

Funding Proposal

FP070: Global Clean Cooking Program -Bangladesh

Bangladesh | International Bank for Reconstruction and Development and International Development Association (The World Bank)| B.19/12

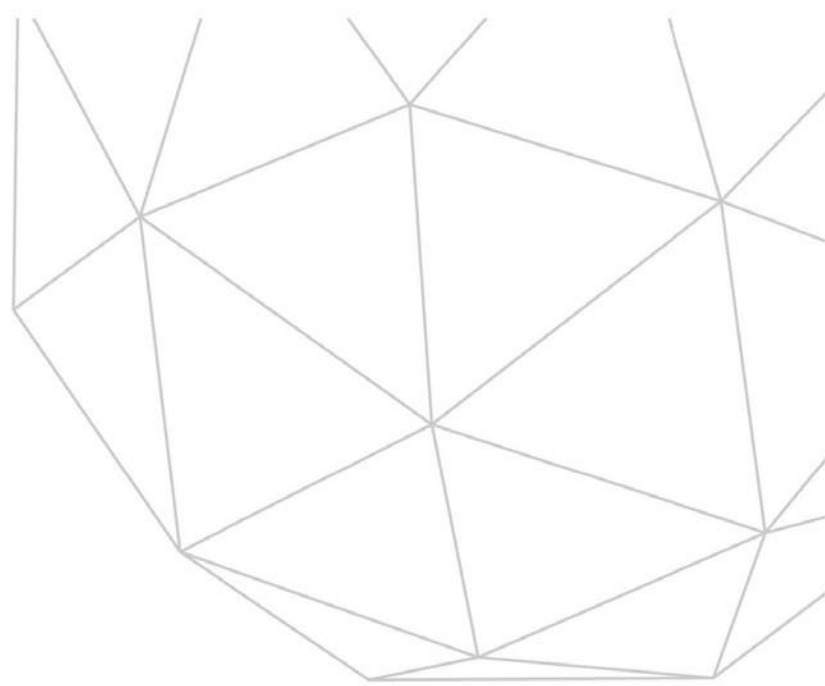
16 March 2018



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Funding Proposal

Version 1.1

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project/Programme Title: **Global Clean Cooking Program – Bangladesh**

Country/Region: Bangladesh

Accredited Entity: The World Bank

Date of Submission: June 23, 2017

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Note to accredited entities on the use of the funding proposal template

- Sections **A, B, D, E** and **H** of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal, or provide summary information in the proposal with cross-reference to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed 50.

Please submit the completed form to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:

“[FP]-[Agency Short Name]-[Date]-[Serial Number]”

A.1. Brief Project / Programme Information		
A.1.1. Project / programme title	Global Clean Cooking Program – Bangladesh	
A.1.2. Project or programme	Project	
A.1.3. Country (ies) / region	Bangladesh	
A.1.4. National designated authority (ies)	Economic Relations Division, Ministry of Finance	
A.1.5. Accredited entity	World Bank	
A.1.5.a. Access modality	<input type="checkbox"/> Direct <input checked="" type="checkbox"/> International	
A.1.6. Executing entity / beneficiary	Executing Entity: Government of Bangladesh, Department of Finance Implementing Partner: Infrastructure Development Company Limited (IDCOL) Beneficiary: 17.6 million beneficiary in Bangladesh	
A.1.7. Project size category (Total investment, million USD)	<input type="checkbox"/> Micro (≤ 10) <input type="checkbox"/> Small ($10 < x \leq 50$) <input checked="" type="checkbox"/> Medium ($50 < x \leq 250$) <input type="checkbox"/> Large (> 250)	
A.1.8. Mitigation / adaptation focus	<input type="checkbox"/> Mitigation <input type="checkbox"/> Adaptation <input checked="" type="checkbox"/> Cross-cutting	
A.1.9. Date of submission	June 23, 2017	
A.1.10. Project contact details	Contact person, position	Amit Jain, Energy Specialist Besnik Hyseni, Energy Specialist
	Organization	The World Bank
	Email address	Amit Jain: amitjain@worldbank.org Besnik Hyseni: bhyseni@worldbank.org
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	Mailing address	Amit Jain: 70 Lodi Estate, New Delhi, Delhi 110003, India Besnik Hyseni: 1818 H Street NW, Washington, DC 20433, USA

A.1.11. Results areas (mark all that apply)	
Reduced emissions from:	
<input checked="" type="checkbox"/>	Energy access and power generation (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
<input type="checkbox"/>	Low emission transport (E.g. high-speed rail, rapid bus system, etc.)
<input checked="" type="checkbox"/>	Buildings, cities and industries and appliances (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
<input type="checkbox"/>	Forestry and land use (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)
Increased resilience of:	
<input checked="" type="checkbox"/>	Most vulnerable people and communities (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
<input type="checkbox"/>	Health and well-being, and food and water security (E.g. climate-resilient crops, efficient irrigation systems, etc.)

- Infrastructure and built environment
(E.g. sea walls, resilient road networks, etc.)
- Ecosystem and ecosystem services
(E.g. ecosystem conservation and management, ecotourism, etc.)

A.2. Project / Programme Executive Summary (max 300 words)

Please provide a brief description of the proposed project/programme, including the objectives and primary measurable benefits (see [investment criteria in section E](#)). The detailed description can be elaborated in [section C](#).

This proposal on Bangladesh is part of a multi-country “Global Clean Cooking Program” planned for support by the World Bank (WB) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)¹ with a goal to support development of an affordable and sustainable market for clean cooking initiatives. This Bangladesh Clean Cooking Program is aimed at supporting a sustainable market for adoption of improved cookstoves (ICS) that will contribute to improved well-being of people living in rural Bangladesh by reducing Household Air Pollution (HAP) and contribute to reduced GHG emissions. For a pipeline of activities planned by the WB under the Global Clean Cooking Program, please see more details in section C.1. and for a document outlining the joint strategic collaboration see Annex 11. Bangladesh is an agricultural country with approx. 66 % of the population living in rural areas². Cooking by rural households is predominantly done in traditional stoves using fuel wood. Burning solid fuels for cooking releases emissions of carbon dioxide, methane, black carbon, and other short-lived climate pollutants, some of the most important contributors to global climate change, along with deforestation and unsustainable wood harvesting. In traditional cookstoves, incomplete combustion of biomass fuels in inefficient traditional stoves produces Household Air Pollution (HAP) resulting in negative health impacts, particularly for women and children. In Bangladesh, about 145 million people are exposed to HAP and this contributes to 46,000 casualties per annum³.

Since the 1980’s Bangladesh has faced 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 use of nonrenewable biomass, existed in the 1980s. Quoting from this study⁴: “Wood is the main fuel for cooking and other domestic requirements. It is not surprising that population pressure has had an adverse effect on the indigenous forests.” The total forestry area has now decreased to 10% of the land only (FAO, 2007). At the same time, population has been increasing. Hence, the use of non-renewable biomass in Bangladesh, dates back prior to December 1989.

Literature⁵ shows that the forest cover 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. **Biomass is the predominant source of fuel for cooking in Bangladesh and fuelwood constitutes about 42% of total biomass cooking energy on average⁶. (1.186 tons of fuelwood compared to 2.9 tons of total biomass that includes other collected biomass residue). As per the official CDM/UNFCCC approved calculations, 83.4% of fuelwood used in cooking is considered non-renewable. Under these circumstances, it is expected that 35% (42%*83.4%) of ICS installed under the IDCOL program will have direct contribution to carbon emission reductions.** Details of the

¹ A series of country proposals are being prepared for submission to the GCF as part of a collaboration of the Energy Sector Management Assistance Program (ESMAP) of the World Bank and the GIZ Energising Development (EnDev) partnership. This proposal on Bangladesh was prioritized because of the good track record during its first phase and scale up potential during the second phase.

² Source: <http://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=BD>

³ Source: Bangladesh Country Action Plan for Clean Cookstoves

⁴ <http://www.countrystudies.us/bangladesh/72.htm>

⁵ “Non-Renewable Biomass (NRB) Assessment Report—A Component of The Bangladesh Stoves Baseline Study 2008–9”, ClimateCare, 009

⁶ “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>

proportion of fuelwood used by the Bangladeshi population out of the total biomass used for cooking are provided in the World Bank/ESMAP working paper “Restoring Balance – Bangladesh Rural Energy Realities” also referenced by the CDM project registered by JP Morgan for Grameen Shakti. Despite efforts by various organizations to introduce cleaner and more efficient cooking solutions since the 1980s, only 3-5 percent of households had access to an improved cookstove (ICS) in Bangladesh. The proposed project which builds on a preliminary market entry phase (2013-2017) will enable the market to grow substantially, thus increase market penetration of improved cookstoves for the very poor and vulnerable rural households of the country and reduce GHG emissions in the sector by **2.890 MtCO₂eq** (with a total lifetime emissions reductions of 10.526 MtCO₂eq, taking into account market growth in the next decade after the project closure).

In addition to the mitigation impact, the widespread uptake of ICS will have the potential to increase resilience of the most vulnerable populations in Bangladesh by increasing their adaptive capacity and reducing vulnerability at the local scale. The project will have multiple environmental, economic, and women’s empowerment co-benefits as well as health benefits depending on HAP emission reductions. **The direct beneficiaries will be the members of households using ICS as a result of the project, the expected total number of whom is expected to be 17.6 million.**

The proposed project will be implemented by the IDCOL (a government owned financial intermediary company). IDCOL ICS program is part of the household energy component of a larger program of the World Bank (WB), called the Bangladesh Rural Electrification and Renewable Energy Development II (RERED II), approved by International Development Association (IDA) in 2012. The program has several successful interventions including the solar home systems, solar mini-grids, solar irrigation, biogas digesters in addition to the ICS program. The objectives of the IDCOL ICS program is to reduce GHG emissions, solid fuel use for cooking and the impact of HAP - which disproportionately affects women and children - by creating a sustainable market-based approach towards adoption of higher efficiency cook-stoves in the country. The program aims to develop a sustainable market for ICS by supporting development of a supply chain in rural Bangladesh and creating demand for ICS with the goal of achieving 100% coverage of ICS by 2030 as per Bangladesh Government’s Country Action Plan for Clean Cookstoves.

The IDCOL ICS program was inaugurated by the Honorable Prime Minister of Bangladesh in May 2013 with the installation target of 1 million ICS in Bangladesh within December 2018. IDCOL received financial support from the World Bank for the program. The program achieved the 1 million ICS installation target within January 2017, almost two years ahead of the project completion period.

Given the successful implementation of the first phase of the IDCOL ICS program, the Government of Bangladesh in cooperation with the World Bank plans to expand the program in a second phase, for which GCF funding is being requested. The total project size is US\$82.17 million, including US\$20 million from IDA and US\$20 million proposed from GCF, and parallel financing of another US\$42.17 million from rural households. This Project aims to scale up the number of ICS disseminated by 4 million (in addition to the 1 million disseminated under the first phase) over the next 3.5 years.

US\$20 million credit from IDA is subject to approval from the World Bank Board of Directors. The World Bank has already received the request from the government of Bangladesh regarding US\$20 million from IDA and US\$20 million proposed from GCF and have started preparing the project. The World Bank project with US\$20 million credit from IDA is currently at the negotiations stage and is expected to go to the Bank board in March 2018. Changes may occur in the project during preparation based on Bank-management guidance and negotiations with the Borrower (Government of Bangladesh) and IDCOL (Implementation Agency). The proposed GCF proposal is part of the additional financing for an existing World Bank project, which will provide an additional IDA credit in the amount of US\$55 million equivalent and an additional grant in the amount of US\$20 million from Green Climate Fund (GCF) to the Bangladesh Rural Electrification and Renewable Energy Development II (RERED II) Project (P131263). The additional financing is required to scale up the Access to Electricity component to support the installation of 1,000 solar irrigation pumps (SIP) and 30 solar mini-grids (SMG), and the Household Energy component to support an additional 4 million ICS in rural areas of Bangladesh. Results framework for overall and intermediate indicators attached for reference.

The second phase of IDCOL ICS program will support the continued growth of the ICS program through the promotion of supply of higher efficiency stoves. The program will directly benefit the most vulnerable rural households, especially women and children, by reducing GHG emissions and fuelwood use, and by cutting household air pollution leading to improved health conditions in rural Bangladesh. The NDC of Bangladesh includes a target of 70% market share of

improved biomass cookstoves, reaching 20 million households in 2030. The proposed project will directly contribute to that target.

The additional financing will permit reaching another 4 million rural households by 2021, bringing the total rural households with ICS benefitting from the IDCOL ICS program support to 5 million. The primary rationale for the proposed Project is to scale-up support for a scheme that is an important contributor to the vision of the Government of Bangladesh for achieving 100% coverage of improved cookstoves by 2030 as per Bangladesh Government's Country Action Plan for Clean Cook stoves (CAP). The target of this CAP is to disseminate cook stoves to over 30 million households in Bangladesh by 2030.

This program is aligned with the financial sustainability criteria of the GCF and will be an anchor in creating long-term sustainable markets for cookstoves in Bangladesh.

A.3. Project/Programme Milestone

Expected approval from accredited entity's Board (if applicable)	22/3/2018
Expected financial close (if applicable)	N/A
Estimated implementation start and end date	Start: <u>1/6/2018</u> End: <u>31/12/2021</u>
Project/programme lifespan	3.5 years

B.1. Description of Financial Elements of the Project / Programme

An integrated financial model has been provided as Annex 3 which shows the expected financial performance of the POs involved. Without the supply chain development and demand creation activities supported by the GCF and IDA financing, it is unlikely that a supply chain will develop in rural Bangladesh for delivering high-quality ICS and it is unlikely there will be adequate demand for high-quality ICS, which are relatively expensive compared to the lower-quality locally manufactured stoves.

The primary barriers to adoption of ICS in Bangladesh are (Annex 2 and 10):

- the lack of consumers' ability or willingness to pay premiums on more efficient cookstoves - which have been / are being developed - due to absence of wide-spread awareness campaigns
- the availability of the right models of the ICS that are acceptable to the rural households and cater to the unique cooking needs and preferences of rural population.
- The cost-revenue shortfall preventing the development of commercial enterprises to promote clean cooking solutions
- The limited funding to support scale-up activities

Lack of willingness or ability of consumers to pay premiums on more efficient cook stoves is due to a number of factors, including:

- Lack of awareness of financial and health benefits of ICS.
- Lack of confidence in the genuineness of the claims made by the ICS sellers about the benefits of ICS.
- Many households do not pay for fuel, which makes the financial case for investment difficult to make.

The grant support will address these barriers by (i) by creating consumer awareness about the benefits of ICS through above and below the line marketing, and (ii) by supporting capacity development for the supply chain (Partner Organizations) for distribution of ICS, (iii) selecting the right stove models that have passed both quality assurance test on performance and durability as well as consumer preference and acceptability tests. Households are expected to purchase the ICS at full price. The grant supported activities are expected to both create awareness and motivation for households to purchase the ICS as well as provide a "first-mover" incentive for Partner Organizations to develop and market more efficient stoves.

Among the stoves installed in the first phase (WB RERED II – 1 million stoves, Annex 2 and 10) of the program, mostly two models of portable stoves constituted about 95% of the total installation. The remaining 5% of the stoves were single and double mouth chimney stoves including few commercial stoves and metallic stoves. In the second phase of the program proposed under the GCF grant, IDCOL intends to increase the share of chimney stoves, metallic stoves and commercial stoves, which have greater impact in terms of reducing household air pollution. This shift to more efficient stoves will result in additional GHG emissions reduction, HAP and other benefits. By supporting the demand creation and supply chain activities through the Project, the availability of higher efficiency ICS will increase, consumer confidence on the benefits of the ICS will increase creating demand for higher quality ICS.

In order to offer a menu of options that will suit different market segments with varying preferences and affordability, IDCOL ICS program is open to different models of stoves after rigorous testing of efficiency and acceptability. Realizing that the higher tier stoves⁷ offer greater benefits in terms of reduced HAP but also are relatively more expensive that will require more efforts at demand creation, a varied amount of grant per stove is proposed under the Project with more support for the higher tier stoves (3 and above) and less so for the lower efficiency (tier 2) that have already been established in the market through the first phase of the program (as explained in section C.2). **This will ensure incentives for the POs for selling different types of stoves as per customers' preferences rather than focusing on a particular model. The GCF grant and IDA loan to the Government which will be distributed by IDCOL as a**

⁷ The ISO/International Workshop Agreement (IWA) Guidelines for evaluating Cookstove Performance provides measurements and indicators of performance standards for cookstoves, measuring their performance along four dimensions: efficiency, safety, total emissions, and indoor emissions. For each dimension, stoves are ranked from Tier 0 to Tier 4 (4 being the best) based upon laboratory test results.

grant to POs will be used for market promotion, awareness building, and supply chain development activities, and not for subsidizing the cost of production of ICS for households. Households will pay for actual cost of production of ICS, to ensure a transition to a fully commercial ICS program in due course.

The program will also contribute to local market creation and economic development because the stoves are expected to be made by local entrepreneurs, sold by local POs, and financed by IDCOL. Almost all of the raw material, like concrete and grates, is procured locally and has resulted in more jobs. IDCOL believes that it will be possible to sell these cookstoves without capital buy-down grants with the right awareness programs and activities – having proven the effectiveness of the models to both the POs and to consumers. While the Program does not discriminate against imported models (subject to efficiency and acceptability tests), the imported models will require a local production base to remain cost competitive.

IDCOL also adopted a cluster-based program, where each Upazila (sub-district) consists of a cluster, and only one partner organization works in that cluster. This ensures economies of scale and reduces transaction cost for these organizations.

The GCF grant of USD 20.0 million will mobilize a total of USD 62.2 million from public and private sources with a leverage of 1:3.11 including USD 20 million from IDA.

Financing Source	Amount
International Development Association (IDA)	20.00
LOCAL BENEFICIARIES	42.17
Green Climate Fund (Grant)	20.00
Total	82.17

- *a breakdown of cost estimates for total project costs and GCF financing by sub-component in local and foreign currency and a currency hedging mechanism: (Annex 1- Detailed Budget Estimates)*
For example, under the component of drilling activity for a geothermal exploration project, sub-components would include civil engineering works, drilling services, drilling equipment and inspection test.
Amount in USD Million

Component	Amount (for entire project) (Million USD)	GCF funding amount (Million USD)	World Bank/ IDA funding amount (Million USD)	Local Beneficiary/ Consumer Parallel financing (Million USD)
Component 1 – Scaling-up Investment in Improved Cookstoves	70.27	18.00	10.10	42.17
Component 2 – Technical Assistance to Enhance Supplier Capacity and Demand	3.41	0.57	2.84	-
Component 3: Project Management Costs	8.49	1.43	7.06	-
Total Project Financing	82.17	20.00	20.00	42.17

** Please expand the table if needed.*

- a breakdown of cost/budget by expenditure type (project staff and consultants, travel, goods, works, services, etc.) and disbursement schedule in project/programme confirmation (term sheet) as included in section I, Annexes. (Annex 1-Detailed Budget Estimates)

Expense type	IDA	GCF	Consumer parallel financing	US\$
Grants/Investments	10,100,000.00	18,000,000.00	42,170,000	70,270,000
Technical Assistance	2,836,454.27	574,444.93	0	3,410,899
Project Management Costs	6,663,545.73	1,425,555.07	0	8,089,101
Contingency	400,000	-	0	400,000
Total	20,000,000	20,000,000	42,170,000	82,170,000

The breakdown of expected grants to be distributed according to ICS type are shown in the table below.

