Document of

# **The World Bank**

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Report No: PAD2636

INTERNATIONAL DEVELOPMENT ASSOCIATION

**PROJECT PAPER** 

ON A

PROPOSED RESTRUCTURING AND SECOND ADDITIONAL CREDIT

IN THE AMOUNT OF SDR 37.80 MILLION (US\$55 MILLION EQUIVALENT)

#### TO THE

#### PEOPLE'S REPUBLIC OF BANGLADESH

FOR A

RURAL ELECTRIFICATION AND RENEWABLE ENERGY DEVELOPMENT II PROJECT

MARCH 20, 2018

Energy & Extractives Global Practice South Asia Region

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#### CURRENCY EQUIVALENTS

# (Exchange Rate Effective October 31, 2017)

Currency Unit = Bangladesh Taka (BDT) BDT 80.20 = US\$1 US\$1.4550 = SDR 1

## FISCAL YEAR

# July 1 – June 30

# ABBREVIATIONS AND ACRONYMS

ADB AF BAU	Asian Development Bank Additional Financing Business as Usual	JICA KfW kWh	Japan International Cooperation Agency Kreditanstalt für Wiederaufbau Kilo-Watt hour
BCCRF	Bangladesh Climate Change Resilient Fund	kWp	Kilo-Watt peak
BDT	Bangladesh Taka	LED	Light Emitting Diode
BEC	Bid Evaluation Committee	MPEMR	Ministry of Power, Energy and Mineral Resources
BERC	Bangladesh Energy Regulatory Commission	MW	Mega Watt
BREB	Bangladesh Rural Electrification Board	NCB	National Competitive Bidding
САР	Bangladesh Country Action Plan for Clean Cook Stoves	NGO	Non-Government Organization
CAS	Country Assistance Strategy	NPV	Net Present Value
CDM	Clean Development Mechanism	0&M	Operations and Maintenance
CFL	Compact Fluorescent Light	OHSAS	Occupational Health and Safety Advisory Services
CO2	Carbon dioxide	ORAF	Operational Risk Assessment and Framework
EIRR	Economic Internal Rate of Return	PBS	Palli Biddyut Samities
ERD	Economic Relations Division	PDO	Project Development Objective
ESMF	Environment and Social Management Framework	РО	Partner Organization
ESSMU	Environment and Social Safeguards Monitoring Unit	RAPSS	Remote Area Power Supply Systems
FIRR	Financial Internal Rate of Return	RERED	Rural Electrification and Renewable Energy Development
FM	Financial Management	SBDs	Standard Bidding Documents
FMR	Financial Monitoring Report		5
FY	Fiscal Year	SHS	Solar Home Systems
GAAP	Governance and Accountability Action Plan	SIP	Solar Irrigation Pump
GCF	Green Climate Fund	SLA	Subsidiary Loan Agreement
GHG	Greenhouse gas	SMG	Solar Mini-Grid
GIZ	Gesellschaft für Internationale Zusammenarbeit	SMS	Short Message Service

GOB	Government of Bangladesh	SREDA	Sustainable and Renewable Energy Development Authority
GPOBA	Global Partnership for Output- based Aid	SRFPs	Standard Request for Proposals
ICB	International Competitive Bidding	ТА	Technical Assistance
ICS	Improved Cookstove	TR/KABITA	National Social Safety Net Program
IDA	International Development Association	USAID	United States Agency for International Development
IDB	Islamic Development Bank	WHO	World Health Organization
IDCOL	Infrastructure Development Company Limited	Wp	Watt Peak
IRR	Internal Rate of Return		
IUFR	Interim Unaudited Financial Report		

Regional Vice President	Annette Dixon
Country Director	: Qimiao Fan
Senior Global Practice Director	Riccardo Puliti
Practice Manager	Demetrios Papathanasiou
Task Team Leader(s)	: Amit Jain



# BASIC INFORMATION – PARENT (Rural Electrification and Renewable Energy Development II (RERED II) Project - P131263)

Country	Product Line	Team Leader(s)			
Bangladesh	IBRD/IDA	Amit Jain			
Project ID	Financing Instrument	Resp CC	Req CC	Practice Area (Lead)	
P131263	Investment Project Financing	GEE06 (9260)	SACBD (7028)	Energy & Extractives	

Implementing Agency: Power Cell, Infrastructure Development Company Limited (IDCOL)

Is this a regionally tagged project?			
No			
[] Situations of Urgent Need or	Bank/IFC Collaboratio	n	
Capacity Constraints	No		
[] Financial Intermediaries			
[] Series of Projects			
Approval Date	Closing Date	Original Environmental Assessment Category	Current EA Category
20-Sep-2012	31-Dec-2018	Partial Assessment (B)	Partial Assessment (B)

#### **Development Objective(s)**

Increase access to clean energy through renewable energy in rural areas.

