 清算人は、就任後速滞なく組合財産の現況を調査し、財産目録及び貸借対照表を作成し、財産処分の実体案を定め、これらの書類を組合員に送付するものとする。当該組合財産の現況調査及び評価額の算定に関し、清算人は、弁護士、公認会計士、鑑定人その他の専門家を、本組合の費用により利用することができる。
2. 清算人は本組合の債務を弁済した後でなければ残余財産を分配することができない。但し、争いのある債務がある場合、その弁済に必要と認める財産を留保して、残余財産を分配することができる。
3. 残余財産の分配は、各組合員に対しその組合持分の割合に応じて為すものとする。
4. その他清算に関する事項はすべて、清算人がその裁量により適切と考える方法で行うものとする。
5. 本契約第10条、第12条第1項及び第3項、第4項、第13条但書、第14条第1項及び第2項、第15条、第17条、第20条、第22条、第23条第2項、第24条、第27条、第32条、第38条、第39条、第40条及び第41条の各規定は清算人に準用する。

### 第10章 雑則

#### 第38条 守秘義務及び個人情報保護

1. 非業務執行組合員は、本組合により、又は本組合のために提供される本組合、組合員、又は投資会社の業務及び資産に係る情報について、業務執行組合員の事前の承諾がない限り、組合員以外の第三者(但し、当該組合員に対して守秘義務を負っている弁護士、公認会計士、税理士、アドバンサザー等の専門家を除く。)に対して開示してはならないものとする。但し、公知の情報又は当該組合員が本組合又は他の組合員を通すことなく、不適切又は違法な行為によることなく知り得た情

報についてはこの限りではない。

2. 業務執行組合員は、法令により要求された場合、本組合に関して弁護士、公認会計士、税理士、アドバンサザー等の専門家に開示する場合を除き、組合員に関する情報について、当該組合員の事前の承諾がない限り、組合員以外の第三者に開示してはならない。
3. 組合員は本契約の目的以外に他の組合員の個人情報を使用してはならない。なお、本条にいう個人情報とは、生存する個人に関する情報であつて、当該情報に含まれる氏名、生年月日その他の記述等により特定の個人を識別することができるものをいう。
4. 非業務執行組合員は、本契約第5条に定める組合員名簿の送付の場合に加え、業務執行組合員が業務の遂行に必要な範囲内で、非業務執行組合員の個人情報その他の非業務執行組合員に開示する必要があることあらかじめ同意する。

#### 第39条 許認可等

組合員は、本組合の事業に関して組合員に対し適用される法令に基づく諸規制を遵守するものとし、業務執行組合員は、組合員のために必要な手続を、当該組合員の費用で合理的に可能な範囲内で、履行する権限を有するものとする。

#### 第40条 通知及び銀行口座

1. 本契約に基づくすべての通知又は請求は、郵便料金前払の郵便、電信、電報又は手渡しにより、本契約添付別紙1記載の各組合員の事務所又は組合員が随時その変更を業務執行組合員に適式に通知した事務所に送付されるものとする。本項に規定する郵便又は請求は発送の日から5日後に、また電信又は電報による通知又は請求は発送の時から24時間後に、それぞれ到達したものとみなされる。電信又は電報による通知又は請求は有列とする。
2. 本組合と組合員との間の本契約に基づく金員の授受は、本契約添付別紙1記載の各組合員の日本国内に開設された銀行口座又は組合員が随時変更しその旨を業務執行組合員に適式に通知した日本国内に開設された銀行口座を通じて行うものとする。

#### 第41条 本契約の修正

本契約は、業務執行組合員が、その裁量により、出資割合の合計が2分の1以上に相当する非業務執行組合員の同意を得て適宜修正することができる。

但し、組合員に対し、既存の義務を増加し、新たな義務を課し又はその権利を制限する修正は組合員の全員一致により合意されない限り効力を有しないものとする。

#### 第42条 金融商品取引法に基づく告知

組合員は、本契約書をもって、金融商品取引法第〇〇条に基づき同項各号に定める以下の事項の告知を業務執行組合員より受け、本契約書が同条第4項に定める書面を兼ねるものであることを確認し、これに同意する。

- (1) 本契約の締結に係る申込みの勧誘は、金融商品取引法第2条第3項第2号ロに該当することにより、当該締結の申込みの勧誘に関し同法第4条第1項の規定による届出は行われていないこと。
- (2) 本契約には、利益配分を受ける権利を含む本契約上の権利又は地位を一括して譲渡する場合以外には、譲渡することが禁止される旨の制限が付されていること。

#### 第43条 組合員の自己責任による投資

1. 組合員は、本契約の諸条件及び諸事項(リスクを含む。)を自ら十分検討、評価し、自らの判断と責任により、本契約に基づいて出資を行うものであることを確認し、本契約を締結するに当り以下のことについて表明し、確認する。

- (1) 組合財産は、投資証券の価値変動により損失を被ることがあり、投資元本回収が保証されているものではないこと、投資証券の価値変動により損失を被ることがあり、投資元本回収が保証され

れているものではないこと、本契約は組合特分の譲渡その他の処分を禁止し、若しくは組合員の地位の譲渡を制限しており、また、本契約に定める場合を除き、組合財産の分配又は金銭の払い戻しを請求することはできないことを理解していること。

(2) 本組合の出資に伴う経済的又は法的問題並びに会計・税務上の問題について、独自に、又は専門家の助言を確認の上、自らの判断に基づいて決定を下していること。

2. 業務執行組合員は、組合業務の結果について、また、組合員の本契約に基づく出資が組合員に経済的、法的、税務上その他いかなる結果をもたらすかについて、明示、黙示を問わず何らの保証を行わず、また保証をしたとみなされない。

3. 組合員は、本契約に基づく本組合への出資は組合員にとつて適切な投資であり、自らがかるリスクを負うことができると判断しており、金融商品の販売等に関する法律(平成12年法律第101号)の後の改正を含む。)その他の法令上要求される重要事項の説明又は開示(金融商品の販売等に関する法律第3条第1項第1号乃至第4号に規定された重要事項に関する説明を含む。)を要しない意思を、ここに表明し、確認する。

#### 第44条 規定の個別性

本契約のいづれかひとつ又は複数の規定が無効又は強制執行不能となる場合でも、本契約の他の規定の有効性又は強制執行可能性に何ら影響を与えない。

#### 第45条 準拠法等

1. 本契約は、日本語で作成される。
2. 本契約は日本国法に準拠し、解釈される。
3. 本契約に基づき又は本契約に関して生ずるすべての紛争は、東京地方裁判所の非専属的管轄に属するものとする。

本契約成立の証として、平成〇〇年〇月〇日付で本契約書原本1通を作成し、各組合員がこれに署名若しくは記名捺印したうえ、業務執行組合員はこれを、非業務執行組合員はその副本各1通をそれぞれ保有する。

平成〇〇年〇月〇日

業務執行組合員

東京都〇〇

〇〇株式会社

代表取締役 〇〇

非業務執行組合員



### 組合員名簿

組合員氏名	組合員住所	出資口数	出資金額
<b>業務執行組合員</b>			
〇〇株式会社	東京都〇〇	●口	金●●●円
<b>非業務執行組合員</b>			
		□	円
		□	金
		□	円
		□	金
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