ICS Installation Target	Unit	Total
Installation Target	HHs	4,000,000
A. Double Mouth Concrete Stoves	% of total ICS No. of total ICS	0% -
B. Double Mouth Stoves with Metallic Lining and Insulation	% of total ICS No. of total ICS	12% 480,000
C. Single Mouth Stoves with Metallic Lining and Insulation	% of total ICS No. of total ICS	12% 480,000
D. Single Mouth Portable Stoves with Metallic Lining and Insulation	% of total ICS No. of total ICS	70% 2,800,000
E. Manufactured Metallic Stoves	% of total ICS No. of total ICS	5% 200,000
F. Commercial Stoves	% of total ICS No. of total ICS	1% 40,000
Grant Requirements	Unit	
A. Double Mouth Concrete Stoves	BDT USD USD Total	505 6.32 -
B. Double Mouth Stoves with Metallic Lining and Insulation	BDT USD USD	1,100 13.75 6,600,000
C. Single Mouth Stoves with Metallic Lining and Insulation	BDT USD USD	900 11.25 5,563,636
D. Single Mouth Portable Stoves with Metallic Lining and Insulation	BDT USD USD	350 4.38 12,186,365
E. Manufactured Metallic Stoves	BDT USD USD	 2,500,000
F. Commercial Stoves	BDT USD	

	USD	1,250,000
Total (in USD))		28,100,000

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B.2. Project Financing Information

	Financial Instrument	Amount	Currency	Tenor	Pricing
(a) Total project financing	(a) = (b) + (c)	82.17	<u>million USD</u> (\$)		
	(i) Senior Loans	.....	<u>Options</u>	() years	() %
	(ii) Subordinated Loans	.....	<u>Options</u>	() years	() %
	(iii) Equity	.....	<u>Options</u>		() % IRR
	(iv) Guarantees	.....	<u>Options</u>		
	(v) Reimbursable grants *	.....	<u>Options</u>		
	(vi) Grants *	20	<u>million USD</u> (\$)		

(b) GCF financing to recipient

** Please provide economic and financial justification in [section F.1](#) for the concessionality that GCF is expected to provide, particularly in the case of grants. Please specify difference in tenor and price between GCF financing and that of accredited entities. Please note that the level of concessionality should correspond to the level of the project/programme's expected performance against the investment criteria indicated in [section E](#).*

The total project size is US\$82.17 million, including US\$20 million from IDA and US\$20 million proposed from GCF, and parallel financing of US\$42.17 million from rural households. (Parallel financing from rural households will be verified through IDCOL inspection reports – Annex 12). Every inspection form provided by IDCOL has details of the household and investments done in purchase of ICS. IDCOL plans to inspect 25% of the proposed 4 m ICS installed and will prepare a detailed inspection report every year. The report will monitor the parallel financing by households and also the current status of use by households.

The grant amount per stove in the previous phase was a fixed amount per stove irrespective of type of stove. In this phase II, IDCOL plans to offer a differential grant structure which is linked to the efficiency levels of stoves recognizing that higher efficiency stoves that have more benefits in terms of HAP are also relatively more expensive, and therefore would require more promotional and outreach activities to convince consumers for buying such stoves.

The Program is designed to prevent POs from subsidizing the stove production costs. The GCF grant and IDA loan to the Government which will be distributed by IDCOL as a grant to POs will be used for market promotion, awareness building, and supply chain development activities, and not for subsidizing the cost of production of ICS for households. Households will pay for actual cost of production of ICS, to ensure a transition to a fully commercial ICS program. The grant will be disbursed only after cash

payment by the households to the POs (IDCOL inspection activities require checking the price at which the ICS are sold). A contract agreement has been signed between POs and IDCOL regarding this arrangement and can be found attached as Annex 9.

As it has been followed in other programs of IDCOL, this grant structure will be gradually phased out to ensure long term sustainability of the program. Realizing that the lower efficiency (tier 2) stoves have already gained market acceptability, grant support is proposed to be reduced in phase 2 of the program. By proposing more grant for higher efficiency stoves in phase 2, the proposed project is aimed at creating a market for the higher efficiency stoves with the aim at phasing out grant support completely. After the completion of the project, IDCOL will phase out the grant component and gradually transfer the promotion and awareness cost of ICS program in the to the end-users through a moderate increase in price of the ICS. Production costs of ICS are expected to come down with scale and technology advancements. IDCOL plans to move to a pure commercial implementation of ICS program once the proposed project is complete.

The success of this approach already has been proven under Phase I but will be enhanced in Phase II. This success is due to:

- (i) a sense of consumer ownership;
- (ii) customer training by the POs;
- (iii) social acceptability of the POs at the community level;
- (iv) cost-effective and efficient institutional set-up of the POs;
- (v) strong and well-enforced technical standards;
- (vi) appropriate market development by IDCOL and the POs;
- (vii) effective selection of customers by the POs and attention by both IDCOL and the POs to cost and efficiency of ICS;
- (viii) a large customer base in relatively densely populated rural areas.

Sustainability of the program is ensured by the fact that the ICS are constructed by local entrepreneurs, sold by local NGOs, financed by a local company IDCOL and is based on a market approach.

Total requested (i+ii+iii+iv+v+vi)	20	million USD (\$)	
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	Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority
(c) Co-financing to recipient	<u>Senior Loans</u>	<u>20</u>	<u>million USD (\$)</u>	Co-financing IDA	IDA Term	IDA Term	<u>senior</u>
	<u>Equity</u>	<u>42.17</u>	<u>million USD (\$)</u>	Parallel financing by Local Beneficiary equity for purchase of ICS			<u>Options</u>
	<u>Options</u>	.....	<u>Options</u>	.....			<u>Options</u>
	<u>Options</u>	.....	<u>Options</u>	.....			<u>Options</u>
Lead financing institution: World Bank (IDA)							
* Please provide a confirmation letter or a letter of commitment in section I issued by the co-financing institution. (attached) (Annex 13 – Commitment letter from the World Bank)							

<p>(d) Financial terms between GCF and AE (if applicable)</p>	<p><i>In cases where the accredited entity (AE) deploys the GCF financing directly to the recipient, (i.e. the GCF financing passes directly from the GCF to the recipient through the AE) or if the AE is the recipient itself, in the proposed financial instrument and terms as described in part (b), this subsection can be skipped.</i></p> <p><i>If there is a financial arrangement between the GCF and the AE, which entails a financial instrument and/or financial terms separate from the ones described in part (b), please fill out the table below to specify the proposed instrument and terms between the GCF and the AE.</i></p> <p><i>Please provide a justification for the difference in the financial instrument and/or terms between what is provided by the AE to the recipient and what is requested from the GCF to the AE.</i></p> <p>Not applicable</p>
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B.3. Financial Markets Overview (if applicable)

How market price or expected commercial rate return was (non-concessional) determined?

Please provide an overview of the size of total banking assets, debt capital markets and equity capital markets which could be tapped to finance the proposed project/programme.

Please provide an overview of market rates (i.e. 1-year T-Bill, 5-year government bond, 5-year corporate bond (specify credit rating) and 5-year syndicate loan.

Provide examples or information on comparable transactions.

Not applicable

Please fill out applicable sub-sections and provide additional information if necessary, as these requirements may vary depending on the nature of the project / programme.

C.1. Strategic Context

The project is being proposed as part of “*Global Clean Cooking Program*”, a global collaboration between the World Bank and GIZ, and their network of partners, the aim of which is to create a coordinated intervention approach to transform the clean cooking sector. The collaboration will build synergies and take advantage of knowledge and experiences from their respective country programs in the clean cooking sector. A harmonized strategy can transform the market from one dominated by low-quality and inefficient cookstoves with high GHG emissions to a market where progressively higher quality, and low carbon stoves dominate.

A pipeline of country proposals will be developed building on this strategy. These countries have been identified based on market readiness, potential for scale, ability to serve as models for other countries and their climate change mitigation and adaptation potential. Countries that are initially in the process of preparing proposals as part of the Phase 1 of the global program and their tentative financing amounts (by the WB only) are outlined in the table below. Going forward, more countries will be further identified, based on market readiness, to benefit from the joint effort at the global level. Subsequent funding proposals of these countries will be submitted for GCF funding approval as they become ready.

Table 1: Indicative Country Pipeline for the Global Clean Cooking Program – Phase 1

Country	Implementing Agency	Indicative proposal Preparation by:
Bangladesh	WB (in collaboration with GIZ)	June 2017
Kenya	WB (in collaboration with GIZ)	December 2017
India	WB	February 2018
Lao PDR	WB	March 2018
Uganda	WB	April 2018

The primary rationale for the proposed Project is to scale-up support for a scheme that is an important contributor to the vision of the Government of Bangladesh for achieving 100% coverage of improved cookstoves by 2030 as per Bangladesh Government’s Country Action Plan for Clean Cook stoves (CAP).

C.2. Project / Programme Objective against Baseline

Describe the baseline scenario (i.e. emissions baseline, climate vulnerability baseline, key barriers, challenges and/or policies) and the outcomes and the impact that the project/programme will aim to achieve in improving the baseline scenario.

The Renewable Energy Policy of Bangladesh⁸ addresses the national policies regarding the development and promotion of “sustainable energy comprising renewable energy and energy efficiency”. The document identifies the potential for biogas (mainly from animal waste) for cooking and sets the goal to “In addition to electricity generation, renewable energy for solar heating and biogas or other means like cooking, etc shall be developed”, hence acknowledging the negative effects of the use of woody biomass fuel for cooking. Nationally Determined Contribution (NDC) document of Bangladesh also clearly mentions improved cookstoves as an important Climate Change Mitigation measure.

A baseline survey was conducted to assess the Non-Renewable Biomass (NRB) fraction in Bangladesh⁹.

⁸ http://www.powerbangladesh.com/Renewable_Energy_Policy.pdf

⁹ Non Renewable Biomass (NRB) Assessment Report

Under the Grameen Shakti ICS project, a secondary baseline study consisted of field work and kitchen tests and corroborated the results of the primary study. It included

- A survey of biomass in Bangladesh in the areas where it is collected as cooking fuel in order to ascertain the Non-Renewable Biomass (NRB) fraction.
- A set of tests of domestic wood fuel consumption savings introduced by the ICS.
- Tests on non-domestic wood fuel consumption saving

The prevailing cook-stove technology in Bangladesh is the traditional “three-stone” stove. Most of Bangladesh’s rural households collect or purchase biomass fuelwood, cow dung, crop residues, tree leaves, and grass to cook their meals, using traditional, fixed clay stoves¹⁰. The substitution of traditional stoves with ICS saves up to 50% ¹¹ of fuel. By reducing non-renewable biomass (e.g. fuel wood) consumption, the project is reducing anthropogenic GHG emissions.

Baseline scenario: Phase 1 of the IDCOL ICS program (2013-2018)

The first phase of the program was to support commercial dissemination of about 1 million ICS, building on the success of Bangladeshi NGOs in the areas of community outreach in total sanitation programs. Phase I also built on the earlier work undertaken by local institutions in the areas of stove design and reduction of emission of toxic pollutants from incomplete combustion of wood fuels. With IDA supported activities creating demand and facilitating supply chain development, households were able to buy the ICS from the market for cash. Each stove was entitled to Bangladeshi Taka (BDT) 502 (US\$6.4) after ICS were sold to the households for cash.

Design of Phase I of the IDCOL ICS program:

- Each PO for the ICS program was given the responsibility for selling ICS in a sub-district (cluster) with many POs given allocation of more than one clusters.
- 30 POs were through a competitive process selected based on certain eligibility criteria that required them to have certain level of rural presence, experience in the ICS, financial soundness etc.
- An independent technical committee approved ICS models taking into consideration the tested efficiency levels of the stoves, availability of a supply chain, and adaptability of the models to the local market conditions etc.
- Suitable models were selected for dissemination after adequate testing for efficiency and emission.
- Several models are approved for IDCOL financing that also includes a few of the manufactured models. Many POs have developed their own manufacturing centers (inspected and certified by IDCOL) for the traditional concrete stoves (technical specifications approved by IDCOL technical committee) to have better control of the quality.
- The POs were required to do market promotion and awareness creation activities for selling the ICS for cash, which are supported by the Project as grant.
- The stoves under the program are produced by the POs in either their own production centers or through entrepreneurs appointed by them. IDCOL regularly visits the production centers to ensure the quality of raw materials, adherence to the production guideline, adequate curing and drying etc. If the production centers are found to be non-conforming to the production standards set by IDCOL, the ICS produced in that production center are marked as discrepant.
- After the ICS are sold, the POs apply to IDCOL for project support/grant with proof of sales of the ICS.
- IDCOL releases project funds/grant after verification of the sales on a random basis.

The success of the first phase of IDCOL ICS program approach has been due to:

- a sense of consumer ownership;
- customer training by the POs;
- social acceptability of the POs at the community level;

¹⁰http://www.esmap.org/esmap/sites/esmap.org/files/KES13_Bangladesh_Improving%20Indoor%20Air%20in%20Rural%20Bangladesh.pdf

¹¹ http://www.lged-rein.org/ics/ICS_Technical_Manual-14.5.08.pdf

- cost-effective and efficient institutional set-up of the POs;
- strong and well-enforced technical standards
- appropriate market development by IDCOL and the POs;
- effective selection of customers by the POs and attention by both IDCOL and the POs to cost and efficiency of ICS;
- a large customer base in relatively densely populated rural areas.

The first phase of the IDCOL ICS program achieved its target of dissemination of 1 million ICS in January 2017, two years ahead of schedule. Till March 2017, 1.13 million ICS installed under the program (funding has been released for 962,008 ICS and the funding will be released for the rest after verification).

Challenges faced and lessons learned in phase 1 of the IDCOL ICS program

IDCOL and the POs faced numerous challenges throughout the implementation of the program. Dealing with these challenges engendered several learnings to be leveraged in the next phase of the program.

- **Supply chain:** Production of ICS with consistent quality requires producers to use good moulds. IDCOL identified engineering workshops capable of producing moulds in each divisions of the country and provided them with proper guidance. As a result, capacity to produce moulds developed among several engineering workshops and now POs can find mould suppliers even at district level. Decentralized capacity ensured timely supply of quality product at competitive price.
- **Scarcity of human resources:** Scarcity of skilled human resources, mostly technicians and masons, was a problem at the start of the program. IDCOL arranged several training programs to create skilled technicians and masons. In addition, IDCOL encouraged the POs to engage local entrepreneurs in ICS manufacturing and installation activities. Adequate trainings and engagement of local entrepreneurs helped to ensure availability of skilled technicians and masons under the program.
- **Stove usage level:** During Inspection, IDCOL inspectors collect data from the households on ICS usage level. The ICS usage is categorized in four; (i) always use, (ii) frequently use, (iii) occasionally use; and (iv) does not use. In October 2015, IDCOL inspections revealed that 7% of the total inspected stoves were not being used by the customers which was a serious concern for the program. The POs argued that the inspection of ICSs took place within a very short period after installation which did not allow enough time to the users to get accustomed to the new stoves. As a result of IDCOL's emphasis on this issue, the POs started to provide more focus on awareness building and user trainings under the program to make sure that customers were using their stoves.
- **Quality control:** Due to lessons learned, it was decided that payment will not be made for a particular disbursement request of a cluster if more that 20% inspected ICS from that request are found to be of inadequate quality. This forced POs to pay more attention towards quality aspects as well as usage level of ICS.
- **Graduation to higher performance ICS:** The IDCOL ICS Program has discontinued support to the lowest performance ICS, which will put IDCOL on track to enhancing performance profiles of the ICS it promotes .
- **Lack of ICS testing facilities:** Before the IDCOL ICS Program, the concept of testing of ICS was limited to efficiency parameters only. IDCOL's initiatives have helped establishment of three testing facilities in Bangladesh and enabled IDCOL to test an ICS in more than one laboratory to validate the test results. However, IDCOL still feels the necessity of establishing a stove testing facility of international standard in Bangladesh which is important for sustainability of the program.
- **Underpricing of the stoves:** One of the challenges the program faced was underpricing of stoves by some POs in order to increase the sales volume. While selling at reduced price reduced sales revenue per ICS it, on the other hand, reduced operating costs and HR overheads per stoves. However, selling at lower prices engendered several issues including market distortion, wrong marketing messages and push sells, among others. To deal with this, it was decided that stoves cannot be sold at a price below its production cost which will be strictly monitored by IDCOL. Also IDCOL decided on grant support on the basis of type of the stoves with a view to discourage underpricing.

Outcomes and the impact that the project will aim to achieve in improving the baseline scenario

The proposed Project, Phase 2 of the IDCOL ICS program, has been designed to scale up the ICS market in Bangladesh (Annex 7 - Map indicating the location of the project), resulting in a sustainable transformation of the market to one that will continue to develop as a purely commercial market without donor support after the end of the Project.

Based on the challenges faced and lessons learned from the first phase of the program, IDCOL has decided to adopt some modifications in its approaches in the second phase of the program.

Under the second phase of the program, financial support will be directed to more efficient ICS. Realizing that the higher tier stoves¹² offer greater benefits in terms of reduced HAP but also are relatively more expensive that will require more efforts at demand creation, a varied amount of grant per stove is proposed under the Project with more support for the higher tier stoves (3 and above) and less so for the lower efficiency (tier 2) that have already been established in the market through the first phase of the program (as explained in section C.2). This will ensure incentives for the POs for selling different types of stoves as per customers' preferences rather than focusing on a particular model. Performance requirements will be gradually increased while the project is implemented, as per a graduation plan. IDCOL will increase the share of chimney stoves, metallic stoves and commercial stoves, which are more expensive compared to portable concrete stoves, and have greater impact in terms of reducing household air pollution to better serve different cooking needs of the households. In addition, IDCOL will offer different grant sizes for different models of stoves in order to equitably facilitate the demand creation and capacity building of the POs associated with different models of stoves. This will ensure incentives for the POs for selling different types of stoves as per customers' preferences rather than focusing on a particular model.

Finally, to address the challenge of stove usage level identified in phase 1 of the program, IDCOL will increase the rate of inspection to 25% of stove users from the current inspection rate of 18% (Annex 12 - IDCOL Inspection Form). This will be achieved through building inspection capacity in all 12 regional offices that IDCOL has across the country.

C.3. Project / Programme Description

Describe the main activities and the planned measures of the project/programme according to each of its components. Provide information on how the activities are linked to objectives, outputs and outcomes that the project/programme intends to achieve. The objectives, outputs and outcomes should be consistent with the information reported in the logic framework in section H.

The Project objective of phase 2 of the IDCOL ICS program is to reduce GHG emissions, solid fuel use for cooking and household air pollution (HAP) in Bangladesh by creating a sustainable market for higher efficiency cook-stoves in the country. The widespread introduction of ICS will have significant health benefits on rural population in Bangladesh by reducing the exposure of households to HAP and creating a safe indoors environment, which will primarily benefit women and children.