#### **Ratings (from Parent ISR)**

	Implementation	Latest ISR
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	30-Dec-2015	09-Jun-2016	18-Aug-2016	27-Feb-2017	08-Sep-2017	08-Mar-2018
Progress towards achievement of PDO	MS	MS	MS	S	S	S
Overall Implementation Progress (IP)	MS	MS	MS	S	S	S
Overall Safeguards Rating	S	S	S	S	S	S
Overall Risk	М	М	М	М	М	М

# BASIC INFORMATION – ADDITIONAL FINANCING (Additional Financing II for Rural Electrification and Renewable Energy Development II - P165400)

Project ID	Project Name	Additional Financing Type	Urgent Need or Capacity Constraints
P165400	Additional Financing II for Rural Electrification and Renewable Energy Development II	Restructuring, Scale Up	No
Financing instrument	Product line	Approval Date	
Investment Project Financing	IBRD/IDA	09-Apr-2018	
Projected Date of Full Disbursement	Bank/IFC Collaboration		
31-Dec-2021	No		
Is this a regionally tagged	project?		
No			

- [] Situations of Urgent Need or Capacity Constraints
- $[\checkmark]$  Financial Intermediaries
- [] Series of Projects

# PROJECT FINANCING DATA – PARENT (Rural Electrification and Renewable Energy Development II (RERED II)



## Project - P131263)

#### **Disbursement Summary (from Parent ISR)**

Source of Funds	Net Commitments	Total Disbursed	Remaining Balance	Disbursed
IBRD				%
IDA	233.40	200.93	22.54	90 %
Grants	32.08	29.51	2.56	92 %

# PROJECT FINANCING DATA – ADDITIONAL FINANCING (Additional Financing II for Rural Electrification and Renewable Energy Development II - P165400)

#### FINANCING DATA (US\$, Millions)

#### SUMMARY

Total Project Cost	179.00
Total Financing	159.00
Financing Gap	20.00

#### DETAILS

Counterpart Funding	104.00
LOCAL: BENEFICIARIES	104.00
International Development Association (IDA)	55.00
IDA Credit	55.00

# COMPLIANCE

#### Policy

Does the project depart from the CPF in content or in other significant respects?

# [ ] Yes [ 🗸 ] No

Does the project require any other Policy waiver(s)?



# [ ] Yes [ 🗸 ] No

INSTITUTIONAL DATA

Practice Area (Lead) Energy & Extractives

# **Contributing Practice Areas**

# **Climate Change and Disaster Screening**

This operation has been screened for short and long-term climate change and disaster risks

Explanation

PCN was held prior to July, 2017. However, the Team has undertaken climate screening and reflected the discussion in the PAD.

# **Gender Tag**

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

# Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

#### Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

# PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Amit Jain	Team Leader (ADM Responsible)	Technical and Team leader	GEE06
Ishtiak Siddique	Procurement Specialist (ADM Responsible)	Procurement	GGOPZ



Mohammed Atikuzzaman	Financial Management Specialist	Financial Management	GGOES
A.K.M. Abdullah	Team Member	Financial Specialist	GFCSS
lqbal Ahmed	Environmental Safeguards Specialist	Environment Specialist	GEN06
Koffi Ekouevi	Team Member	Household Energy Specialist	GEE04
Md. Tafazzal Hossain	Team Member	Program Assistant	SACBD
Raluca Georgiana Golumbeanu	Team Member	GPOBA	GSUOA
Sabah Moyeen	Social Safeguards Specialist	Social	GSU06
Shaukat Javed	Team Member	Program Assistant	GEE06
Srivathsan Sridharan	Team Member	Disbursement	WFACS
Tanuja Bhattacharjee	Team Member	Technical	GEE06
Vidya Venugopal	Counsel	Legal	LEGES
Zubair K.M. Sadeque	Team Member	Technical	GEE08
Extended Team	Title	Organization	Location
Name	litle	Organization	Location
Anil Cabraal	Renewable Energy Consultant		
Christopher Purcell	Renewable Energy Specialist	Independent consultant	
Ferdous Jahan	Gender Specialist		
M Khaliquzzaman	Consultant	World Bank	



## BANGLADESH

ADDITIONAL FINANCING II FOR RURAL ELECTRIFICATION AND RENEWABLE ENERGY DEVELOPMENT II

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#### I. BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING

#### A. Introduction

1. This Project paper seeks the approval of the Executive Directors to provide an additional IDA credit in the amount of US\$55 million equivalent to the Bangladesh Rural Electrification and Renewable Energy Development II (RERED II) Project (P131263). The additional financing is required to scale up the RERED II to support the installation of 1,000 solar irrigation pumps (SIP) and 30 solar mini-grids (SMG), and an additional 4 million Improved Cookstoves (ICS) in rural areas of Bangladesh. The Project has applied for an additional grant in the amount of US\$20 million from Green Climate Fund (GCF) for the ICS component. Which was approved recently by the GCF Board <sup>1</sup>.