Due to the success of phase 1 of the program the design of the Project is substantially unchanged from phase 1, with the aim at this stage being to achieve market scale up. For further details concerning the design and the lessons learned from phase 1 see the description of the baseline project in Section C.2 of this document.

The Project will achieve its objective through the implementation of two linked and complementary components.

Component 1 will leverage private-sector finance through purchases made by end users equivalent to the total size of the Project. The Project will finance market development activities by the POs intended to enable them to rapidly increase market penetration. The market development support to POs will ensure that POs can undertake critical market development activities and reach scale without passing on this cost to consumers in form of increased prices.

Component 2 will provide technical assistance to enhance supplier capacity on the one hand and increase the demand for ICS among end users on the other hand. Through these activities, Component 2 will help create the necessary conditions for market growth to continue beyond the duration of the project and once the grants provided to POs in Component 1 have been phased out.

¹² The ISO/International Workshop Agreement (IWA) Guidelines for evaluating Cookstove Performance provides measurements and indicators of performance standards for cookstoves, measuring their performance along four dimensions: efficiency, safety, total emissions, and indoor emissions. For each dimension, stoves are ranked from Tier 0 to Tier 4 (4 being the best) based upon laboratory test results.

Table 2: ICS Installation target for the program, reaching 4 million stoves over the next 3.5 years

Year	2017	2018	2019	2020	2021	Total
Installation Target	600,000	700,000	800,000	900,000	1,000,000	4,000,000

The proposed second phase of the IDCOL ICS program is aimed at scaling-up funding and installation targets for higher efficiency ICS. It will primarily aim at supporting the continued growth of the ICS program which has emerged as a viable model for increasing efficiency of fuel use for cooking in rural Bangladesh. Phase 1 was about initial commercialization and phase 2 will bring about market take-off and aim at making a step-change in the market based on the initial experience of phase 1.

A number of types of stoves are included in the program: portable stoves, single and double mouth chimney stoves including commercial stoves and metallic stoves. In the proposed Project IDCOL intends to increase the share of higher efficiency chimney stoves, metallic stoves and commercial stoves installed, which have greater impact in terms of reducing GHG emissions and household air pollution compared to the lower performance stoves supported under the first phase of the program.

The project will be structured as follows:

Component 1: Scaling-up Investment in Improved Cookstoves

The IDCOL ICS program works with Partner Organisations (POs), who are mostly Non-Government Organizations and some private sector companies, who procure and install cooking systems as per technical standards set by IDCOL. Activities under this Component will include the provision of support to POs aimed at enabling the Project to reach the target of commercially disseminating 4 million efficient cookstoves by the end of the project.

Grant support that will be provided to POs under the program is meant for conducting promotion and awareness campaigns as well as for capacity building of the POs. For each stove sold, a grant will be disbursed according to a differential grant structure which is linked to the production/procurement cost of the stoves. This is expected to prevent POs from subsidizing the stoves and will encourage them to sell stoves at market price which will ensure long term sustainability of the program. Grants will be disbursed only after cash purchase by the households. A partnership agreement is signed between POs and IDCOL establishing this arrangement (see Annex 9 for the template partnership agreement).

There are two methods of payment that the POs can choose:

1. 100 percent after selling the ICS- results based financing.
2. 20 percent on submission of the participatory assessment report (demand assessment), and then the remaining tranches depending on stoves sold.

The program supports a menu of options for consumers that includes locally manufactured stoves as well as imported factory-produced stoves. The eligible types of stoves will be updated as new models are developed that pass efficiency, performance and consumer acceptance test in order to increase consumer choice. Grant levels have been set for different categories of stoves with the aim of making the business viable for the PO. The selling prices and grants for different categories of stoves are shown in the table below:

Table 3: Grants and Selling Price (Annex 16- Cost references from the Operating Committee report)

Category	Proposed Grant in USD	Expected Selling Price in USD
A: Double Mouth Concrete Stoves	6.32	12.95
B: Double Mouth Stoves with Metallic Lining and Insulation	13.75	19.51
C: Single Mouth Stoves with Metallic Lining and Insulation	11.25	18.04
D: Single Mouth Portable Stoves with Metallic Lining and Insulation	4.38	5.71
E: Manufactured Metallic Stoves	12.50	24.60
F: Commercial Stoves	31.25	80.82

Selection criteria of the POs supported will include their field presence and institutional capacity in disseminating ICS or similar other rural activities (e.g., Sanitation, solar home systems, Biogas). The POs are expected to generate demand for ICS in defined areas through social mobilization, and develop and train local entrepreneurs in the supply chain for ICS and their components (or establish their own production centers). POs may work with industrial stove producers as well as artisanal ones. These POs could be NGOs and/or micro-finance institutions, which will be responsible for supporting and overseeing the work of the entrepreneurs, technicians and manufacturers of stove appliances engaged in the supply chain side.

Component 2: Technical Assistance to Enhance Supplier Capacity and Demand

The main objectives of this component will be to create demand and to diversify the stove supply with additional stove designs, and in particular open the market towards new designs of improved stoves and low emission stoves which could produce higher environmental and health benefits.

Activity 2.1 Capacity strengthening of national institutions

Phase 2 of IDCOL program will continue to take R&D initiatives primarily focusing on Institutional Stove Development. IDCOL will test ICS in field as well as laboratory using its own technical monitoring facility to understand stove performances. The R&D support in phase 1 has made it possible to improve the performance of traditional concrete stoves through certain modifications (metal lining and insulation).

Activities will include:

- research and development to enhancement of product quality, performance, safety and durability;
- setting up of performance standards, labels and testing facilities;
- strengthening of managerial skills of targeted entrepreneurs;
- build capacity of policy makers; and
- design output-based disbursement procedures to support POs.

Activity 2.2 Technical assistance to support Partner Organizations (PO) and local entrepreneurs

There is a need to encourage enterprise development initiatives by attracting new entrepreneurs into the sector while strengthening the capacity of the existing ones.

In each year, IDCOL will conduct training and capacity building of POs at different levels:

Table 4. Training and capacity building

Type of Training	Number of training	Number of Participants
Mason training	30	600
Technician training	15	300
Promotional training	4	100
Management training	2	50
IT training	2	50

IDCOL will also supply sample moulds to the POs for newly introduced stove types, thus ensuring that the stoves produced are of the required quality.

Activity 2.3 Awareness raising and community outreach to enhance demand

Awareness raising activities through social mobilization will ensure potential users are aware of the fuel saving and health benefits associated with clean cooking. These activities have been seen to be crucial to the success of the Project as a result of lessons learned from past initiatives, which have shown that locally appropriate public awareness campaigns are crucial for uptake of household energy products. In the particular case of Bangladesh, care will be taken to engage the local government, community leaders and health volunteers, since this has been shown to be beneficial for effective awareness raising, increased coordination and successful implementation.

As it stands, the majority of the population in Bangladesh is not aware of the fuel saving potential of ICS or that the use of traditional biomass fuels is associated with health hazards through household air pollution. Massive and well targeted awareness campaigns are needed on the health damaging effects of indoor smoke from incomplete combustion of biomass.

Under the second phase of the IDCOL ICS program, the main objective of this component will be to strengthen the marketing system of current improved stoves that has been built in phase I of the program.

Activities will include:

- promotion and awareness campaigns to educate households on the health hazards associated with household air pollution;
- demonstrations of the benefits of clean cooking solutions as compared to the traditional stove such as fuel savings, better health, cleaner kitchens and ease of cooking; and
- support of a variety of media avenues to promote and market clean cooking products. These activities will capitalize on the successful experiences on social mobilization by the NGOs in the country.

The promotional activities include distribution of leaflet, user manuals, broadcasting TVC, wall painting and billboards, and annual review meetings. In addition, two celebration programs has been planned in 2017 and 2021 to celebrate installation of 1 million and 5 million stoves, respectively. The celebration programs are expected to create mass awareness about ICS. These will continue to be coordinated with the national level campaign by other stakeholders including Global Alliance for Clean Cookstoves (GACC) and USAID supported Catalyzing Clean Energy, Bangladesh (CCEB).

C.4. Background Information on Project / Programme Sponsor (Executing Entity)

The GCF Proceeds will be channeled through the World Bank, in its capacity as Accredited Entity of the Fund, and will be made available to the Government of Bangladesh, represented by its Finance Division, Department

of Finance (“Executing Entity”). The World Bank will enter into a grant agreement (“Subsidiary Agreement”) with the Executing Entity for the implementation of the GCF Funded Activity.

For the implementation of the GCF Funded Activity, the Executing Entity will enter into a subsidiary grant agreement (“Implementing Grant Agreement”) with the implementing partner for this GCF Funded Activity being the Infrastructure Development Company Limited (“IDCOL”) (“Implementing Partner”) for the purpose of using the GCF Proceeds to carry out the activities. The Implementing Partner shall further on-grant the GCF Proceeds in local currency in the form of sub-grants to eligible organizations identified per the criteria stipulated in the operating guidelines formulated with the approval of the World Bank (“Operating Guidelines”) and the Executing Entity’s Governance and Accountability Action Plan as further defined in the Subsidiary Agreement.

The project will be implemented by IDCOL, a government owned infrastructure finance company. IDCOL was established on 14 May 1997 by the Government of Bangladesh (GOB). The Company was licensed by Bangladesh Bank as a non-bank financial institution (NBF) on 5 January 1998. Since its inception, IDCOL has played a major under the World Bank’s Rural Electrification and Renewable Energy Development (RERED) program in bridging the financing gap for developing medium and large-scale infrastructure and renewable energy projects in Bangladesh. After a decade, the company now stands as the market leader in private sector energy and infrastructure financing in Bangladesh.

IDCOL is managed by a seven-member independent Board of Directors comprising three senior government officials, one prominent entrepreneur, and two famous professional practitioners from the private sector and a full time Executive Director and Chief Executive Officer. It has a small and multi-skilled work force comprising economists, financial and market analysts, engineers, lawyers, IT experts and accountants. IDCOL's stakeholders include the government, private sector, NGOs, multilateral institutions, academics and the people of Bangladesh at large.

Under the WB RERED Program, IDCOL’s focus is on three major areas: Solar Home systems (SHS), Domestic Biogas plants and Improved Cooking Stoves (ICS). IDCOL has been the implementing agency for the access to electricity and household energy components of the WB RERED project since 2003 and has acquired significant experience in IDA financial management procedures and requirements.

IDCOL will implement the Project with the help of Partner Organisations (POs) who are mostly NGOs (for household energy). The PO selection committee of IDCOL will select the POs as per the eligibility criteria outlined in the Operations Manual of the Project.

Under phase 2 of IDCOL ICS program, the implementation and institutional arrangements for the use of the additional financing will remain unchanged from phase 1, with IDCOL working with their POs to manufacture, sell and service higher efficiency stoves.

IDCOL, being a financial intermediary, is required to comply with World Bank’s Operational Policy 10.00/Financial Intermediary Financing. A review was carried out in June 2012 that found IDCOL to be in compliance with the requirements for financial intermediary financing. The review will be updated as part of the appraisal of the proposed additional financing.

IDCOL successfully managed the renewable energy component of RERED and has been successfully managing the access to electricity and household energy components of RERED II. IDCOL has been recognized globally for its success in dissemination of renewable energy technologies in Bangladesh, which has been possible because of its strong monitoring and quality assurance process. For Monitoring and Quality Control under the ICS program, IDCOL established an inspection team, a call center and a web-based software to keep track of each ICS installed under the program. After receiving disbursement requests from the POs, IDCOL inspects at least 10% of ICS submitted under each disbursement request. In case of equal to or more than 20% discrepancy from the required quality in a particular cluster, IDCOL excludes all ICS submitted under the disbursement request for that cluster. IDCOL also appointed Bangladesh University of Engineering and Technology (BUET) for verification of Compliance of Production in several production centers as well as initiated an Household air pollution (HAP) study to assess the benefits of ICS over traditional stoves to be conducted by BAEC.

In addition, under phase 2 of the ICS program, IDCOL will increase the rate of inspection to 25% of stove users from the current inspection rate of 18%. This will be achieved through building inspection capacity in all 12 regional offices that IDCOL has across the country.

C.5. Market Overview (if applicable)

Describe the market for the product(s) or services including the historical data and forecasts.

Describe the competitive environment including the list of competitors with market shares and customer base and key differentiating factors (if applicable).

Provide pricing structures, price controls, subsidies available and government involvement (if any).

Demand for ICS

In 2015 Bangladesh had a population of 161 million people (World Bank, 2015) living in more than 37 million households, giving an average household size of 4.35. By 2050 it is estimated that the population will grow to 265 million, and the number of households will reach 60 million. The rural population represents more than 70% of the total, with around 29 million households and only 1 million have access to ICS solutions.

At present, close to 90 % of the population in Bangladesh cook with biomass fuels using traditional stoves with less than 10% thermal efficiency, generating considerable GHG emissions, household air pollution and contributing to massive forest degradation, with 50% of fuel being sourced unsustainably. In rural households, the main supply for cooking is wood (44%), then crop residue (45%) and dung (9%). Fuelwood is becoming increasingly scarce and more expensive, which has pushed many consumers towards other, free forms of biomass. About 100 million tonnes of biomass (wood waste, cow dung, agricultural waste) are used for cooking annually and are the only feasible cooking energy solution for over 80 % of these predominantly rural households. For the estimated 67% of rural segments that do buy fuel, the payback period for ICS can be as little as 3-4 months. Looking at other fuels, natural gas and LPG have presence in urban areas but the unreliability of supply (for the former) and high costs (for the latter) make these an unfavorable option for many. 60% of urban population still rely on biomass.

All of these factors suggest that biomass will continue to be the dominant fuel in both urban and rural settings for many years to come. This represents an opportunity for more fuel efficient stoves to enter urban markets as well as rural ones. Overall, Bangladesh has a great market potential for ICS, estimated at more than 29 million households. With 67% of households using more than one stove, this could lead to the total number of stoves in use to reach over 50 million.

Supply of ICS

Despite efforts by various organizations to introduce cleaner and more efficient cooking solutions since the 1980s, in terms of coverage, only about 3-5 percent of households relying on traditional biomass fuels have access to an improved cookstove today, which suggests efforts in the sector have not yet succeeded in creating a sustainable market for stoves. Traditionally, the market has been supplied by a few local manufacturers that mostly produce non-standardized, mud and brick stoves, with households also often building their own stoves at home. The signs of market transformation, however, are underway, with promising market-based approaches being supported under EnDev, Grameen Shakti and more recently, World Bank/IDCOL programs. These programs have demonstrated that decentralised production of relatively simple, fixed and standardized concrete stoves can reach significant scale.

However, these programs could achieve far more if a more coordinated approach was taken to stimulating consumer demand, supporting SME & large NGO development whilst also enhancing access to finance for stove producers.

Table 5: Main categories in terms of provision of cook stoves (ESMAP, 2015)

Type	Description	Costs
Artisanal	Constructed locally in small workshops with a workforce or one or a few more employees.	In this category, raw materials and labour represent half of the cost (between \$2-7). The remaining costs are made up of local transport and distribution (\$2-5).
Semi-industrial	They link purpose-built subcomponents supply chains, taking advantage of mass production techniques.	Both categories face costs that artisanal stoves do not. First, taxes average \$3 for a cook stove, plus \$3 for import duties if they are not produced internally.
Industrial	Rely on well-integrated, machine-driven factories.	In terms of supply chain costs, producers face no less than \$5 per stove.

Table 6: Major players in providing, installing and managing of ICS in Bangladesh

Name of organisation	Description	Remarks
VERC	It is a national NGO working with ICS. In 2000 VERC formed a national network involving 93 NGOs working across 28 districts.	It has installed more than 42,000 ICS.
GIZ	Runs an ICS programme since 2004, supporting around 100 NGOs and 3900 sanitary shops to manufacture and sell stoves.	
Grameen Shakti	Non for profit arm of Grameen Group runs an ICS programme since 2006. Designs, manufactures and sells stoves.	Currently investing in marketing and sales, and working to develop a sustainable business model.
UNDP-UN Habitat	Partenered with GIZ to subsidize its 42,000 ICS.	Follow up a programme for another 400,000 stoves.
Bangladesh Association for Social Advancement	NGO that works with climate finance and generation of clean energy.	Installed more than 6,500 stoves.
Hilful Fuzul	Local NGO involved in the dissemination of ICS and biogas.	Around 16,000 ICS installed since 2008.
Rahman Renewable Energy Co.	Private local company supported by GIZ and SNV.	Installed more than 1,200 ICS.
SZ Consultancy Services Lmtd.	Local CDM project participant in charge of monitoring results from GIZ POs.	Manages over 600,000 ICS installed by POs and Pes.

Source: Ministry of Power, Energy and Mineral Resources, GPRB., 2013

C.6. Regulation, Taxation and Insurance (if applicable)

Provide details of government licenses or permits required for implementing and operating the project/programme, the issuing authority, and the date of issue or expected date of issue.

Describe applicable taxes and foreign exchange regulations.

Provide details on insurance policies related to project/programme.

No regulatory, licensing and insurance requirements applicable to the activities

C.7. Institutional / Implementation Arrangements

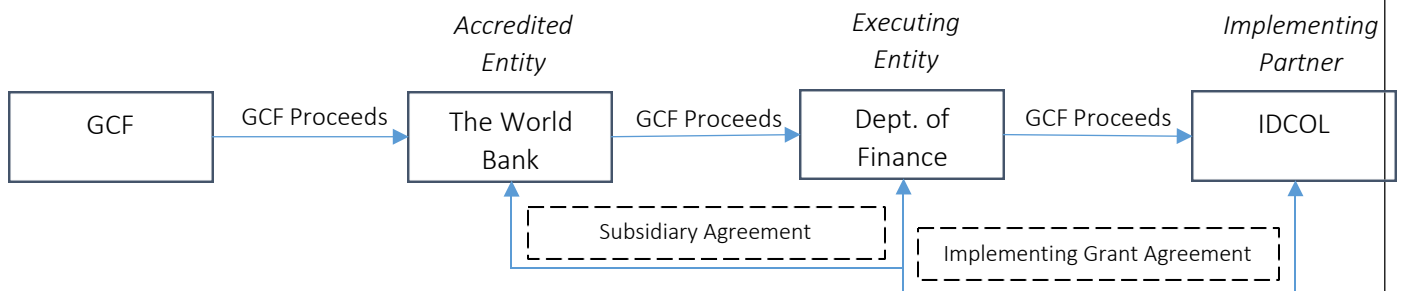
Please describe in detail the governance structure of the project/programme, including but not limited to the organization structure, roles and responsibilities of the project/programme management unit, steering committee, executing entities and so on, as well as the flow of funds structure. Also describe which of these structures are already in place and which are still pending. For the pending ones, please specify the requirements to establish them.

Describe construction and supervision methodology with key contractual agreements.

Describe operational arrangements with key contractual agreements following the completion of construction. If applicable, provide the credit analysis of key counterparties of key contractual agreements and/or structural mitigants to cover the counterparty risks.