2. In its 7<sup>th</sup> Five Year Plan, the Government of Bangladesh is planning to achieve a Gross Development Product (GDP) growth rate of 7.4 percent from 2015 to 2020. The Government expects to provide universal access to electricity by 2021. Over the longer term the Government is aiming to steadily grow its economy at more than 5 percent which will require 52 Giga Watt (GW) of generation by 2041.

3. Bangladesh has progressed well over the past ten years in improving its power sector and providing electricity services to its people. Power generation capacity has increased from 5.5 GW in 2009 to 13 GW in 2017. Electricity access has grown rapidly with 80 percent of households obtaining electricity access. Off-grid technologies such as Solar Home Systems (SHS) provide access to 14 percent. Despite this success, electricity demand exceeds supply and Bangladesh continues to have a low per capita electricity consumption of under 400 kilo-Watt hour (kWh).

# **B.** Implementation Status of Original Project

4. The original RERED II Project (IDA US\$155 million equivalent) was approved by IDA Board in September 2012 and the credit became effective in February 2013. The original Project also includes Global Partnership on Output Based Aid (GPOBA), the United States Agency for International Development (USAID), the Bangladesh Climate Change Resilience Fund (BCCRF) funds (Table 1), which provides grant funds for subsidizing the investments and funding Technical Assistance. The Project had the following components: (i) Component A - Access to Electricity supporting SHS and other renewable energy based options (mini-grids, solar irrigation pumps under the Remote Area Power Supply Systems (RAPSS) sub-component); (ii) Component B - Household Energy to disseminate Improved Cookstoves and biogas digesters for cooking; (iii) Component C - Energy Efficient Lighting to deploy compact fluorescent lamps (CFLs) in exchange for incandescent lamps; iv) Component D - Sector Technical Assistance (TA) to support sector reform and capacity building activities.

<sup>&</sup>lt;sup>1</sup> The GCF Board has on February 27, 2018 approved the Bangladesh Clean Cooking Funding Proposal subject to the satisfaction of certain conditions. Pursuant to the fulfillment of these conditions and once the necessary agreement/s including the Funded Activity Agreement and the Grant Agreement are finalized with GCF, we will be submitting for management's approval, a separate additional financing package for the GCF financing.

5. Additional financing of US\$78.4 million equivalent was approved on May 2014. It was aimed at scaling up the access to electricity component supporting installation of SHS in rural areas of Bangladesh. It also included a Level I restructuring of the RERED II Project that: (1) closed Component C (Energy Efficient Lighting); (2) reallocated US\$17 million from Component C to Component A (US\$12 million - Access to Electricity) and Component D (US\$5 million - Sector TA); and (3) revised the RERED II Project Development Objective (PDO) to "increase access to clean energy in rural areas through renewable energy" to reflect the closure of Component C (the results indicators were revised accordingly).

6. Achievement of PDO: The Project is meeting the PDO of increasing access to clean energy in rural areas through renewable energy; notably, the PDO indicator of reaching 1.7 million households, farmers, and businesses with access to clean energy services by June 2017 was achieved in September 2016, and by October 2017, the project had reached 2.2 million beneficiaries, which accounts for 14 percent of Bangladesh's population (population of Bangladesh is approximately 163 million).

7. *Disbursement:* The Project is performing well and meeting disbursement targets ahead of time. The Project has disbursed 90 percent of the two IDA credits combined (SDR 90.02 million or 87.57 percent of the original credit is disbursed, and SDR 47.6 million or 94.1 percent of the additional financing credit is disbursed). IDCOL has a mature pipeline and already committed funds for SIP, SMG, and ICS; and the prospects are good for disbursing the current undisbursed balance and the new funds by December 2021.

8. Trust funds supporting the Access to Electricity component are also disbursing well. USAID, GPOBA are supporting the subsidy component for SMG, SIP and TA program. GCF recently approved a US\$20 million grant for the ICS program. Grant component of GPOBA is moving slowly, but is likely to be consumed by funding SIP Projects by March 2018.

Grant Funds		Πεαίρ	BCCRE	GPOBA
Grant runus	(TE015034)	(TEA3639)	(TE015077)	(TE010156
	(11015054)	(11,45055)	(11015077)	(11013130, TE019157)
				11015157)
Signing	07/10/2013	10/20/2016	09/30/2013	04/23/2015
Effectiveness	07/28/2013		12/18/2013	07/15/2015
Grant Amount	5.997	1.0725	10	15
(USD million)				
Disbursed	4.5	0	9.959	7.40
(USD million)				
Disbursement %	75.13%	0%	99.59%	49.34%
Grant Closing	12/31/2018	12/31/2018	12/31/2016	06/30/2018

Table 1:	Grant	Disbursement	Status

*Component-wise Implementation Status* 

9. The Project currently has three main components: (A) Access to Electricity (B) Household Energy and (C) Sector Technical Assistance. The following section summarizes the component-wise implementation status.

*Component A: Access to Electricity* 

10. The Access to Electricity component is providing continued support to the SHS program and supporting SMGs, SIPs, captive biogas electricity, etc., under RAPSS sub-component, implemented by IDCOL.

11. Implementation Status of SHS sub-component under Component A: SHS installation target of 1.03 million by Project closing has already been exceeded with 1.2 million installed as of June 30, 2017. Cumulative SHS sales under RERED and RERED II have reached 4.2 million households and serving about 14 percent of the households in Bangladesh. This program is the largest SHS program in the world and has resulted in some of the lowest cost and highest quality SHS in the world.<sup>2</sup>

12. The Project continues to support SHS sales though at a slower than the historical pace of SHS installation. Monthly sales are about 5,000 compared to 27,800 in October 2015. The market has peaked out, and Bangladesh Rural Electrification Board (BREB) is moving fast on grid electrification. There is, however, a still large non-commercial market, which is being addressed through the government's social safety net program. IDCOL-supervised partner organizations (POs) under the national social safety net (TR/KABITA)<sup>3</sup> program are distributing an estimated 30,000 SHS per month to poor households (see Annex 1 for details). Details on the current SHS market included in Annex 1 are: (a) details on Government's social safety net program on SHS for poorest of the poor, inclusion of IDCOL (for monitoring and evaluation) for safety net program, and slowing of IDCOL SHS program due to saturation of the market and massive electrification drive by BREB; and (b) active measures taken by IDCOL to address POs' financial issues and improve collection efficiency.

13. The slowdown in commercial sales is not unexpected as the pace of providing rural grid electricity connections has accelerated. BREB connected more than 3.4 million households to the grid during the last Fiscal Year (FY) and is expected to connect almost 4 million new connections in FY2018. BREB has announced that 90 percent household electrification will achieved by 2018; and SHS demand has further declined as the expectation of getting an electricity connection has risen.

14. Implementation Status of Solar Mini-grids under RAPSS sub-component under Component A: There remain communities that are expensive or near-impossible to serve by extending the grid, among them are communities living on islands. Under this component, 25 solar mini-grids have already been approved, of which 10 mini-grids are in operation, another 15 are under construction. The ten mini-grids are all fully operational, in start-up phase of growing customer numbers and load demand, and Projected to mature over a two-year target period. Customers are primarily households, shops and restaurants seeking higher service level than SHS offering. SMGs are also serving larger commercial activities

<sup>&</sup>lt;sup>2</sup> They range from US\$3.16 per Watt-peak (Wp) for a 130 Wp SHS to US\$5.90 per Wp for a 20 Wp SHS. The price includes sales and service, free maintenance for three years, and a 5-year warranty that includes the battery. Consumer satisfaction has been consistently high.

<sup>&</sup>lt;sup>3</sup> As a part of goal of electricity for all by the year 2021, the Government of Bangladesh, in a 2014 circular, decided to use 50 percent of its total allocated budget from its safety net program (TR/KABITA) for installation of solar home system, solar mini/micro/nano-grid, solar street light, solar irrigation pump, biogas plant and Improved Cookstoves in schools, colleges, religious institutions, markets, local government buildings, public places and households in the rural areas of the country. IDCOL is the implementing agency for this program and is utilizing the same POs and same quality and service standards as in the SHS Program.

comprising of workshops, seasonal milling and irrigation, and even cold storage, along with guest houses and government institutions. Large anchor loads such as cell phone towers are prioritized. They provide grid-quality service, and the built-network is suitable for future grid integration. Most mini-grids are strategically located on physical river islands unreachable by the main grid, which provide an operational environment free from grid encroachment risk. On these islands, conventional alternatives are costly compared to the mini-grid tariffs, and loan package specifically provides for load promotion financing and repayments over the load growth phases, as well as phased upscaling of the mini-grids.