For the implementation of the GCF Funded Activity, the Executing Entity will enter into a subsidiary grant agreement (“Implementing Grant Agreement”) with the implementing partner for this GCF Funded Activity being the Infrastructure Development Company Limited (“IDCOL”) (“Implementing Partner”) for the purpose of using the GCF Proceeds to carry out the activities. The Implementing Partner shall further on-grant the GCF Proceeds in local currency in the form of sub-grants to eligible organizations identified per the criteria stipulated in the operating guidelines formulated with the approval of the World Bank (“Operating Guidelines”) and the Executing Entity’s Governance and Accountability Action Plan as further defined in the Subsidiary Agreement.

Please see details of the structure for flow of funds from GCF to IDCOL.



IDCOL successfully managed the renewable energy component of RERED and has been successfully managing the access to the electricity and household energy components of RERED II. IDCOL has been recognized globally for its success in dissemination of renewable energy technologies in Bangladesh. In order to minimize the risks, the implementation and institutional arrangements of this Project will remain unchanged from phase 1 of the IDCOL ICS program, with the Implementing Partner IDCOL working with the Partner Organizations (PO) to manufacture, sell and service higher efficiency stoves. An Operating Guideline has been prepared for the project. IDCOL has proven its capacity in managing the project during phase 1.

Structure of the IDCOL ICS program

IDCOL is a government owned infrastructure finance company run by professional management under the oversight of a Board. IDCOL’s Board is responsible for oversight, policy guidance and monitoring of the Project Management Unit (PMU). The overall structure of the IDCOL ICS project is given in the figure 1 below.

Day to day implementation will be under the responsibility of IDCOL. IDCOL has established a specific PMU for the implementation of the IDCOL ICS project. The IDCOL PMU is responsible for day to day management of the project following World Bank’s fiduciary guidelines and procedures. It is also responsible for the monitoring of Project activities and results. The Project will finance the PMU’s operating costs. It will provide sub-grants to the ICS installations undertaken by the POs. The IDCOL PMU will engage in activities to support the POs which can be done more efficiently at central level. These will include technological assessments, updating and certifications of clean cooking devices; production of awareness and consumer education materials. A Technical Committee comprising stove experts, technologists and relevant government officials under IDCOL’s guidance will be set up to advise on design and certification standards and other relevant technological issues. IDCOL has a team of inspectors who will inspect and verify that the systems are installed as per approved technical standards before financing is released from the Project fund.

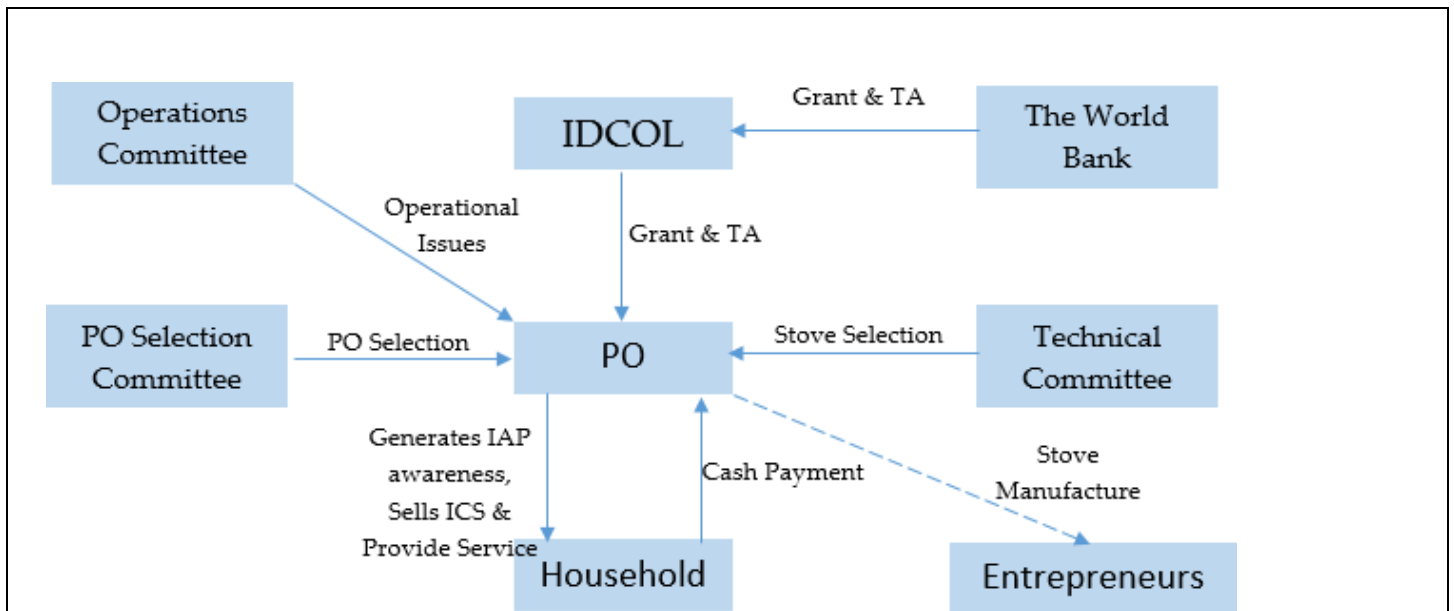


Figure 1: Overall structure of the IDCOL ICS project

The PO Selection Committee (PSC) selects the POs to work under the program as per approved selection criteria. It is an independent committee formed with representation from Bangladesh Institute of Development Studies (BIDS), NGO Affairs Bureau, PKSF (Government organization to provide financial support to MFIs) and Economic Relations Division (ERD) under the Ministry of Finance of the Government of Bangladesh.

Technical Committee (TC) determines technical standards, approves eligible stove models to be sold under the program and provides technical guidance. The committee is independent and is formed with the representation from Bangladesh University of Engineering and Technology (BUET), Local Government Engineering Department (LGED), Department of Environment and Bangladesh Council for Scientific and Industrial Research (BCSIR).

The Operation Committee (OC) is Chaired by the Executive Director & CEO of IDCOL and consisting of program-in-charges from all POs and representatives from IDCOL. This committee sits once in a month to discuss issues like installation progress, findings from IDCOL inspection, financial and other reporting by the POs, and any other issues related to implementation of the program. In addition to the requirements as set in the Participation Agreements (PA)¹³, decisions made in the OC meetings are also binding on the POs.

Basic implementation principles:

- The Project will finance IDCOL's operating costs to implement the project.
- It will provide grants for sub-projects to be undertaken by POs. Each sub-project will consist of a package of aggregate units of 10,000 households roughly covering 2 to 3 Union Parishads (the smallest rural administrative and local government units in Bangladesh).
- A request for proposal will be made to select POs based on their past experience and current field presence. A fixed estimate of staffing costs, training, field promotion, and PO overhead per 10,000 clean cookstoves was developed in consultation with key POs and will be applied. IDCOL will have the flexibility to review periodically these estimates based on implementation experience.

¹³ The Participation Agreement is a contract signed between IDCOL and the POs that include provisions requiring the POs/sponsors to maintain appropriate accounting and financial control as outlined in the Operating Guidelines of the Project (See Annex 9 - Annex 9 - Sample Agreement between IDCOL and the PO).

- Promotion activities will be organized to make demonstrations of advanced combustion stoves to segments of the rural population depending on affordability.
- Development of standards, testing protocols, and certification.

Particular emphasis will be placed on the development of standards, certification of clean cooking products, and testing protocols. These will include technological assessments, updating and certifications of clean cooking products; and adaptation of testing protocols to local conditions. A Technical Committee comprising of stove experts, technologists and relevant government officials under IDCOL's guidance will be set up to advice on design and certification standards and other relevant technological issues. **The Technical committee will follow up and incorporate the latest development and guidelines such as WHO guidelines on indoor air quality and International Workshop Agreements (IWA 11:2012) guidelines for cookstove performance evaluation.**

Implementation of these activities will be done in close collaboration with the USAID financed Catalyzing Clean Energy in Bangladesh Project.

Financial Management, Disbursements and Procurement

Financial Management: IDCOL has acquired significant experience in IDA financial management procedures and requirements. IDCOL's financial management organization and system are found to be adequate to manage its operation and to undertake project financial management activities.

The Participation Agreement between IDCOL and the POs include provisions requiring the POs/sponsors to maintain appropriate accounting and financial control. IDCOL has been submitting the required financial reports (interim unaudited financial reports and audited financial statements) in a timely manner. There are no material audit observations for IDCOL. IDCOL has experience and capacity in managing World Bank financed procurement. Under the phase 1 of the ICS program, there was no major procurement related issue observed.

Disbursements and Flow of Funds: Disbursement of IDA funds will be transaction based. The applicable disbursement methods include: Advance, Reimbursement, Direct Payment, and Special Commitment. Funds will flow from IDCOL to the POs through sub-grants under Participation Agreements between IDCOL and the POs.

Book Keeping and Accounting arrangements: IDCOL will follow the Government of Bangladesh's Project Accounting Manual in maintenance of project books and reporting to various monitoring and control agencies of the Government. IDCOL will use its entity computerized accounting system for processing project financial transactions and financial reporting. IDCOL's records and financial statements should continue to reflect the amount payable to the Government and receivable from the POs/sponsors. In ensuring accounting and financial control of transactions of the Project, IDCOL shall maintain adequate financial management systems within the entity and in the POs. The Participation Agreement between IDCOL and the POs would include provisions requiring the POs/sponsors to maintain appropriate accounting and financial control as outlined in the Operating Guidelines of the Project.

Financial Reporting: IDCOL will submit Interim Unaudited Financial Reports (IFRs) to IDA and GCF.

Internal Control: The Operating Guidelines of the Project includes provisions requiring the POs/sponsors to maintain adequate financial management arrangements, and to submit financial reports and audited financial statements to IDCOL in a timely manner. These provisions would be included in the Participation Agreements between IDCOL and the POs/sponsors.

Procurement for the Project will follow World Bank Procurement Regulations 2016. IDCOL as the implementing agency will conduct their part of the procurements following the World Bank Procurement Regulations 2016. Bank will conduct prior and post review of the procurement activities depending on the prior review thresholds.

Procurement Responsibility: The overall responsibility of project implementation would be with IDCOL. The POs are expected to follow established commercial practices ensuring economy and efficiency.

Review by IDA of Procurement Decisions: The review by IDA of procurement decisions and selection of consultants will be governed by Appendix 1 of the Bank's Guidelines.

C.8. Timetable of Project/Programme Implementation

Please provide a project/programme implementation timetable in [section I \(Annexes - 8\)](#). The table below is for illustrative purposes. If the table format below is used, please refer to the activities as numbered in Section H. In the case of outputs, please mark when all the required activities will be completed.

(All the activities planned under the project will continue for the entire duration of the project)

D.1. Value Added for GCF Involvement

Please specify why the GCF involvement is critical for the project/programme, in consideration of other alternatives.

GCF support for the clean cooking sector in Bangladesh is essential. Funding in the clean cooking sector is urgently needed in order to replace the current use of polluting solid fuels and inefficient stoves used by very poor and vulnerable households in rural areas of the country (31% of people in Bangladesh live below the national poverty line of \$2 per day).

The proposed Project will scale-up support for a scheme that is an important contributor to the vision of the Government of Bangladesh to achieve 100% coverage of improved cookstoves by 2030 as per Bangladesh Government's Country Action plan for Clean Cookstoves (CAP). The target of this CAP is to disseminate cleaner cooking stoves to over 30 million households in Bangladesh by 2030. Current market penetration represents just 5-6% of the target potential, indicating the scale of challenge and the critical need for a more coordinated, integrated and innovative approach.

The Government of Bangladesh has given a high priority to addressing the cooking sector as expressed in the Clean Cookstove Country Action Plan. To this end, in 2012, the Government borrowed \$12 million from the IDA for an improved stoves program managed by IDCOL, as part of the Bangladesh Rural Electrification and Renewable Energy Development II (REREDII) program. The approach pioneered and refined in that program used Performance Based Grants to address capacity, awareness, and marketing costs while stoves were sold to consumers at cost price. The signs of market transformation from this program are underway with promising market-based approaches successfully tested. These now need to be scaled up.

For this project the Government will borrow a further \$20 million from IDA, and requests \$20 million as a matching grant from the GCF which will in turn leverage investments of \$42.17 million by end users of cookstoves. The Performance Based Grants covering entrepreneurial training, awareness and marketing have been priced carefully to minimize concessionality and only support verified use by consumers of higher quality, higher efficiency and lower emissions devices. Given the high poverty levels of consumers, and the emerging market, this Performance Based Grant approach represents a lowest level of concessionality to ensure rapid market takeoff.

The project is “low-risk, high-value” opportunity for GCF to invest and achieve impacts in the sector: (i) the proposed project builds on the successful experience in phase I and has a strong implementation agency IDICOL, so the implementation risk is low; (ii) the proposed project will use the results-based financing approach, incentives will be disbursed only when eligible clean cooking technologies are sold, used, and verified, so the performance risk is low; (iii) the GCF will leverage \$20 million IDA and more than \$40 million private investment, so the leverage ratio is high; and (iii) the proposed project helps to transform the cookstove market by delivering additional 4 million improved cookstoves which may help to achieve the market tipping point (we know that for new technologies, when the market penetration reaches to 30-40%, the market force will mainstream the technologies), so the transformational impact is high. The GCF funding is critical for the following reasons:

- i) **Enhancing the environment for consumer investment in cleaner cooking:** The GCF contribution to building capacity in the supply chain, and increase awareness, will overcome systemic barriers to clean cooking markets throughout Bangladesh, thereby enhancing the environment for more investment by private consumers (stove users) in low emissions, high efficiency stoves.
- ii) **Enhancing the environment for investment of entrepreneurs in cleaner cooking supply chains:** Through the performance based grant support from the Government (from the IDA loan), matched by the GCF grant, the environment for investment by entrepreneurs (participating organisations) in the supply chain will be significantly enhanced.
- iii) **Fill the financing gap:** the financing required to ensure market take-off and transition to a fully commercial market requires a large element of on-balance sheet borrowing from the IDA. Without off-balance sheet funding from the GCF the market will develop at a significantly slower rate. It is currently untenable for the Government to take on additional borrowing in this sector

- iv) **Support alignment with UNFCCC and government objectives:** to date the Government has funded market development activities without recourse to any climate finance. However given the Government commitments under the UNFCCC and the beneficial climate impact of these activities the GCF funding enhances the alignment with government objectives in the sector. GCF has demonstrated its commitment to supporting low carbon development in the context of poverty alleviation, and this is fully alignment with this project.

The proposed additional financing from the GCF together with the concessional loan from IDA will support the continued growth of the ICS program using higher efficiency, lower emissions stoves. With the requested support, annual ICS sales are expected to increase by 100,000 every year from 600,000 in 2017 to 1,000,000 in 2022. The additional financing will permit reaching an additional four million rural households by 2022, bringing the total rural households with ICS under the RERED II program to 5 million. This market initiation and takeoff will catalyze a commercial market estimated at more than 29 million households.

D.2. Exit Strategy

Please explain how the project/programme sustainability will be ensured in the long run, after the project/programme is implemented with support from the GCF and other sources, taking into consideration the long-term financial viability demonstrated in [E.6.3](#). This should include a description of strategies for longer term maintenance of physical assets (if applicable).

Since 2012 the Government has implemented an improved stoves program managed by IDCOL, as part of the Bangladesh Rural Electrification and Renewable Energy Development II (RERED II) program.

The primary barrier to adoption of ICS is the lack of awareness of households of the benefits of improved stoves (demand creation) and the availability of the right models of stove that have the acceptability of the rural households. The GCF grant will be used to address both these barriers by supporting demand creation and supply chain development activities for adoption of ICS. As performance based grants, funding is only provided upon verified adoption of the stoves, thus ensuring private sector (end user) investment is realized.

Since 2012, the ICS program has not only delivered sales over 1 million improved stoves, but shifted the market from lower efficiency, higher emitting stoves, to higher efficiency, lower emitting stoves (from lower emissions / efficiency tier 1 to stoves conforming to tier 2 and 3). For this reason ongoing performance based grants are required as systemic changes in the market have been required (retooling, training, awareness creating and marketing). The market is now poised for takeoff. By building the capacity of the rural micro enterprises (partner organizations) in producing and selling ICS, the program will create a sustainable supply chain for ICS in Bangladesh.

GCF grant support under the program supports capacity building in the supply chain and demand creation through promotion and awareness by POs. The performance based grant amount in the previous phase was a fixed amount per stove irrespective of type of stove. In the next phase, IDCOL will offer a differential grant structure for different models of stoves in order to equitably facilitate the demand creation and capacity building of the POs associated with improved models of stoves. This will also prevent POs from subsidizing stoves and will encourage them to sell devices at a market price which will ensure long term sustainability of the program. Grant will be disbursed only after cash payment by the households to the POs (a contract agreement has been signed between POs and IDCOL regarding this arrangement). By supporting micro-enterprise development through training and capacity building through well-established POs, the project will pave the way for commercial dissemination of clean cooking solutions.

As it has been followed in other programs of IDCOL, this grant structure will be gradually phased out to ensure long term sustainability of the program. Realizing that the lower efficiency (tier 2) stoves have already gained market acceptability, grant support is proposed to be reduced in phase 2 of the program. By proposing more grant for higher efficiency stoves in phase 2, the proposed project is aimed at creating a market for the higher efficiency stoves with the aim at phasing out grant support completely. After the completion of the project, IDCOL will slowly phase out the grant component and will start incorporating the promotion and awareness cost of ICS program in the production cost of ICS. Production cost

of ICS is expected to come down with scale and technology advancements. IDCOL plans to move to a pure commercial implementation of ICS program once the proposed project is complete.

IDCOL ICS program follows a cluster approach, where each PO is designated with a particular cluster (region) for sale and promotional activities of ICS. In the next 3.5 years and with distribution of 4 million ICS, IDCOL will be able to cover substantial part of the Bangladesh. IDCOL foresees that there will be another phase of support that will cover additional ICS adoption but IDCOL support for market development and supply chain activities will be recovered from customers as part of the selling price of ICS. By supporting an extensive distribution channel throughout rural Bangladesh, IDCOL ICS program will phase out its support paving the way for a fully commercial market for ICS to reach the target of 30 million ICS by 2030.

IDCOL is also coordinating the ICS program with GIZ, USAID and other partners to replicate the efforts and share best practices. Breakthrough in terms of testing of ICS, technologies advancements and wide distribution network with distribution of 4 million ICS, will pave the way for market creation in Bangladesh.

In this section, the accredited entity is expected to provide a brief description of the expected performance of the proposed project/programme against each of the Fund’s six investment criteria. Activity-specific sub-criteria and indicative assessment factors, which can be found in the Fund’s [Investment Framework](#), should be addressed where relevant and applicable. This section should tie into any request for concessionality made in [section B.2](#).

E.1. Impact Potential

Potential of the project/programme to contribute to the achievement of the Fund’s objectives and result areas

E.1.1. Mitigation / adaptation impact potential

In a joint 2015 report on climate finance issued by the MDBs, “thermal applications of sustainably/produced bioenergy in all sectors, including efficient, improved biomass stoves” is classified as an eligible activity for classification of climate mitigation finance.¹⁴ The proposal thus builds on this classification as a way of contributing to climate change mitigation through improving combustion efficiency of biomass fuels.

The project’s direct result will be 4 million of ICS adopted by households over the 3.5 years of the project implementation. The estimated GHG emission reduction for the lifetime of 2 to 3 years, depending on the type of device, will be about **2.89 MtCO₂eq**¹⁵.