15. Implementation Status of Solar Irrigation Pumps (SIPs) under RAPSS sub-component under Component A: While BREB networks are expanding and in the recent years connecting over 200,000 irrigation pump sets, there are still over 1.3 million diesel pumps in Bangladesh. Since 1983, BREB had energized about 3.4 million pump sets. Merely depending on BREB grid to switch the diesel pumps to electric would require adding perhaps 5 GW generation capacity, in addition to further extending and strengthening the distribution network. SIPs significantly reduce diesel fuel consumption used for irrigation. Total number of SIPS financed is 573 of which 565 are operational as of September 2017. Recently, IDCOL has approved additional 216 SIPs to be financed under REREDP II. IDCOL is aiming to finance another 1,000 pumps by 2021.

16. *Implementation Status of Captive Biogas and Biomass under Component A*. IDCOL has approved 1,060 kW of biogas and biomass generation capacity, of which 475 kW is already operational. 210 kW of the total capacity is financed under the Project.

# Component B: Household Energy Component

17. *Implementation Status of ICS under Component B:* This component is progressing very well. The Project achieved its target two years ahead of schedule and has disseminated 1.01 million ICS as of June 2017. Since June 2016, IDCOL supports only Tier 2 and higher efficiency stoves. With the improved availability of more efficient stoves, the installation pace is expected pick up and stabilize around 60,000 stoves per month.

18. Implementation Status of Biogas under Component B: A total of 45,512 biogas plants have been installed mainly using Kreditanstalt für Wiederaufbau (KfW) finance, of which 1,740 units were supported under RERED II. Implementation progress under RERED II of biogas plants is below projections. The original target of RERED II of 33,000 units was reduced to the current target of 8,500. The monthly achievement rate was 64 percent of the target during the months of January to September 2017. The main issue for the downturn in the biogas program has been the price increase; although there were some technical issues with traditional brick-cement designs for Domestic Biogas Digesters (DBDs). In order to address the technical issues, IDCOL introduced fiberglass based prefabricated models. With the recent introduction of the Pre-fabricated Biogas Digester (PBD), the installation pace is expected to pick up.

#### Component C: Sector Technical Assistance

19. The Sector Technical Assistance component implemented by Power Cell is progressing well. US\$7.45 million in funds have been disbursed leaving about US\$1.94 million undisbursed. Power Cell estimates that US\$1.49 million will be utilized by the on-going activities. Several critical studies are continuing under the component including: (i) Gas Sector Master Plan; (ii) Gas Sector Production Sharing Contract (PSC) review (under procurement); (iii) Multi-tier framework baseline survey; and (iv) Feasibility study for ground-mounted utility scale solar at Feni and other sites.

## Performance of the Implementing Agencies

20. The main implementing agency IDCOL successfully managed the Renewable Energy component of RERED and has been successfully managing RERED II and Additional Finance 1 to RERED II. To meet the needs of the growing renewable energy program, IDCOL established a separate department and recruited additional staff. It has also added capacity to its regional offices and to its team of field inspectors to strengthen the inspection and monitoring of this fast-growing program. Power Cell has also strengthened its capacity in procurement and financial management and is implementing Sector Technical Assistance component satisfactorily.

# C. Rationale for Additional Financing

21. An important rationale for additional financing is to scale-up support for a Project that is an important contributor to the Government's vision for scaling up SMG, SIP, and ICS installations. It will be critical to the Bangladesh Government's Country Action Plan for Clean Cookstoves (CAP), which targets 100 percent coverage of ICS by 2030. The signs of market transformation for SMG and SIP are underway with promising market-based approaches tested under the IDCOL program. To further accelerate progress and move the market, IDCOL program needs to be scaled up, including with the benefit of the proposed additional financing.

22. The proposed additional financing is fully aligned with the World Bank Group's Country Partnership Framework (CPF) (FY 2016-2020). The CPF includes three strategic focus areas for Bank intervention – (i) growth and competitiveness, (ii) social inclusion, and (iii) climate and environment management. The proposed Additional Financing II would primarily address the second and third focus area. The parent Project's objectives continue to be achievable given agreements with counterparts on the revised implementation schedule and expected results informed by implementation experience till date, as well as strong Government commitment to scale up SMG, SIP and ICS.

#### **II. DESCRIPTION OF ADDITIONAL FINANCING**

23. The proposed additional financing to the Project components is summarized below. Total Project cost is US\$ 179 million, which includes counterpart financing from local beneficiaries - US\$ 104 million, US\$ 55 million from IDA and US\$ 20 million from GCF. GCF board is likely to consider the ICS grant proposal in February 2018. The IDA funds under Components A.2 will be provided as sub-loan by IDCOL to SMG and SIP owners or POs; and it will also finance technical assistance for monitoring and verification of installations. The IDA funds under Component B will be used by IDCOL for entrepreneurial training,

awareness, marketing and operating costs for ICS. Component C will focus on capacity building and strengthening of institutions and technical studies for renewable energy components and will be managed by Power Cell. For Component B, GCF funds will be in the form of parallel financing and local beneficiary and government funding will be in the form of parallel financing. IDA portion for Component A.2 will vary for different business models and will be mentioned in operating guidelines.

Project Components	Project cost	GCF	IDA	Local Beneficiary
Component A.1: Solar Home Systems (SHS)	0	0	0	
Component A.2: Mini-grids, solar irrigation pumps (SIPs)	97	0	35	62
Component B: Improved Cookstoves(ICS) and Biogas Digesters	82	20	20	42
Component C: Technical Assistance	0	0	0	
Total Project Costs (\$ million)	179	20	55	104
Total IDA Financing Required (\$ million)			55	

# Table 2: Project Components and Additional Financing

24. Scaling up funding and targets for Sub-component A.2 (SIP and SMG) – Remote Area Power Supply Systems. A total of US\$30 million IDA credit will be used to fund Access to Electricity component to support the installation of 1,000 SIP and 30 SMG. The funding gap of US\$17.4 million, needed to provide grants for the SIPs and SMG investments, is likely to be sourced from KfW. It is expected that KfW and European Union (EU) funds could cover the major portion of the US\$17.4 million financing gap. The implementation and institutional arrangements for utilization of this additional financing will remain unchanged.

25. A total of US\$5 million is allocated for IDCOL to continue with its monitoring and quality control activities to ensure after sales service for the customers.

26. Scaling-up funding and installation targets for Component B – Improved Cookstoves and Biogas: The ICS target for the Project will be scaled up by an additional 4,000,000 (in addition to the 1,000,000 under the original credit). The IDA credit would support 2,000,000 ICS and GCF funds will support additional 2,000,000. IDA credit to the Government, which will be distributed by IDCOL as a sub-grant to POs, will be used for market promotion, awareness building, and supply chain development activities, and not for subsidizing the cost of ICS for households. Households will pay for actual cost of ICS (US\$42.17 million for 4 million ICS), to ensure a transition to a fully commercial ICS program in due course. This market seeding will assist in proliferation of more POs and local entrepreneurs, expansion of awareness and marketing of Tier 2 and above (higher efficiency) ICS and will catalyze a commercial market estimated at about 30 million households. There are no changes proposed in the biogas targets. It is proposed that funds available under Component B can be flexibly used for both ICS and Biogas. 27. **Retroactive Financing:** Retroactive financing is eligible for component B, however can only be used after existing funds in component B are completely utilized. No withdrawal of the Financing shall be made for payments made prior to the Signature Date, except that withdrawals may be made for payments made prior to this date on or after January 1, 2018 for an aggregate amount not to exceed SDR 970,000.

28. GCF support for the clean cooking sector in Bangladesh is essential. The Performance Based Grants covering entrepreneurial training, awareness and marketing have been priced carefully to minimize concessionality. The grants are being provided to consumers once the use of ICS is verified. 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. A separate procurement plan has been prepared for the IDA and GCF component on ICS. The items that cannot be financed as per country financing parameters (CFP) like fuel, allowances, etc. would be financed from counterpart funds.

29. Reallocation of IDA fund (Credit Number 5514-BD): Balance in IDA 5514, will be reallocated as per Table 3 to ensure full utilization of the fund. Reallocation of IDA funds within the categories of Component A.1 is for the monitoring and quality control activities of Component A.