Given that the project will build a sustainable market for cleaner cooking solutions, which will continue after the project’s closure, the project’s longer term outcome can be quantified as 7.63 MtCO₂eq avoided over 10 years (assuming a conservative annual 1% market growth). Therefore, the total lifetime emissions reductions are expected to be 10.52 MtCO₂eq.

This estimated climate mitigation result does not include the impact of reducing black carbon and other short-lived climate pollutants. The World Bank is still in the process of reviewing potential indicators, tools and methodologies for translating emission reductions into near-term climate impacts, and will be testing out the Gold Standard quantitative methodology for assessing black carbon equivalent emissions reduction of cookstove interventions as part of the monetizing of the clean cooking and heating co-benefits approach¹⁶.

The adaptation impact of the adoption of 4 million ICS will come as a result of increased resilience of the households adopting the cookstoves, who are expected to belong to the most vulnerable populations in Bangladesh. Resilience will be increased through an improvement in the households’ adaptive capacity and a reduction in vulnerability at the local scale. The project will have multiple environmental, economic, and women’s empowerment co-benefits as well as health benefits depending on HAP emission reductions. The expected total number of direct beneficiaries is expected to be 17.6 million.

E.1.2. Key impact potential indicator

Provide specific numerical values for the indicators below.

GCF core indicators	Expected tonnes of carbon dioxide equivalent (t CO ₂ eq) to be reduced or avoided (Mitigation only)	Annual	963,300
		Lifetime	2,890,000
	<ul style="list-style-type: none"> Expected total number of direct and indirect beneficiaries, disaggregated by 	Total	Direct beneficiaries: 17.6 million (of whom 8,4million women based on 49.5% of the population)

¹⁴ See Annex C, Table 3, in the 2015 Joint Report on Multilateral Development Banks’ Climate Finance. August 2016. Report available at: <https://publications.iadb.org/handle/11319/7807>

¹⁵ The GHG emission reductions are estimated based on the latest CDM methodology AMS-II.G

¹⁶ The Gold Standard methodology for quantification of black carbon emissions and other [non-Kyoto] climate pollutants is available at: <http://www.goldstandard.org/resources/energy-requirements>.

	<p><i>gender (reduced vulnerability or increased resilience);</i></p> <ul style="list-style-type: none"> <i>Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)</i> 	<p>Percentage (%)</p>	<p>Direct: 11% (based on a total population of 160,9 million)</p>
<p>Other relevant indicators</p>	<p>Expected increase in the number of households with access to low-emission energy: 4 million</p>		

Describe the detailed methodology used for calculating the indicators above.

The methodology for calculating emissions reduction is based on the established CDM methodology “Applied CDM Methodology: AMS II.G. - Energy Efficiency measures in thermal applications of non-renewable biomass (Version 07)” where total emissions reductions due to decreased unsustainable biomass used are calculated for two types of ICS (Tier 2 and Tier 3) with the methodology outlined below. Out of 4 million ICS to be sold, it is expected that 3 million will be Tier 2 and 1 million will be Tier 3.

Methodology for estimating emissions reduction from cookstove improvements

	$ER_{y,i,j} = B_{y,savings,i,j} \times N_{y,i,j} \times (\mu_{y,i,j}/365) \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossilfuel}$
<p>where,</p>	
<p>$ER_{y,i,j}$</p>	<p>: Emission reductions during the year y in tCO₂e</p>
<p>$B_{y,savings,i,j}$</p>	<p>: Quantity of woody biomass that is saved in tonnes per cook stove device of type i and batch j during year y</p>
<p>$f_{NRB,y}$</p>	<p>: Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable biomass using survey methods or government data or default country specific fraction of non-renewable woody biomass (fNRB) values available on the CDM website</p>
<p>$NCV_{biomass}$</p>	<p>: Net calorific value of the non-renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)</p>
<p>$EF_{projected_fossilfuel}$</p>	<p>: Emission factor for the substitution of non-renewable woody biomass by similar consumers. Use a value of 81.6 tCO₂/TJ</p>
<p>$N_{y,i,j}$</p>	<p>: Number of project devices of type i and batch j operating during year y</p>
<p>$\mu_{y,i,j}$</p>	<p>: Number of days of utilization of the project device i and batch j during the year y</p>

The quantity of woody biomass that is saved ($B_{y,savings,i,j}$) is estimated using

	$B_{y,savings,i,j} = B_{old,i,j} \times (1 - \eta_{old,i,j} / \eta_{new,i,j})$
where,	
$B_{old,i,j}$	: Quantity of woody biomass used in the absence of the project activity in tonnes to generate useful thermal energy equivalent to that provided by the project device type i and batch j
$\eta_{old,i,j}$	: Efficiency of the stove being replaced of type i and batch j
$\eta_{new,i,j}$	: Efficiency of the system being deployed as part of the project activity (fraction) of type i and batch j
Leakage	: B_{old} is multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required (<i>Reference: Paragraph 28 of AMS II.G/v07</i>)

Describe how the project/programme's indicator values compare to the appropriate benchmarks (i.e. the indicator values for a similar project/programme in a comparable context).

The emissions reductions of 2.890 million tCO₂eq reduced due to the project is appropriate in scale for a grant from the GCF of 20 million – meaning that the cost of emissions reductions to the GCF are about 6.9 USD / tCO₂eq (Annex 15 - GHG _ Emissions targets).

Expected total number of direct and indirect beneficiaries: All members of households that gain access to ICS are direct beneficiaries.

E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project/programme investment

E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

Describe how the proposed project/programme's expected contributions to global low-carbon and/or climate-resilient development pathways could be scaled-up and replicated including a description of the steps necessary to accomplish it.

Global potential for replication

The proposed Project is first in a global pipeline of projects addressing clean cooking that are being prepared by the World Bank and GIZ in a coordinated manner. The World Bank, through the Energy Sector Management Assistance Program (ESMAP) and GIZ, as part of the multi-donor, multi-implementer "Energising Development (EnDev) partnership", have successfully fostered low-carbon cooking markets in developing countries worldwide over the past ten years. Based on this proven experience that builds on lessons learnt worldwide the organisations have joined forces to scale up the nascent markets that they have supported. The overall harmonized strategy of the partnership aims to present a coordinated and complementary approach to scale up low-carbon cooking. The harmonized strategy will transform the market from one dominated by low-quality and inefficient cookstoves with high GHG emissions to a market where progressively higher quality, and low carbon stoves dominate. For more details on this approach, see Annex 11 for an joint strategic collaboration WB GIZ.

Based on figures from the 2017 SE4All Global Tracking Framework report, just over 3 billion people worldwide currently cook with harmful and polluting stoves and fuels. Between 2012 and 2014 about 80 million people gained access each year to clean cooking, but this is outpaced by the population increase. The SE4All Global Tracking Framework shows that the current trend for reaching universal access to clean cooking technology is negative in absolute terms, as the number of people using traditional fuels rose from 3.03 billion in 2012 to 3.04 billion people in 2014. At the current pace

of adoption, population growth outpaces adoption of clean cooking practices and the SE4All objective of 100% clean cooking by 2030 will not be achieved by a wide margin. Progress needs to increase fivefold if the objective it to be met.

The vast majority of those without access to clean cooking use solid fuels, predominantly wood for cooking. According to a 2015 study, the unsustainable harvesting and incomplete combustion of this wood results in emissions of over 1 Gt CO₂e per year along with significant black carbon emissions which additionally accounts for about one third of total climate forcing.

The aim of the strategic partnership between the World Bank, GIZ and other supporting partners: EnDev partnership, the Netherlands Enterprise Agency (RVO.nl), SNV Netherlands Development Organisation, and the Global Alliance for Clean Cooking (GACC), is that working effectively together with sufficient resources, results based management, and harmonized monitoring and evaluation approaches will provide sufficient momentum to set-off the transformation of the cooking sector globally in support of national stakeholders' ambitions and policies.

The accredited entities, the WB and GIZ, will submit separately coordinated and aligned country proposals under this strategic framework with the support of the other partners.

Potential for scaling up in Bangladesh

In Bangladesh specifically, the IDCOL ICS program aims to transform the cooking market from the current reliance on inefficient and polluting biomass stoves towards cleaner, climate-smart and more efficient biomass stove. While there are some early signs that markets are already beginning to move in this direction, the pace of progress remains too slow.

The transformational potential of the project lies in the significant target and scale up potential that the project proposes in order for the market to begin growing sustainably and self-sufficiently without further significant grant support. The second aspect is the progressive movement of the sector toward more promising and higher performing technologies that further reduce emissions and improve fuel efficiency.

This project will address the key barriers in supply and demand of ICS using a model that is seen globally as one of the most successful programs in the sector. Success of the proposed Project will lead to scaling-up of a scheme that is an important contributor to the vision of the Government of Bangladesh for achieving 100% coverage of improved cookstoves by 2030 as per Bangladesh Government's Country Action plan for Clean Cook stoves (CAP). The target of this CAP is to disseminate cook stoves to over 30 million households in Bangladesh by 2030. Together, phase 1 (the baseline project) and phase 2 (the proposed Project) will reach 5 million households, leaving the market poised to reach the remaining 25 million households. Moreover, the as supply chains are further strengthened for distribution of the current baseline stoves (Tier 2), there will be a progressive movement toward promotion of more efficient and lower emission technologies. It is envisioned that over the medium term the support will gradually shift toward delivering higher performing stoves using the same supply channels.

E.2.2. Potential for knowledge and learning

Describe how the project/programme contributes to the creation or strengthening of knowledge, collective learning processes, or institutions.

The Project contributes to the creation of knowledge through several different approaches:

Capacity strengthening of national institutions: R&D programs for the development of new models of high performance cookstoves. Activities will include:

- independent audits, air pollution studies and health impact assessments
- research and development to enhancement of product quality, performance, safety and durability;
- setting up of performance standards, labels and testing facilities;
- build capacity of policy makers;

Training of local organization and entrepreneurs: The following types of training will be conducted:

- Mason training
- Technician training
- Promotional training
- Management training
- IT training

Awareness raising and community outreach: Awareness raising will be encouraged by the organization of the following activities:

- promotion and awareness campaigns to educate households on the health hazards associated with household air pollution;
- demonstrations of the benefits of clean cooking solutions as compared to the traditional stove; and
- support of a variety of media avenues to promote and market clean cooking products. These activities will capitalize on the successful experiences on social mobilization by the NGOs in the country.
- large scale dissemination of ICS solutions and demonstrations of the benefits of clean cooking solutions as compared to the traditional stove
- support of a variety of media avenues to promote and market clean cooking products.

These activities will capitalize on the successful experiences of phase 1.

E.2.3. Contribution to the creation of an enabling environment

The Project will contribute to the creation of an enabling environment by leading to the development and transformation of the market for ICS in Bangladesh. The Project's interventions are designed to demonstrate the potential of ICS through capacity building to supplier and awareness campaigns to a large public in the country who are currently unaware of the opportunities that ICS offer in terms of decreased fuel use, improved health and increased convenience. The Project's interventions will also encourage market development through the creation of a network of suppliers and distributors of ICS and by strengthening their capacity to engage in the market and to provide products that conform with user preferences.

IDCOL is undertaking a number of critical interventions that need to be implemented to transform the cookstove market in Bangladesh:

Intervention needed	IDCOL's response
Work with the sector and/or government to identify or form a central body to develop stove standards and monitor performance. Support the capacity building of this organization so that it has the testing capabilities to holistically test stoves.	The Bangladesh Standards and Testing Institute is developing national standards for cookstoves and its staff has participated in recent ISO TC285 meetings that has been created to establish quality standards for biomass stoves. To support that push towards standardization, IDCOL has funded a National Cookstove Testing Center.
Partner producers with research bodies and international technical experts to investigate the durability and performance questions raised around certain stove models. Work with producers to improve designs and test acceptance amongst consumers.	The IDCOL ICS program works with research institutions to enhance product quality, performance, safety and durability
Identify a central body that could catalyze the development of the ICS market by providing improved access to funding. Provide specific small scale commercial loans to stove producers to help them invest in marketing and manage working capital requirements.	The IDCOL ICS program supports the selected POs to generate demand for ICS and to facilitate enterprise creation so that households are motivated to buy ICS or advanced combustion stoves
Once the market foundations are in place, build a broader coalition for cookstoves that works cross sector by including various NGOs, community organizations and all levels of government. Develop a national campaign and vision around cookstove adoption that can help provide focus to the sector and raise consumer awareness across the country.	The IDCOL ICS program has launched awareness raising campaigns through social mobilization to ensure potential users are aware of the fuel saving and health benefits associated with clean cooking

The Project is being developed in coordination with a number of important stakeholders in the sector, including Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), the Global Alliance for Clean Cookstoves (GACC) and the Energising Development (EnDev) partnership (See Annex 11 Chapeau paper).

As part of this coordinated approach, the GACC has helped to create a supportive framework for market scale-up in Bangladesh through its support to the Power Division of the Bangladesh Ministry to develop a Country Action Plan (CAP) for Clean Cookstoves. In 2016 the Ministry of Power, with the assistance of the GACC, GIZ and SNV, has set up a multi-stakeholder national Household Energy Platform (a public-private partnership made up of representatives from the private sector, civil society, academia, and multiple government ministries) to serve as the sector coordinator to support the development of self-sustained markets and coordinate the efforts of the various stakeholders. The Platform, which comprises of both governmental and non-governmental stakeholders, will work on removing the key market barriers.

E.2.4. Contribution to regulatory framework and policies

Describe how the project/programme strengthens the national / local regulatory or legal frameworks to systematically drive investment in low-emission technologies or activities, promote development of additional low-emission policies, and/or improve climate-responsive planning and development.

Quality assurance and labeling of products is generally key to enabling consumers to understand the benefits offered by higher quality products and hence also key to driving consumer demand for improved products. Progress has been made in recent years to develop international standards for stoves. Over the past years, the Global Alliance for Clean Cookstoves (GACC) has worked with the International Standards Organization (ISO) to support cookstove and fuel sector experts to develop a set of consensus-based standards. Interim guidelines were published through the International Workshop Agreement (IWA) which standardizes measurements and indicators of performance standards for cookstoves, measuring their performance along four dimensions: efficiency, safety, total emissions, and indoor emissions. For each dimension, stoves are ranked from Tier 0 to Tier 4 (4 being best) based upon laboratory test results.

Grants provided under the Project are based on the performance of cookstove models on these tiers. This will lead to the assimilation of these standards by the Bangladeshi cookstove sector. Thus the country will serve as a model internationally in developing an ICS sector based on these rigorously developed standards.

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

Increasing access to and use of more efficient cooking solutions through the large scale dissemination of ICS solutions will have tremendous co-benefits as a result of positive household economic and gender related outcomes (through reduced fuel costs or collection time), local environment impact and emission reductions, as well as health co-benefits through reduction of HAP. These co-benefits will increase resilience of households to climate related shocks and contingencies and provide additional assets to cope with the vulnerabilities caused by climate change.

Environmental co benefits: The reduction of household air pollution, the improvement of air quality, and the reduction of forest degradation or deforestation rates (Annex 5 - Environmental and Social Management Framework RERED II and Annex 5A - Gender responsive social assessment)

ICS use could reduce the use of biomass for cooking by 50-65% compared to the present level of use. Lower consumption of woodfuel and charcoal will reduce the pressure on tree cover. Both reduced woodfuel usage and lower emission through an improved combustion process will reduce the particulate matter, carbon monoxide and other toxic emissions generated that are harmful to household members.

IDCOL is currently conducting a study on household air pollution (HAP) levels in households to assess the level of HAP in both traditional stoves and ICS. According to the draft report, there is a statistically significant drop in HAP with the use of ICS. Draft results are given in the table below.

Table 67: Draft Results of Emission Tests of Stoves

Category	Parameter	PM ₁₀	PM _{2.5}	BC	CO
		µg/m ³			
Traditional Stoves	Mean	288	204	32.3	111
	STD	39.5	32.4	3.85	10.5
Improved Cook Stoves	Mean	215	153	18.8	11.4
	STD	19.9	18.1	2.66	1.47

The results show that the reduction achieved by ICS in comparison to traditional stoves are of 25% for PM₁₀ and PM_{2.5}. A reduction of 41.7% for BC, and almost 90% reduction in CO.

Social co-benefits: increased resilience through reduction in deaths and rates of non-communicable diseases, and improved health, especially of women and children

Closely linked with environmental co-benefits, social co-benefits will be seen primarily in health aspects. The health impact of HAP produced by traditional cookstoves is particularly acute for women and children, who are the most exposed groups to HAP. The WHO has estimated that 46,000 women and children die each year in Bangladesh as a direct result of exposure to HAP, while millions more suffer from respiratory diseases, tuberculosis, asthma, cardiovascular disease, eye problems, and lung cancer. 70% of the victims of HAP are children under five.

The best immediate way of addressing this urgent problem is the rapid and widespread introduction of ICS that are designed to draw off the smoke and toxins, thus creating a safe indoors environment, which will primarily benefit women and children. Additionally, ICS use reduces fire hazards, improves the hygienic conditions of the kitchen, and helps maintain proper nutritive values of the cooked food.

Economic co-benefits: increased resilience through additional time gained for education and income-generating activities, increased revenue through savings from fuel purchase, and job creation

The Project will use social mobilization approaches of the NGOs and marketing techniques of the private sector. By leveraging the capacities of NGOs and the private sector, the Project will contribute to strengthening the on-going development of a commercial market for clean cooking solutions, thus contributing to job creation. In addition, the strengthening of the ICS market will lead to the skill development and increased demand for labour.

In terms of household economy, the use of solid fuels inflicts high economic costs on families who can pay as much as one-third of their scarce income simply to purchase sufficient fuel to cook the daily meal. In cases where fuel is purchased rather than collected, the initial higher cost of a more efficient cookstove can often be recovered through fuel savings within a few months, and savings after that point allow for expenditures on a range of livelihood-enhancing activities such as starting a small business, purchasing medicines, and paying school fees.

In cases where fuel is collected, the reduction of time spent collecting fuel may leave more time to work in the fields, start a small business, or engage in other pursuits that can bring much needed money into the household.

Gender-sensitive development co-benefits: Income opportunities for women throughout the value chain

Women play a crucial role in the widespread adoption and use of ICS solutions because of their central responsibility for managing household energy and cooking. As consumers and users of cookstoves, women are not just victims but a critical component of the sector's ability to scale. Access to clean cooking options especially benefits women and children by improving conditions under which meals are prepared, reducing respiratory diseases, reducing time spent on cooking, and saving money.

A woman can spend about four hours per day cooking with traditional methods. By using ICS, the reduction could be around 30 minutes (Practical Action, 2014). A reduction in time spent collecting fuel and cooking enables women to spend more time with their children, tend to other responsibilities, enhance existing economic opportunities, pursue income-generating or educational opportunities and leisure activities and rest – all of which contribute to poverty reduction. The free time is also used for an increased involvement of a woman in social activities, for example to attend community meetings. This leads to a greater community coherence and satisfaction levels.

In addition, a reduction in the need for young girls to assist their mothers in physically demanding fuel collection and cooking activities may improve their school attendance and enable them to benefit from the nutritious midday meal that some schools provide. A survey shows that there is a higher school enrollment percentage of children in households using ICS, compared to traditional cook stoves households (Practical Action, 2014).