(Amounts in SDR)									
Category	Allocation	Utilization	Balance	Additional Fund Required	Proposed Reallocation				
(1) Subsidy under Part A1 of the project (SHS)	47,552,500	44,118,832	3,433,668	1,412,702	45,531,534				
(2) Goods, consultants' services, Training and Incremental Operating Costs under Part A of the Project	3,032,512	713,886	2,318,626	4,339,592	5,053,478				
Total	50,585,012	44,832,718	5,752,294	5,752,294	50,585,012				

# Table 3: Reallocation of IDA Funds (Credit Number 5514-BD)<sup>4</sup>

30. Reallocation of IDA funds (IDA 5158-BD), for Funding of Component C – Sector Technical Assistance: Considering the positive impact of Component C, further support will be provided to the Power Cell. This support will be funded by a reallocation of unallocated SDR 3.3 million under the IDA 5158. These funds were unallocated and set-aside for contingency. The activities to be financed under the reallocation are feasibility studies on gas plants, assessments on energy efficiency projects, potential renewable energy assessments in Bangladesh, etc.

31. Reallocation of USAID trust fund (TF-15034, Subsidy under A1 of the Project (SHS))- Remaining balance on SHS will not be utilized and therefore, may be reallocated into the following categories indicated in Table 4. The reallocation is subject to USAID approval. Reallocated USAID funds will finance sub-grants for SIP and SMG and for technical assistance.

<sup>&</sup>lt;sup>4</sup> Based on Client Connection

Category wise summary	Allocation	Utilization till September 2017	Balance	Additional Fund Requirement	Proposed Reallocation
(1) Subsidy under A1 of the Project (SHS)	4,800,000	3,068,563	1,731,437	-	3,068,563
(2) Subsidy under A2 of the Project (RAPSS)	1,670,000	762,838	907,162	1,907,162	2,670,000
(3) Goods, Consulting Services, Training under A of the Project	600,000	521,030	78,970	810,407	1,331,437
Total	7,070,000	4352431	2,717,569	2,717,569	7,070,000

# Table 4: Reallocation of USAID trust fund (TF-15034) (Amount in USD)

32. The results framework has been revised to be consistent with the revised Project scope and to include new core indicators. The revised Results Framework is attached. The gender dimensions of monitoring indicators will be emphasized as follows:

- The Female Beneficiary PDO Indicator is calculated from the 2 sub-indicators 1) Women and girls
  in the households getting electricity connection through SHS and mini-grids, 2) females in the
  households getting access to clean cooking solutions. Both are counting female members of the
  household. The number of women headed households/women entrepreneurs with connections
  to solar mini-grids will be monitored and reported on as well.
- The last intermediate indicator is on the number of female staff in POs for ICS. It shows current value to be 282 and end target to be 480. While reporting, the change in the percentages of women as part of total PO staff will be monitored.

33. Project Closing date: Considering the time required to achieve results from additional financing and reallocation of existing IDA credits, the Project closing date is changed to December 31, 2021. The closing date of IDA 5158 and IDA 5514 will also be extended to December 31, 2021.

#### **III.** KEY RISKS

34. Given the long and successful history of the program supported under the Project, the overall risk is assessed as Moderate. Systematic Operations Risk-Rating Tool (SORT) table is included in the data sheet. Political and governance risk has been retained as high. The last two decades in Bangladesh have seen progress in poverty reduction. Individual projects have demonstrated positive results in core areas of development in the country such as agriculture, health, and emergency planning. However, these positive outcomes have been insufficient in terms of geographic coverage, impact on different economic groups, effects on men versus women, and effects on different vulnerable groups. Risks due to the political and governance environment cut across various sectors, and mitigation capabilities in this regard are limited to the technical design of the proposed additional financing.

35. Risk for Sector Strategies and Policies has been retained as substantial because of the following reasons: The Financial Intermediary? assessment has documented the risks on collection efficiency of the existing portfolio. The low collection efficiency and the nearly BDT 3.4 billion (nearly US\$43 million) in loans to PO that are long overdue is a key risk. Average consumer debt collection efficiency over the years, has dropped from above 90 percent to about 83 percent. Annual collection efficiency in the year ending April 2017 dropped to 53 percent. The amount of POs loans outstanding classified as Special Mention Accounts or worse is BDT 3,398 million (about BDT 800 or US\$10 per installed SHS). Classified loans outstanding is 0.5 percent of the bank debt and is manageable as compared to mainstream banking sector (10% debt is sub-standard) in Bangladesh. Loan collection of the existing portfolio is not strong and is deteriorating due to competitive forces. In addition, IDCOL monitored PO staff responsible for loan collection has found a failure to provide after-sales service, infrequent visits and a failure to collect installment payments. Operational solutions are required if the loan portfolio is going to be viable in the medium term. It would be important to measure portfolio at risk (30, 60 or 90 days) in addition to the system in place in IDCOL already. The Project will include a technical assistance activity to improve loan tracking and portfolio quality measurement.