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

Describe the scale and intensity of vulnerability of the country and beneficiary groups, and elaborate how the project/programme addresses the issue (e.g. the level of exposure to climate risks for beneficiary country and groups, overall income level, etc).

BANGLADESH

Population using solid fuels for cooking - 89%

Number of people affected by Household Air Pollution (HAP) - 138,000,000

Number of deaths per year from HAP - 78,000

90% of all Bangladeshis still employ traditional solid biomass fuels for cooking, and most use inefficient and poorly ventilated clay stoves that produce smoke, carbon monoxide, and carcinogens; the particulate pollution levels may be 30-35 times higher than accepted guidelines. The women, who cook over these stoves, and their small children are exposed to these high levels of toxins for between three and seven hours a day. The WHO has estimated that 46,000 women and children die each year in Bangladesh as a direct result of exposure to household air pollution, while millions more suffer from respiratory diseases, tuberculosis, asthma, cardiovascular disease, eye problems, and lung cancer. 70% of the victims of household air pollution are children under five. Not only does the inefficient burning of biomass in private households pose such a serious health threat to Bangladeshi women and children; biomass is also becoming increasingly scarce and costly, putting additional pressure on already stretched poor households and depriving the soil of nutrients, resulting in unsustainably low levels of organic matter in the soil.

The best immediate way of addressing this urgent problem is the rapid and widespread introduction of clean cookstoves: stoves that burn biomass much more efficiently and – even more importantly – are designed to draw off the smoke and toxins, thus creating a safe environment for women and children.

Gender related vulnerability: Lack of access to cooking fuel forces women and children to spend many hours gathering fuel - up to 5 hours per day- or spend significant household income purchasing fuel. Women provide 91% of households' total efforts in collecting fuel and water, and globally women have an average working day of 11-14 hours, compared to 10 hours on average for men.

The widespread uptake of ICS has the potential to increase resilience of the most vulnerable populations in Bangladesh by increasing their adaptive capacity and reducing vulnerability at the local scale. As has been noted, fuel wood is harvested in unsustainable ways, with its consumption contributing to the degradation and loss of forest and associated ecosystem services. The adaptation benefits include

- increased resilience through revenue though savings from fuel purchase
- increased resilience of women through the increased income opportunities for women (additional time gained for education and income-generating activities)
- increased resilience through reduction in deaths and rates of non-communicable diseases, and improved health, especially of women and children
- increased resilience through the preservation of forests and associated ecosystem services and a potential reduction of degradation and deforestation by reducing the need for fuelwood.

The expected total number of direct and indirect beneficiaries are expected to be 17,400,000.

E.4.2. Financial, economic, social and institutional needs

Describe how the project/programme addresses the following needs:

- *Economic and social development level of the country and the affected population*
- *Absence of alternative sources of financing (e.g. fiscal or balance of payment gap that prevents from addressing the needs of the country; and lack of depth and history in the local capital market)*
- *Need for strengthening institutions and implementation capacity.*

Approximately 66% of the population of Bangladesh live in rural areas. While the country has made substantial progress in reducing poverty, a large fraction of this population is still very poor and vulnerable (31% of people in Bangladesh live below the national poverty line of \$2 per day). With a population growth rate (CAGR) of 1.59%, the Government expects the population to grow to approximately 265 million by 2050, putting increasing pressure on already scarce resources. The population relies predominantly traditional stoves for cooking and the share of ICS use is still very low (about 5-6%). Additional funding in the clean cooking sector is urgently needed in order to replace the current use of polluting solid fuels and inefficient stoves used by very poor and vulnerable households in rural areas of the country. Bangladesh has demonstrated commitments to clean cooking programs (See section E.5). The Bangladesh cookstove sector shows great promise as evidenced by the successful implementation of phase 1 of the ICS project. However, the country lacks sufficient budgetary resources and implementation capacities to carry out comprehensive market transformation programs. The proposed Project will, through enabling such a market transformation, benefit the poorest of the poor, predominantly rural women, who currently have no access to ICS and are compelled to cook on traditional stoves, with all the negative effects on them described in Section E.3.

E.5. Country Ownership

Beneficiary country (ies) ownership of, and capacity to implement, a funded project or programme

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

Please describe how the project/programme contributes to country's identified priorities for low-emission and climate-resilient development, and the degree to which the activity is supported by a country's enabling policy and institutional framework, or includes policy or institutional changes.

The Government's political vision is specified in its political manifesto "Vision 2021" from 2008 that aims to transform Bangladesh from a low income economy to the first stages of a middle-income nation by the year 2021, the 50th anniversary of independence of the country. Vision 2021 was later translated into the Perspective Plan of Bangladesh 2010-2021 that identifies nine strategic priorities, of which priority number seven "mitigating the impacts of climate change" is the fundamental strategic umbrella for national climate policy. An important policy milestone was the adoption of the Bangladesh Climate Change Strategy and Action Plan (BCCSAP) in 2009 to guide nationwide climate change adaptation and to put the nation's improved capacity for disaster risk management on a path towards increased resilience to climate change. It is the main national climate policy document. The BCCSAP sets out 44 programmes under six strategic pillars. This project directly contributes to 13 programmes under 3 strategic BCCSAP pillars.

In Bangladesh the cookstove market had its beginnings in the 1970s, through the research of the Bangladesh Council of Scientific and Industrial Research (BCSIR). This government organization started to develop biogas and improved cooking stove (ICS) designs to protect the environment from the threat of deforestation. Over time, the focus moved from environment to health as organizations looked to protect communities from Household air pollution (HAP). This saw the first broad dissemination of the Chulha stove model by BCSIR and the Local Government Engineering

Department (LGED). These Chulha stove designs provided the blueprint for almost all biomass ICS models in the 1980s.

At the policy level, the Government of Bangladesh has declared its goal to make the country's kitchens smoke free by 2030. Bangladesh's NDC sets the target of 70% market share of improved biomass cookstoves, reaching 20 million households in 2030; 40% market share of improved gas cookstoves; and 10% market switch from biomass to LPG for cooking compared to the business as usual. To support the market, the government in Bangladesh reduced by 10% its import duty on improved cookstoves, making cooking technologies more affordable to consumers.

The Ministry of Power has defined a Country Action Plan (CAP) for Clean Cookstoves in 2013. The CAP defines what is needed to kick-start and develop the Bangladesh clean cookstove market and makes the case for taking immediate action towards achieving the goal of 100% clean cooking solutions by 2030 (representing approx. 30 million households). The CAP identified 3 items to work on for the further development of the cook stove market:

- Strengthening supply of accessible stoves: attract more finance and investment; provide access to diverse and modern global technology, access to carbon finance, enhance market intelligence, create inclusive value chains.
- Enhancing demand: motivate potential users, develop more attractive technology, provide consumer finance, create innovative distribution models to reach remote consumers.
- Fostering an enabling environment: engage stakeholders, build evidence base for stoves benefits, promote standards and testing protocols, enhance monitoring and evaluation.

The IDCOL ICS program clearly contributes to the national priorities, in particular to the CAP as it will permit reaching five million rural households with ICS by 2022 and it is estimated that this market seeding will catalyze a commercial market estimated at more than 29 million households.

E.5.2. Capacity of accredited entities and executing entities to deliver

Please describe experience and track record of the accredited entity and executing entities with respect to the activities that they are expected to undertake in the proposed project/programme.

International experience and lessons learned: Access to efficient and clean cooking solutions is a challenging and complex sector and there are very few large-scale successful programs (e.g. China is one of few which implemented successful national improved stove program which disseminated more than 180 million improved stoves in 1990s). Among IFIs/MDBs, the WB is perhaps the one who has invested most in the sector and has gained most operational experience. The WB currently has more than \$130 million IBRD/IDA investments in more than 10 countries in the sector of household cooking/heating (<http://www.worldbank.org/en/news/feature/2017/12/21/putting-clean-cooking-on-the-front-burner>). The most valuable lessons learned are that there is no one-size-fit-all solution, the solution needs to be developed based on local context, localized technological solution is critical for long term sustainability, and results-based financing approach with proper institutional arrangement is promising to leverage private investments and promote innovation. Those lessons were also generated from Phase I operation and incorporated in the proposed project. Please note that the experience from Phase I benefitting one million households with improved cooking solutions is the most valuable experience for the proposed project and we are applying this operational experience in other countries too. (<http://blogs.worldbank.org/energy/clean-cooking-bangladesh-experience-one-million-households>)

World Bank

The WB has decades-long global experience with policy advice and implementation of household energy interventions. Currently, the World Bank has engagements ranging from technical assistance to lending operations in over 15 countries in East Asia, South Asia, Central America, Sub-Saharan Africa and East and Central Europe (including Bangladesh); and a corporate commitment to scale-up access to cleaner, more efficient cooking and heating solutions, in line with SE4ALL and SDG 7 goals.

In the last 10 years, the WB has developed innovative approaches in Asia, Africa and Latin America including the Lighting Africa program which used a similar paradigm shift to scale up global off-grid lighting markets.

The strategic value proposition of the World Bank in the proposed Project and the associated project pipeline is to foster public and private partnerships to scale up efficient and clean cooking solutions to households, institutions, and small and medium size enterprises. The high level multidisciplinary expertise of the World Bank in the areas of policy reform, household energy, extractives, health, environment, forestry, natural resource management, climate change, gender, and finance is an important asset for this Project. Through the World Bank Group's private sector arm – IFC and IDA – experience with attracting private sector to emerging markets will also be leveraged. World Bank Group has implemented diverse behavior change and market transformation programs in energy, health and water and sanitation sectors, which provide valuable lessons for the project design and implementation. Finally, the World Bank has the ability to extend further lending to Governments in the future for scaling up successful approaches.

WB's main strengths related to the proposed Project include:

- Experience and track record of results in the energy sector in Bangladesh: The WB has successfully led the support to RERED I and II projects, and through this experience has acquired a deep understanding of the energy sector issues and intervention opportunities in Bangladesh. Under this project, through its renewable energy promotion scheme, the WB has so far supported installation of 3.9 million solar homes systems across the country which benefited over 20 million people. 20,000 solar homes systems are being installed every month.
- As part of the first phase for promotion of efficient cooking solutions tapping into the participating organizations' nationwide distribution networks of the successful solar home system program and adopting the clustering approach proven successful in the water and sanitation program in Bangladesh, the project achieved the target for 1 million ICS, originally due by Dec 2018, in January 2017. Current sales are about 50,000 ICS per month, support for which is being provided from a re-allocation from the biogas digesters for cooking.
- Going forward, the WB will contribute its recent experience in market transformation from e.g. the Lighting Africa program, the experience with numerous energy sector programs in developing countries as well as its high-level engagement with the government. The WB holds strong convening power and is able to call together ministries and development partners to achieve consensus on constructive ways to move forward in challenging sectors and environments.

IDCOL

IDCOL, a government owned infrastructure finance company, is the implementing partner of this project. Since its inception in 1997, IDCOL has played a major under the World Bank's Rural Electrification and Renewable Energy Development (RERED) program in bridging the financing gap for developing medium and large-scale infrastructure and renewable energy projects in Bangladesh. After a decade, the company now stands as the market leader in private sector energy and infrastructure financing in Bangladesh.

Under the WB RERED Program, IDCOL's focus is on three major areas: Solar Home systems (SHS), Domestic Biogas plants and Improved Cooking Stoves (ICS). IDCOL has been the implementing agency for the access to electricity and household energy components of the WB RERED project since 2003 and has acquired significant experience in IDA financial management procedures and requirements.

IDCOL will implement the Project with the help of Partner Organisations (POs) who are mostly NGOs (for household energy). The PO selection committee of IDCOL will select the POs as per the eligibility criteria outlined in the Operations Manual of the Project.

Under phase 2 of IDCOL ICS program, the implementation and institutional arrangements for the use of the additional financing will remain unchanged from phase 1, with IDCOL working with their POs to manufacture, sell and service higher efficiency stoves.

IDCOL has been recognized globally for its success in dissemination of renewable energy technologies in Bangladesh, which has been possible because of its strong monitoring and quality assurance process. For Monitoring and Quality Control under the ICS program, IDCOL established an inspection team, a call center and a web-based software to keep track of each ICS installed under the program. After receiving disbursement requests from the POs, IDCOL inspects at least 10% of ICS submitted under each disbursement request. In case of equal to or more than 20% discrepancy from the required quality in a particular cluster, IDCOL excludes all ICS submitted under the disbursement request for that cluster. IDCOL also appointed Bangladesh University of Engineering and Technology (BUET) for verification of Compliance of Production in several production centers as well as initiated a household air pollution (HAP) study to assess the benefits of ICS over traditional stoves to be conducted by BAEC.

E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

Please provide a full description of the steps taken to ensure country ownership, including the engagement with NDAs on the funding proposal and the no-objection letter.

Please also specify the multi-stakeholder engagement plan and the consultations that were conducted when this proposal was developed.

World Bank has received an official letter from the Government of Bangladesh regarding mobilization of GCF and IDA financing. The World Bank and IDCOL team are working in close consultation with the Sustainable and Renewable Energy Development Authority (SREDA), and Economic Relations Division, Ministry of Finance (ERD) for the implementation of the project.

During the launch of the first phase of the IDCOL ICS program, extensive discussions were held with the GACC, USAID CCEB, GIZ, and other stakeholders who have been involved in Bangladesh ICS space. Efforts were made to find complementarities of activities, with GACC addressing regulatory barriers and national level campaign for creating awareness of ICS, and USAID CCEB working with local entrepreneurs for developing the supply chain for fuel (briquette) and higher efficiency ICS (which were included in the IDCOL program). The IDCOL ICS program took the basic elements of the GIZ program in Bangladesh (i.e. developing a supply chain for locally manufactured stoves). Continuing discussions are held with the relevant stakeholders as part of the implementation of the program to ensure sector coordination and to avoid duplication of activities, including GIZ, USAID, EnDev and GACC. IDCOL has developed partnership with the local research institutes (Bangladesh University of Engineering and Technology, BUET) to develop a R&D facility for ICS.

The POs are having extensive market assessment and stakeholder engagement as part of the participatory assessment that they have to do as the first activity under the Partnership Agreement.

Discussions are being held with the NDA for endorsement in parallel to proposal preparation. Because of time constraints, the proposal is being submitted in parallel to GCF and to NDA. NDA has assured of full cooperation in expediting its review process for endorsement once the proposal is submitted to NDA.

The GACC's activities addressing regulatory barriers include a collaboration with the Ministry of Power on the creation of a Household Energy Platform to serve as the sector coordinator and to help achieve the country's adoption goals. In 2016 GACC partnered with the Bangladesh government's Sustainable Renewable Energy Development Authority (SREDA) to launch the Household Energy Platform (a public-private partnership made up of representatives from the private sector, civil society, academia, and multiple government ministries). Concerning the national level campaign, in 2016, GACC worked with public and private sector partners to launch a behavior change communication campaign to drive awareness and adoption of cleaner cookstoves and fuels. The campaign reached more than 15 million consumers in 2016.

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project/programme

E.6.1. Cost-effectiveness and efficiency

Describe how the financial structure is adequate and reasonable in order to achieve the proposal's objectives, including addressing existing bottlenecks and/or barriers; providing the least concessionality; and without crowding out private and other public investment.

The program financial structure is aimed at providing assistance for the take-off period of Tier 2 and Tier 3 ICS, as the market is better developed, with the goal of gradual movement toward even higher performing technologies in the medium term. The GCF grant and IDA loan which will be then be distributed as a grant by IDCOL to suppliers for marketing and business development will stimulate capacity building by POs as well as additional marketing activities / effective MRV. The production costs of the ICS will be covered by the POs and recovered by consumer purchases.

This structure is critical for increasing demand for ICS as well as providing a financial cushion for companies / suppliers that are first-movers so that they can scale up production and marketing of Tier 2 and Tier 3 (more efficient) ICS while ensuring standards in the market are established for MRV.

Because the GCF and IDA funds will not cover production costs nor will they have particular technologies chosen as "winners", crowding out of private investment will not occur. New and different ICS technologies / OPs can be included in the Programme if standards for efficiency and MRV are met.

Please describe the efficiency and effectiveness, taking into account the total project financing and the mitigation/adaptation impact that the project/programme aims to achieve, and explain how this compares to an appropriate benchmark. For mitigation, please make a reference to [E.6.5 \(core indicator for the cost per tCO2eq\)](#).

The programme is highly effective in terms of cost per tCO2eq with the following core indicators:

Total emissions reductions (x1000 tCO2eq)	2,890
Annual emissions reductions (x1000 tCO2eq)	0.963
Total project cost per emissions reduction (US\$ / tCO2eq)	28.3
GCF grant per emissions reduction (US\$ / tCO2eq)	6.9

The cost to the GCF of around US\$ 6.9 per tCO2eq reduction is competitive against most benchmarks for marginal costs of abatement.

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

Please provide the co-financing ratio (total amount of co-financing divided by the Fund's investment in the project/programme) and/or the potential to catalyze indirect/long-term low emission investment.

Please make a reference to [E.6.5 \(core indicator for the expected volume of finance to be leveraged\)](#).

GCF grant	20.00
Cofinancing (WB - IDA)	20.00
Total parallel finance catalyzed from producers	42.17
Total cofinancing and catalyzed finance	62.17
Leverage ratio	3.11

E.6.3. Financial viability

Please specify the expected economic and financial rate of return with and without the Fund's support, based on the analysis conducted in [F.1](#).

Economic and Financial Analysis Results for Improved Cookstoves

USD Million	Project (Economic)	Households (Financial)
Cost	144	104
Net benefit	202	111
NPV	116	61
IRR	144%	88%

While this IRR and EIRR are important, the programme will not subsidize the households involved, but rather the POs involved in producing and distributing the ICS. For these companies, an IRR or EIRR calculation is not appropriate as without the project there is expected to be no profitability for Tier 2 and Tier 3 stoves within the project period. The expected Profit and Loss table is shown below both with and without the grant:

Please describe financial viability in the long run beyond the Fund intervention.

The financial viability of the ICS market and companies involved are to be ensured through the creation of demand for the ICS and demonstration of their benefits and viability. As can be seen from the IRR for households above and EIRR, they are highly financially and economically beneficial for households, though there needs to be a market push from the supply side to stimulate their use – especially for Tier 2 and Tier 3 stoves. The removal of the grant will reduce the benefits to some extent, but after demonstrating that the technology is beneficial, it is expected that the market will continue to grow and allow companies to make a profit even without a grant on the supply-side.

Please describe the GCF's financial exit strategy in case of private sector operations (e.g. IPOs, trade sales, etc.).

Since the financial commitment sought from the GCF is a grant, the financial exit strategy is not applicable.

E.6.4. Application of best practices

Please explain how best available technologies and practices are considered and applied. If applicable, specify the innovations/modifications/adjustments that are made based on industry best practices.

The programme is based upon the promotion of best available practices and best available technologies.

Related to technologies, the technologies utilized will be 4 to 5 times more efficient than standard cookstoves with an exclusive focus on supporting producers and distributors of Tier 2 and Tier 3 technologies.

Related to practices, a number of leading practices will be utilized, including inspection based MRV schemes to ensure that ICS which are purchased / receive a grant on the supply-side are actually being utilized.

E.6.5. Key efficiency and effectiveness indicators

Estimated cost per t CO₂ eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)

(a) Total project financing	US\$ 82.17 m
(b) Requested GCF amount	US\$ 20.00 m
(c) Expected lifetime emission reductions overtime	2890,000tCO ₂ eq
(d) Estimated cost per tCO₂eq (d = a / c)	US\$ 28.3 / tCO₂eq
(e) Estimated GCF cost per tCO₂eq removed (e = b / c)	US\$ 6.9 / tCO₂eq

Describe the detailed methodology used for calculating the indicators (d) and (e) above.

Emissions reductions per ICS over the lifetime of the technology (3 years) were calculated using the “Applied CDM Methodology: AMS II.G. - Energy Efficiency measures in thermal applications of non-renewable biomass (Version 07)”. Two types of ICS were evaluated: Tier 2 and Tier 3 These calculations are available in Appendix 3’s excel file in the sheets marked “Tier_2_ER calculations” and “Tier_3_ER calculations”.

GCF
core
indicators

The total direct emissions reduction was then calculated by scaling up the per-unit reductions as described in the table below.

The calculation for the annual emissions reduction due to efficient stoves are provided in the annex

Additionally, consequential post-project emissions reductions were estimated for 10 years after the project activities would cease assuming 1% growth of the market per year is provided in the Annex on GHG emissions:

Please describe how the indicator values compare to the appropriate benchmarks established in a comparable context.

The cost of grant per tonne CO₂eq (USD 6.9 per tonne) compares favourably to many mitigation projects including those for the GEF and other donor agencies.

Expected volume of finance to be leveraged by the proposed project/programme and as a result of the Fund’s financing, disaggregated by public and private sources (mitigation only)

Additional Bank (IDA) funding: USD 20 m

Additional investments from households: USD 42.17 m

Total financing leveraged: USD 62.17 m

Describe the detailed methodology used for calculating the indicators above.

The volume of bank funding is based on commitments by the World Bank (via IDA) which are not expected to materialize in full without GCF involvement. Additional leveraged cofinancing from the participating POs can be expected.

The expected PO investment catalyzed are calculated based on expected production prices for the different types of stoves and their total sales as shown in the table below.

ICS Installation Target (IDCOL)	Production costs per ICS (BDT)	Total production costs / investment (BDT)	Total production costs / investment (USD)
Installation Target			
A. Double Mouth Concrete Stoves	1,036	-	-
B. Double Mouth Stoves with Metallic Lining and Insulation	1,561	749,316,000	9,366,450
C. Single Mouth Stoves with Metallic Lining and Insulation	1,443	692,736,000	8,659,200
D. Single Mouth Portable Stoves with Metallic Lining and Insulation	457	1,279,610,000	15,995,125
E. Manufactured Metallic Stoves	1,968	393,600,000	4,920,000
F. Commercial Stoves	6,466	258,628,000	3,232,850
Total production costs			42,173,625

Please describe how the indicator values compare to the appropriate benchmarks established in a comparable context.

The cofinancing leverage ratio for the project is estimated at 3.1:1 which is consistent with typical leverage ratios for projects dealing with the poorer segments of the population.

Other relevant indicators (e.g. estimated cost per co-benefit generated as a result of the project/programme)

** The information can be drawn from the project/programme appraisal document.*

F.1. Economic and Financial Analysis

Please provide the narrative and rationale for the detailed economic and financial analysis (including the financial model, taking into consideration the information provided in [section E.6.3](#)).

Based on the above analysis, please provide economic and financial justification (both qualitative and quantitative) for the concessionality that GCF provides, with a reference to the financial structure proposed in section B.2.

A financial and economic analysis were conducted from the perspectives of the households. For the purpose calculating the financial rate of return, the savings in fuel costs were taken into account as the benefit to the ICS households while the economic rate of return is based on the fuel savings, health benefits of reduced household air pollution (HAP), and the global benefits of reduction in greenhouse gas emission (GHG) of ICS. Detailed assumptions for the economic and financial analysis are in the attached spreadsheet. The following table summarizes the results of the financial and economic returns from the perspective of the ICS households.

Economic and Financial Analysis Results for Improved Cookstoves

USD Million	Project (Economic)	Households (Financial)
Cost	144	104
Net benefit	202	111
NPV	116	61
IRR	144%	88%

The high financial returns to the households would have made adoption of ICS an easy choice for households. This however is not the case due to lack of awareness of the fuel savings benefits, which is why creating consumer awareness about the benefits of ICS is critical during the early phase of the evolution of the market. Once the market has reached a certain scale to make the demonstration effect to take place, the adoption will be much easier. This is the principal behind the Project's support towards demand creation activities until a fully commercial market can be reached where all costs (including the promotional and awareness creation activities) can be passed on to consumers.

It is also equally important that a supply chain for high-quality ICS is developed so that once consumers are made aware and are ready to buy the ICS, there is supplies in the market catering to the unique needs and preferences of different market segments. This is the principal behind the Project's support towards supply chain activities ensuring that the high-quality models are introduced to the market with rigorous quality control.

In order to ensure a sustainable and extensive supply chain, the PO operations will have to generate a reasonable rate of return. A financial analysis was carried out on the PO operations that showed that with the grant supported activities, POs will be generating a marginal rate of return (average of 5% net profit margin during the first 5 year of operations). This is not sufficiently attractive for large corporations to enter into the market but is reasonable for rural NGOs with social business objectives. The following table shows the profitability of the PO operations during the first 5 years of the program.

<u>Income Statement (in 1000 US\$)</u>					
	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue	436.59	583.97	753.80	1116.68	1336.90
Sales Revenue (new Stove)	252.32	344.41	453.43	529.11	608.45
Sales Revenue (repeat Stove)	0.00	0.00	0.00	253.75	362.86
Grant	184.28	239.56	300.37	333.81	365.59
Cost of Goods Sold	284.67	388.58	511.58	827.65	1001.36
Gross Profit	151.92	195.39	242.22	289.03	335.54
Operating Expenses	128.55	159.54	193.47	229.53	268.66
Net Income	23.37	35.85	48.75	59.50	66.89
Profit Margin (%)	5%	6%	6%	5%	5%

As is followed in the other interventions of IDCOL, the goal is to gradually reduce the grant amount to pave way for a fully commercial market. It is assumed that the grant will gradually be reduced (initial target is to reduce it by 20% per year from year 6) with the goal of total withdrawal of the grant support by year 10 of the program. From year 6, it is expected that there will be enough demand created in the market and adequately developed supply chain that will allow for the gradual reduction in grant support while still mainlining profitability of PO operations. The reduction in grant will mean that the corresponding costs of demand creation and supply chain activities will have to be passed on to consumers, which means the selling price of new stoves will be increased by 15% per year from 6th Year. With such reduction of grant and increase in the prices (and increase in the market size due to demonstration effect), POs will continue to remain profitable with gradual increase in profit margin towards the later years. The following table shows the profitability of the PO operations during the later years of the program.

Income Statement (in 1000 US\$)					
	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue	1574.58	1800.71	2061.05	2363.37	2675.57
Sales Revenue (new Stove)	757.49	934.23	1143.32	1390.15	1680.98
Sales Revenue (repeat Stove)	500.47	611.81	737.05	877.70	994.59
Grant	316.62	254.67	180.68	95.51	0.00
Cost of Goods Sold	1194.87	1362.44	1538.13	1722.33	1915.47
Gross Profit	379.71	438.27	522.92	641.04	760.10
Operating Expenses	311.06	356.98	406.66	460.36	518.36
Net Income	68.65	81.29	116.26	180.67	241.74
Profit Margin (%)	4%	5%	6%	8%	9%

The Program is flexible to make adjustments to the grant amount even earlier than year 6, if the market conditions so permitted. The need for grant amount will be assessed every year and adjustments to the grant will be made (either a total reduction in the grant or differential grant amount per stove depending on the market pick-up of different models).

F.2. Technical Evaluation

Please provide an assessment from the technical perspective. If a particular technological solution has been chosen, describe why it is the most appropriate for this project/programme.

Cooking options that are improved in comparison to traditional stoves and fuels include ICS, advanced combustion stoves, and biogas. An ICS with a well maintained chimney could help save up to 50 percent of the traditional biomass fuels used by improving fuel combustion, and provide moderate reduction in health damaging pollutants by directing smoke through the chimney out of the kitchen. An advanced combustion stove can provide significantly higher fuel efficiency and reduce emissions.

In the IDCOL ICS program, an independent technical committee approved ICS models taking into consideration the tested efficiency levels of the stoves, availability of a supply chain, and adaptability of the models to the local market conditions. Several models are approved for IDCOL financing that also includes a few of the manufactured models. Many POs have developed their own manufacturing centers (inspected and certified by IDCOL) for the traditional concrete stoves (technical specifications approved by IDCOL technical committee) to have better control of the quality.

Cookstove performance is defined following the International Workshop Agreements (IWA) framework which provides interim international guidelines for stove performance, including efficiency, total emissions, indoor emissions, and

safety. The IWA is a precursor to the establishment of the ISO standards for biomass stoves and fuels. The goal is to provide a common and easy-to-understand terminology for governments, donors, investors, and consumers to make decisions about technology options.

The IWA framework rates cookstoves on four (4) indicators (efficiency, indoor emissions, total emissions, safety), each along 5 Tiers. For each indicator, the Tiers boundaries are defined by quantitative values determined by laboratory testing. The protocol that has been mapped to tiers is the Water Boiling Test 4.2.3 and the Biomass Stove Safety Protocol 1.1, although the IWA framework was designed to accommodate other protocols.

During the beginning of the ICS program in 2014, most of the stove models were Tier 1. However making Tier 2 and above stoves available is mandatory to conform to following IDCOL's Tier graduation plan in future only Tier 2 and above will be accepted. To deal with this requirement, IDCOL appointed the Dept. of Chemical Eng. of BUET with the task of developing higher tier stoves at affordable price which can be produced using local resources. As a result, six models of stoves are included under the program and are listed below:

Table 8: Stoves Developed by BUET

SI#	Stove	Performance		
		Efficiency	Emission s(CO)	Emission s (PM)
1	Double Mouth (10" & 9") with chimney	Tier 3 (40.5)	Tier 4	Tier 4
2	Double Mouth (9" & 8") with chimney	Tier 3 (36.3%)	Tier 4	Tier 4
3	Single Mouth (10") with chimney	Tier 2 (30.4%)	Tier 4	Tier 4
4	Single Mouth (8") portable	Tier 3 (35.5%)	Tier 4	Tier 3
5	Metallic 6"-4" Stove	Tier 4 (50.7%)	Tier 4	Tier 4
6	Metallic 6"-9" Stove	Tier 4 (46.3%)	Tier 4	Tier 3

Greenhouse gas (GHG) emissions accounting was performed from the fuel saving due to increased thermal efficiency of phase 2 of the ICS program. The CCT (controlled cooking test) done in the laboratory show 50% or more wood fuel saving in the ICS models being disseminated in the project. In the calculations a conservative estimate of 40% fuel saving has been assumed; considering the variability of fuel being used in the households. With a 3 years' life-time for the ICS, the ICS installed in the project will still remain functional two years beyond the project period. Thus, GHG accounting has been prepared using lifetime emissions of each stove. The direct GHG emission reductions are provided in the Annex 15

Technological solutions

Features of an ICS:

- a) An ICS is an improved version of the traditional stove having higher fuel efficiency compared with the traditional ones.
- b) An ICS has a grate in the middle of its combustion chamber and fuel burns on it.
- c) There is entry of primary air in an ICS below the grate which helps burning of charcoal formed during burning of fuel wood.
- d) The three raised ends of a chimneyless ICS are much smaller than those of the traditional stoves.
- e) In case of multiple mouth ICSs with chimneys, cooking in the first mouth is done by direct flame produced from fuel, while cooking in the other mouths are done by hot flue gases coming out from the first mouth and the spent flue gases are led out of the kitchen through a chimney.

Since the innovation of ICS in Bangladesh, it is generally made of mud. However, ICS made of mud has two main problems:

1. It takes about a week to install and make it ready for use.
2. during installation, the technicians cannot maintain the proper dimensions of the Stove.

To overcome these problems, Grameen Shakti (GS) has developed a more efficient process for constructing the main parts of ICS: structure and chimney holder with concrete in last February 2010. This process replaces mud with a new construction materials made from mixing, cement: sand: a crushed brick aggregates (*estimated size ¾"*) with an appropriate quantity of water in the following ratio 1:2:4 through two different dices.

An ICS has the following parts:

1. Structure. 2. Chimney holder. 3. Grate. 4. Chimney and 5. Cap.

Today, all the parts of the ICS are produced in several small factories across the country. GS has already established over one hundred production centers in the country, where every day a huge numbers of ICS structures and chimney holders are being produced. After collecting all the ICS parts a technician can build a stove within 1-2 hours. Immediately after installation of the stove it can be used for cooking and other heating purposes. The popularity of ICS made of cement is gradually increasing because in addition to being environmentally-friendly, it is easy to install, durable and visually appealing.

The ICS models made for Domestic Purposes:

The domestic cooking stoves are divided into two classes:

1. ICS Single Mouth
2. ICS Double Mouth

Both the models can be installed in the users' kitchen in three different ways, depending on fuel type, users comfort/habit and nature of the kitchen. They are as follows:

- a) On the floor
- b) Half underground (by digging hole on the ground)
- c) On a platform

ICS structure and chimney holders are made by mixing: cement: sand: aggregates (¾" size) through two different dices. The resultant ICS structure and chimney holder undergo water curing continuously at least for ten days. After water curing and drying these are thoroughly rubbed with mud both inside and outside. After undergoing the above-mentioned steps, ICS structures and chimney holders are ready for constructing different models of ICS.

F.3. Environmental, Social Assessment, including Gender Considerations

Describe the main outcome of the environment and social impact assessment. Specify the Environmental and Social Management Plan, and how the project/programme will avoid or mitigate negative impacts at each stage (e.g. preparation, implementation and operation), in accordance with the Fund's Environmental and Social Safeguard (ESS) standard. Also describe how the gender aspect is considered in accordance with the Fund's Gender Policy and Action Plan.

Environment and Social Safeguards

The Project is part of a larger World Bank program that, as a whole, has been evaluated as risk category B. The Project activities, however, all fall under risk category C. The phase 2 of ICS program will be for further scaling up the ICS program, it is not anticipated that there will be any significant and/or irreversible adverse environmental and social issues.

The full Environmental and Social Management Framework (ESMF) of REREDII, including the IDCOL ICS program, has been publicly disclosed and is included as an annex 5 to this proposal.

The Project is designated as environmental Category B (partial assessment) according to the relevant policy of the Bank and OP 4.01 and OP4.10 have been triggered. It is not anticipated that there will be any significant and/or irreversible adverse environmental and social issues. No public land will be used for the Project, and no land acquisition is financed under the Project.

The Project may extend facilities in areas where tribal people live although availing the facilities/services/products is purely on a voluntary basis for all paying customers (including tribal people). No negative impacts are anticipated towards the tribal people. The additional financing for the Bank Project in 2014 has triggered indigenous People's policy (OP4.10) and a Tribal People's Development Framework (TPDF) has been adopted. Revised Environment and Social Management Framework (ESMF) including the lessons learnt in the project was prepared, which includes TPDF. As part of the preparation of the project, IDCOL has also submitted ESMF assessment report in November 2017. No new policies are triggered as part of the proposed additional financing.

IDCOL has gained experience in implementing the ESMF. Revised ESMF includes lessons learned from previous projects and has been disclosed at both IDCOL and the Bank's website on January 4, 2018¹⁷. A separate Environment and Social Safeguards Management Unit (ESSMU) is now part of IDCOL organogram. IDCOL has two full-time environment staff members. Visits are made by the staff to all battery recycling plants on half-yearly basis for ensuring environment compliance.

The project will follow up and incorporate the latest development and guidelines such as WHO guidelines on indoor air quality and International Workshop Agreements (IWA 11:2012) guidelines for cookstove performance evaluation. A technical committee is proposed in the program which will oversee this work.

IDCOL has initiated the process of monitoring environmental and social safeguards compliance with the support of the POs. To ensure the active participation of POs, it has recently revised the participation agreement signed between IDCOL and PO by inserting a new section under Article II. By revising Section 6.01(k) Environmental Compliance of the POs, in section 2.16 of Article II has been written as: 5) "(k) Environmental Compliance: it has been in compliance with all Bangladesh environmental laws and regulations relevant for the operation of the Subproject as well as the Environmental and Social Management Framework as adopted by IDCOL."

Gender Responsive Social Assessment

A Gender Responsive Social Assessment for the RERED II Project was carried out during appraisal of the original project in 2012. The detailed assessment design was based on the experience of the predecessor RERED project taking into account the learning and feedback from the project beneficiaries. Using a gender lens of analysis, the assessment report explored the impacts, problems and opportunities in the SHS, ICS and biogas plants for cooking in the lives of women living in remote rural areas. Based on those findings and recommendations, IDCOL has introduced several measures including incorporating requirements to introduce cook stove models that are suitable for women etc. These activities will continue to be followed up during the proposed additional financing.

For more information please refer to Annex 5A: Gender responsive social assessment.

F.4. Financial Management and Procurement

¹⁷ <http://idcol.org/download/7fc4bc2bdb41575ce77c46a8cc0b8113.pdf>

Describe the project/programme's financial management and procurement, including financial accounting, disbursement methods and auditing.

Financial management

Financial Management: IDCOL has acquired significant experience in IDA financial management procedures and requirements. IDCOL's FM organization and system are found to be adequate to manage its operation and to undertake project financial management activities. IDCOL's financial management organization and system are found to be adequate to manage its operation and to undertake project financial management activities. IDCOL has been submitting the required financial reports (interim unaudited financial reports and audited financial statements) in a timely manner. There are no material audit observations for IDCOL. IDCOL has experience and capacity in managing Bank financed procurement. Under the phase 1, there was no major procurement related issue observed.

Procurement

GCF funds would be channeled through the World Bank (Accredited Entity) to IDCOL, and then on-granted to POs.

Procurement for the Project will be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated January 2011 (Procurement Guidelines); and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011 (Consultant Guidelines) and the provisions stipulated in the Financing Agreement.

Being a financial intermediary, IDCOL is not involved in major procurement except for small value procurement of goods and consultant services. The POs are expected to follow established commercial practices ensuring economy and efficiency.

All expected major procurement of works and consultants services will be announced in the General Procurement Notice (GPN), published in the Bank external website and United Nations Development Business (UNDB).

Except as otherwise agreed in the procurement plan, works and goods may be procured on the basis of International Competitive Bidding. Procurement of Goods and Works having estimated value less than the ceiling stipulated in the Procurement Plan may follow National Competitive Bidding (NCB) and Shopping. Direct Contracting (Goods/Works) and Single Source Selection (Consultants) may be allowed under special circumstances with prior approval of the Bank. NCB would be carried out under Bank Procurement Guidelines following procedures for Open Tendering Method (OTM) of the People's Republic of Bangladesh (Public Procurement Act 2006 - PPA, 1st amendment to PPA (2009) and The Public Procurement Rules 2008, as amended in August 2009) using standard bidding documents satisfactory to the Bank.

Methods of Procurement of Consultants' Services: Selection of Consultants will follow the Bank Consultant Guidelines. The following methods will apply for selection of consultants: Quality- and Cost-Based Selection (QCBS), Quality-based selection (QBS), Fixed Budget Selection (FBS), Consultants' Qualification (CQ), Least-Cost Selection (LCS), Individual Consultants (IC) and Single-Source Selection (SSS). Shortlist of consultants for services estimated to cost less than US\$300,000 equivalent per contract may be composed entirely of national consultants. The Procurement Plan will specify the circumstances and threshold under which specific methods will be applicable.

G.1. Risk Assessment Summary

Please provide a summary of main risk factors. Detailed description of risk factors and mitigation measures can be elaborated in G.2.

Given the long and successful history of the ICS program supported under the project, the preparation and implementation risks are assessed as Moderate. IDCOL has recently strengthened its capacity to implement the growing ICS program. The sustainability of the ICS program in the long run is a risk. All these measures are helping to ensure program sustainability in the long-run. Risks identified include:

- Capacity and governance,
- Project risks, and
- Implementation risks.

G.2. Risk Factors and Mitigation Measures

Please describe financial, technical and operational, social and environmental and other risks that might prevent the project/programme objectives from being achieved. Also describe the proposed risk mitigation measures.

Selected Risk Factor 1: Implementing Agency (IA) Risks (including Fiduciary Risks)

Description	Risk category	Level of impact	Probability of risk occurring
<p>Capacity: IDCOL has good institutional capacity but there is a risk that the growing renewable energy program may put a strain on its institutional capacity.</p> <p>Financial Management: No major issues have been identified. IDCOL has been submitting audited reports on time with no material audit observations.</p> <p>Procurement: Being a financial intermediary, IDCOL did not have adequate procurement experience, which has been addressed recently with a procurement staff appointed supported by a procurement consultant.</p>	Financial	Medium (5.1-20% of project value)	Low
<p>Governance: IDCOL is run by professional management with adequate oversight from a competent Board. It has been successfully managing the household energy component of RERED II.</p>	Technical and operational	Low (<5% of project value)	Low

Mitigation Measure(s)

Please describe how the identified risk will be mitigated or managed. Do the mitigation measures lower the probability of risk occurring? If so, to what level?

An institutional development consultant has been appointed by IDCOL to assess the organizational structure and to propose modifications to meet the growing needs of the renewable energy portfolio of IDCOL. IDCOL has established a separate renewable energy unit to manage the growing renewable energy portfolio, including that for the ICS program.

Selected Risk Factor 2: Project risks

Description	Risk category	Level of impact	Probability of risk occurring
Design: Too many activities within IDCOL may create issues with coordination	Technical and operational	Low (<5% of project value)	Low
Social and Environmental: The Project is part of a larger program that, as a whole, has been evaluated as risk category B. The Project activities, however, all fall under risk category C.	Social and environmental	Low (<5% of project value)	Low
Program and Donor: A number of successful but small scale ICS program are currently being implemented by various NGOs. Bank's involvement in the household cook stove sector may cause resentment amongst the existing players.	Technical and operational	Low (<5% of project value)	Low
Delivery Monitoring and Sustainability: Fast growth of the ICS project may outstrip IDCOL's capability of oversight and monitoring.	Technical and operational	Low (<5% of project value)	Low
Mitigation Measure(s)			
<p><i>Please describe how the identified risk will be mitigated or managed. Do the mitigation measures lower the probability of risk occurring? If so, to what level?</i></p> <p>Design risks: A separate Project Management Unit has been established at IDCOL to manage the household energy component.</p> <p>Social and Environmental: The IDCOL will ensure that the POs apply safe manufacturing and employment practices according to best practices. Households currently use traditional fuels such as wood, twigs, leaves, agricultural and plant residues, paddy husk, jute sticks and dried animal dung for cooking. Under this project, the combustion process of these fuels will be improved by raising the stove efficiency and reducing GHG and other pollutants substantially. IDCOL will engage an independent consultant to monitor the compliance with social and environmental standards.</p> <p>Delivery Monitoring and Sustainability: IDCOL strengthened its inspection and monitoring capacity by establishing four new regional offices and hiring additional inspectors in addition to the existing six regional offices. Strict enforcement of standards compliance by IDCOL (rigorous inspection and monitoring and withholding of disbursement for new installations until inspection findings are adequately addressed) ensures that POs continue to comply with quality standards. Technical audits are undertaken regularly by independent third parties in addition to the regular inspection and monitoring by IDCOL inspectors. IDCOL continues to expand its inspection and monitoring capacity to meet the growing needs of the program.</p>			
Selected Risk Factor 3: implementation risks			
Description	Risk category	Level of impact	Probability of risk occurring
Lack of ability by the Implementing partner (IDCOL) to deliver the project results effectively.	Technical and operational	Low (<5% of project value)	Low
Mitigation Measure(s)			

Please describe how the identified risk will be mitigated or managed. Do the mitigation measures lower the probability of risk occurring? If so, to what level?

The project will further scale up the ICS program which was run successfully by IDCOL. This market entry phase of the project means that implementation risks are minimal. IDCOL has recently strengthened institutional capacity to manage the growing renewable energy program. The different components of RERED II are independent of each other, such that delays in one component will not necessarily impact on the implementation of the other components.

Other Potential Risks in the Horizon

Please describe other potential issues which will be monitored as “emerging risks” during the life of the projects (i.e., issues that have not yet raised to the level of “risk factor” but which will need monitoring). This could include issues related to external stakeholders such as project beneficiaries or the pool of potential contractors.

None

** Please expand this sub-section when needed to address all potential material and relevant risks.*

H.1. Logic Framework.

Please specify the logic framework in accordance with the GCF's [Performance Measurement Framework](#) under the [Results Management Framework](#).

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level ¹⁸						
Paradigm shift objectives						
<i>Shift to low-emission sustainable development pathways</i>	This program is designed to transform the market for cookstoves in Bangladesh from one wherein low-quality, inefficient cookstoves dominate the market to one where progressively higher quality, higher efficiency cookstoves dominate the market resulting in lower emissions of GHGs.					
Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (December 2019)	Final (December 2021)	
Fund-level impacts						
<i>M1.0 Reduced emissions through increased low-emission energy access and power generation</i>	1.1 Tonnes of carbon dioxide equivalent (t CO ₂ eq) reduced or avoided	IDCOL M&E Report	0	1.45 million	2.9 million	GHG methodology on cookstoves by UNFCCC
<i>A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions</i>	1.2 Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options (including fisheries, agriculture, tourism, etc.)	IDCOL M&E Report	0	8.7 million (of whom 4.3 million women based on 49.5% of the population)	17.6 million (of whom 8.61 million women based on 49.5% of the population)	The Government of Bangladesh and the World Bank continue to support the implementation of the project.

¹⁸ Information on the Fund's expected results and indicators can be found in its Performance Measurement Frameworks available at the following link (Please note that [some indicators are under refinement](#)): http://www.gcfund.org/fileadmin/00_customer/documents/Operations/5.3_Initial_PMF.pdf

H.1.2. Outcomes, Outputs, Activities and Inputs at Project/Programme level

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term December 2019	Final December 2021	
Project/programme outcomes	Outcomes that contribute to Fund-level impacts					
M6.0 Increased number of small, medium and large low-emission power suppliers	6.2 Number of households with improved access to low-emission energy sources	IDCOL M&E Report	1,000,000	3,000,000	5,000,000	There is no major change in the availability and affordability of fuelwood in the project area.
Project/programme outputs	Outputs that contribute to outcomes					
Component 1:	Scaling up Investment in Improved Cookstoves					
Stove investments scaled up	Number of improved cook stoves purchased by households	IDCOL M&E Report	1000000	3,000,000	5,000,000	There is no major change in the existing biomass based cooking technologies and fuelwood availability remains stable.
Component 2:	Technical Assistance to Enhance Supplier Capacity and Demand					
Output 2.1: Mass awareness on Improved Cookstove and Local level capacity building	Minimum number of households reached through different mass media campaigns.	IDCOL M&E Report	1,000,000	3,000,000	5,000,000	There is no major change that limits the outreach of the campaigns.
	Number of professionals trained (males and females)	IDCOL M&E Report	1,818 (218 female)	3,600 (432 female)	4,800 (576 female)	The trained personnel/officials continue to work in same roles/organizations/sectors.

Output 2.2: Research and Development and Studies	Number of research studies completed on clean cooking and related issues	IDCOL M&E Report	0	2	4	Competent firms are available to conduct these studies.
Project Management Cost						
Output 3.1.: Program management Costs to ensure installation of 4 million ICS as well as other program objectives	Rate of inspection of stove usage	IDCOL M&E Report	18%	25%	25%	There are no major changes in operating costs and environment that affect field level data collection and inspection.
Activities	Description	Inputs in USD			Description	
Component 1:	Scaling up Investment in Improved Cookstoves					
Activity 1.1.1: Local level demand creation	Financial support in the form of grant will be provided to POs for demand creation and market development at local level. POs will conduct demand creation and promotional campaigns, trainings to increase demand and adoption of ICS	18,000,000			Financial support in the form of grant will be provided to POs. Grant requirement per year has been calculated on the basis of installation of ICS per year and promotional expenses for different types of stoves as shown in Input worksheet.	
Component 2:	Technical Assistance to Enhance Supplier Capacity and Demand					
Activity 2.1.1: Capacity Building and Training	IDCOL will provide capacity building support and conduct training on improving technology, laboratory and field testing of cookstoves as well as on standards, labeling etc.	123,327			Based on IDCOL experiences and estimations. Details are available in the budget calculation sheets (Annex 1).	
Activity 2.1.2: National Level Promotional Campaign	Awareness raising activities and campaigns will be launched to educate households about ill impacts of indoor air pollution and clean cooking practices. This will be done using posters, leaflets, TV commercials, billboards etc.	401,302			Based on IDCOL experiences and estimations. Details are available in the budget calculation sheets (Annex 1).	

Activity 2.2.1: Research and Development on Stoves and Fuel	Research and development activities will be conducted to improve ICS and its performances. External firms/consultants will be hired for these assignments.	33,659	Based on IDCOL's experience of R&D Contracts.
Activity 2.2.2: Study on Health Impact/Indoor Air Quality	Studies on health impact and indoor air pollution will be launched to address the knowledge needs of the relevant stakeholders.	16,156	Based on IDCOL's experience of conducting such studies.
Component 3:	Project Management Cost		
Activity 3.1.1 Program Management	This activity is aimed at supporting the program management and setup of necessary support systems for overall management, monitoring and technical backstopping. Regional/local offices and support systems will be setup to facilitate effective and efficient operation management.	909,399	Based existing cost structures/expenses of IDCOL. A 10% of increase in the cost per year is factored in.
Activity 3.1.2 Providing Operating Expenses for quality inspection, field verification and monitoring	This activity is aimed at supporting the operating expenses of IDCOL Technical Monitoring Facility as well as cost of the field inspection of installed ICS.	500,000	Based on current inspection costs and considering inspection of 25% of the installed ICS. This also includes the cost of office space and other necessary expenses for project duration.
Activity 3.1.3 Cost Contingency	This activity is aimed at supporting the program in case of unanticipated expenses as well as increase in amounts estimated in the budget.	400,000	Contingency does not include component 1 of the program.
Activity 3.1.4: Independent Audits	Hiring of audit firm for third-party/external audit of the project.	16,156	Based on IDCOL's experience of external audit of the books of accounts of IDCOL and POs as well as management audit

H.2. Arrangements for Monitoring, Reporting and Evaluation

Besides the arrangements (e.g. semi-annual performance reports) laid out in AMA, please provide project/programme specific institutional setting and implementation arrangements for monitoring and reporting and evaluation. Please indicate how the interim/mid-term and final evaluations will be organized, including the timing.

Please provide methodologies for monitoring and reporting of the key outcomes of the project/programme.

Monitoring and evaluation are fundamental to assess implementation progress and to provide necessary corrective measures during implementation. IDCOL has a well-established monitoring system in place that will be further strengthened for the growing ICS program. The Operations Committee of IDCOL having representation of IDCOL management and PO representatives have monthly meetings to discuss the results and issues involved in the ICS program. For the household energy component, IDCOL's PMU will be responsible for day to day management of the component following Bank's fiduciary guidelines and procedures. It will also be responsible for the monitoring of the component's activities and results. IDCOL has designed a monitoring and evaluation system to track performance of beneficiary POs based on their successful experience with the solar program. IDCOL will also support the POs to strengthen their own monitoring and evaluation systems to facilitate reporting and quality control.

IDCOL supports the POs to strengthen their own monitoring and evaluation systems to facilitate reporting and quality control.

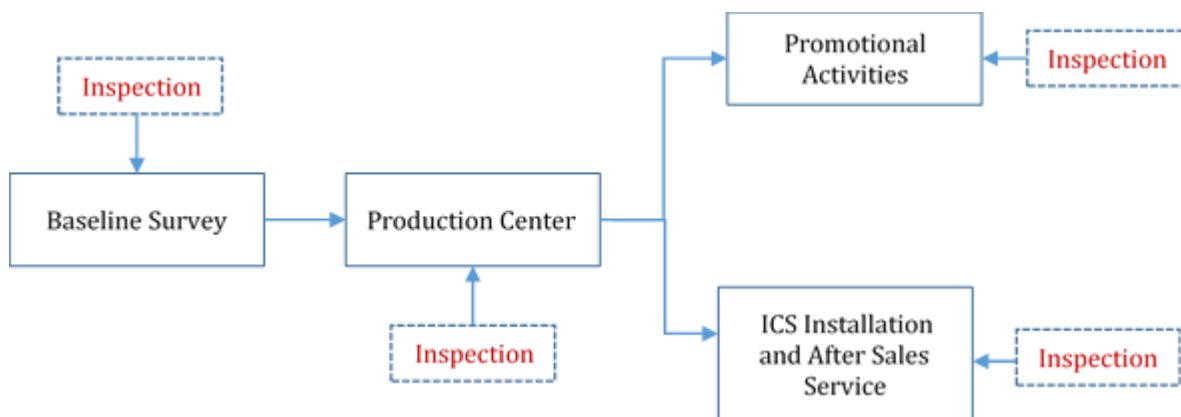
To better assess customer feedback from clean cooking solutions, several IT based options for enhanced reporting and feedback have been explored for implementation for the project. Some of the POs already have a mobile text messaging system in place to track daily installation data of various field offices of the POs. The option of introducing this system would allow for automatic update of the installation data in the database maintained at IDCOL to avoid false claims. Using this technology, customer satisfaction feedback via text messaging would allow for an easy and cost-effective method for collecting customer feedback, thus ensuring enhanced accountability of the POs for proper service delivery.

IDCOL has a plan to increase the rate of inspection to 25% in this phase from current inspection rate of 18%. IDCOL has 12 regional offices across the country, however, inspection of ICS is being carried out from four regional offices considering the concentration of stoves. IDCOL has a plan to gradually cover the whole country. Therefore, inspection will be conducted from another 2 regional offices in 2017, 3 regional offices in 2018 and 3 regional offices in 2019.

An impact evaluation study of phase 1 of the ICS program has been carried out (See Annex 2).

IDCOL Monitoring and quality control process

IDCOL has been recognized globally for its success in dissemination of renewable energy technologies in Bangladesh which has been possible because of its strong monitoring and quality assurance process. For Monitoring and Quality Control under the program, IDCOL established an inspection team, a call center and a web-based software to keep track of each ICS installed under the program. The interventions of IDCOL inspection team is depicted in the figure below:



After signing of the Participation Agreement the POs are required to conduct a baseline survey of minimum 3,000 households in each of the clusters allocated to them using a questionnaire set by IDCOL. The POs are required to enter the survey findings in a designated software. After submission of the baseline survey by the POs, IDCOL conducts physical verification to minimum 5% of the survey respondents from each cluster. IDCOL rejects a baseline survey if more than 15% discrepancy is found during survey verification.

The stoves under the programs are produced by the POs in either their own production centers or through entrepreneurs appointed by them. IDCOL regularly visits the production centers to ensure the quality of raw materials, adherence to the production guideline, adequate curing and drying etc. If the production centers are found to be non-conforming to the production standards set by IDCOL, the ICS produced in that production center are marked as discrepant.

POs conduct promotional campaigns for demand creation following the guidelines provided by IDCOL. The promotional activities include: courtyard meeting, school session, mike announcement, CBO/ Ward Committee/ Union Committee meeting, exhibition, folk song session, film show etc. IDCOL has produced several promotional videos on ICS which have been posted on the YouTube for easy availability by the POs. The POs share a three-month promotional activity calendar and IDCOL inspects randomly selected events. IDCOL ensures that POs are conducting those activities as per IDCOL guideline through inspection by the monitoring team.

During installation of ICS POs are required to maintain prescribed dimensions of ICS, maintain serial numbers, follow ICS installation guidelines and ensure proper usage of ICS. After installing ICS, POs provide an agreement paper and a one year after sales service warranty card to the customers following prescribed formats. POs are required to send one copy of customer agreement paper to IDCOL regional offices. Then the POs enter the ICS installation data using a web-based software and submit disbursement requests to IDCOL by 15th day of each month.

After receiving disbursement requests from the POs, IDCOL inspects at least 10% of ICS submitted under each disbursement request. In case of 20% or more discrepancy in a particular cluster, IDCOL excludes all ICS submitted under the disbursement request for that cluster.

IDCOL also inspects old ICS regularly and adjust the grant amount from current disbursement request, if necessary. Currently, IDCOL is conducting its inspection activities through 42 inspectors in 4 IDCOL regional offices, which are located in Rangpur, Bogra, Dhaka and Khulna districts.

IDCOL has so far inspected about 19% of the total ICS for which disbursements were done. It has a plan to increase the inspection percentage to 25% within a short period.

For the registration of complaints from the customers and to convey these to the POs, IDCOL has a dedicated call center under the program.

The World Bank will provide implementation status report (ISR), Audit reports by IDCOL, interim evaluation and project evaluation and operational committee reports of IDCOL as part of monitoring, Aide memoirs as part of the monitoring and evaluation reports.

I. Supporting Documents for Funding Proposal

- Detailed Budget Estimates (Annex 1)
- Feasibility Study (Annex 2)
- Integrated Financial Model that provides sensitivity analysis of critical elements (xls format, if applicable) (Annex 3)
- Project/Programme Confirmation/Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) – see the Accreditation Master Agreement,(Annex 4 – Term sheet)
- Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Plan (If applicable) (Annex 5)
- Appraisal Report or Due Diligence Report with recommendations (If applicable) (Annex 6)
- Map indicating the location of the project/programme (Annex 7)
- Timetable of project/programme implementation (Annex 8)
- Sample Agreement between IDCOL and the PO (Annex 9)
- IDCOL paper on ICS technology (Annex 10)
- The Joint Strategic Collaboration WB GIZ (Annex 11)
- Confirmation Letter or letter of commitment for co-financing commitment (If applicable) (Annex 13)
- NDA No-objection Letter (Annex 14)
- GHG _ Emissions targets (Annex 15)
- Cost references from the Operating Committee report (Annex 16)

** Please note that a funding proposal will be considered complete only upon receipt of all the applicable supporting documents.*