36. However, IDCOL is proactively addressing this issue and have taken number of actions that are bearing fruit. Among them are the following (Annex 1 for details)

- Additional cash flow from the TR/KABITA Program is used to service the debt. Participating POs will be able to pay a major portion of their debt if TRA/KABITA continues for another 2-3 years.
- IDCOL has instituted a Collection Efficiency Improvement Program (CEIP) and requires that all new SHS have pay-as-you-go meters. IDCOL is also discussing with the Government solutions for managing the bad debts. CEIP is improving collections as reported by the POs in the Operations Committee meetings<sup>5</sup>.
- BREB is cooperating with IDCOL in collection of overdue payments from their newly connected customers.
- IDCOL is encouraging POs to diversify their portfolio by engaging in other IDCOL financed activities to improve the POs cash flows. Several POs are involved in SIPs, SMG and ICS sales. IDCOL is also planning to launch a potable water pump program, solar cold storage, etc.
- IDCOL with its Board concurrence is restructuring the debt. Interest rates have been reduced to 7 percent where refinancing amount is more than BDT 500 million. Repayment tenor has been increased to reduce the value of quarterly payments and late payment charge has been reduced to one percent from two percent.
- As security, a portion of principal outstanding is secured through reserves deposited by the POs in the debt service reserve account amounting BDT 486 Crore (22 percent of loan outstanding).
- IDCOL is engaging a consultant to assess the present financial realities of the SHS Program and to propose solutions. IDCOL is also preparing an in-depth report to its Board. Based on the results of the on-going initiatives and the findings from these two reports, the IDCOL Board will take appropriate actions to overcome these problems.

<sup>&</sup>lt;sup>5</sup> Operations committee meetings are chaired by CEO, IDCOL to monitor the status and progress of all the components of the project. It is attended by POs, the World Bank team and any other special invitees.

37. A major risk to the financial viability of mini-grids as independent operations is the potential for grid arrival. This is particularly relevant given the goal of BREB to reach 90 percent of the geographic area of the country with a grid network by 2018. IDCOL has taken multiple steps to mitigate this risk. IDCOL is collaborating with BREB and SREDA in site selection with a preference for island locations, and a compensation plan for cost recovery in the event of a grid interconnection. Importantly, a five-year Memorandum of Understanding (MoU) between BREB and SREDA is in place for selection and approval of off-grid areas for renewable energy projects including mini-grids.

38. There is also the potential risk that with the grid approaching the irrigation command area, farmers might opt to switch to electric pumping if they can get a connection.<sup>6</sup> With electricity tariff much lower than solar irrigation tariff, this is a considerable risk. IDCOL is pre-empting this risk, by careful site screening in collaboration with BREB and SREDA. As in the case of mini-grids, connecting the solar pump to the grid to sell excess electricity at a feed-in tariff is also being considered by SREDA.

39. POs faced several challenges in selling the higher efficiency, but more costly stoves. They include increased efforts for demand creation, enhancing manufacturing capabilities, need for working capital to procure metal stoves. IDCOL now offers grant support that differs by type of stove, with higher amount of support for higher-priced stoves with the average level of support remaining within the original support of approximately BDT 500 per ICS.

<sup>&</sup>lt;sup>6</sup> BREB in recent years have been connecting over 200,000 electric pump sets annually. See BREB Annual Report, 2015/16. http://reb.portal.gov.bd/sites/default/files/files/reb.portal.gov.bd/page/8596cfe6\_8cde\_4643\_acb1\_68cd973e413c/PDF\_AP\_4 1\_100.pdf

					Est	imated RE	RED II Proj	ect Cost to	Dec 2021						
			Loan	Loan	Loan	Grant	Grant	Grant	Grant	Grant	Grant	Grant	Loan	Equity	Grant
SI.	Project Components	TOTAL	IDA (Restructur ed Original Financing)	IDA (AF1)	IDA (AF2) (Pro- posed)	GPOBA (Reallo- cated)	USAID	BCCRF	KfW	KfW (Appro ved)	GCF <sup>7</sup> (AF2) (Pro- posed)	DFID	IDCOL	Others (Private sponsors / bene- ficiaries)	Funding Gap (likely to be funded by KfW)
Α.	Access to Electricity	433.6	128.0	78.4	35.0	13.2	7.1	10.0	12.3	11.8	0.0	1.7	0.0	118.9	17.4
A1.	SHS	284.0	102.1	73.7	0.0	0.1	4.8	0.0	0.0	0.0	0.0	0.0	0.0	103.3	0.0
A2.	RAPSS	121.3	20.8	0.0	30.0	9.5	1.7	9.0	10.7	10.0	0.0	1.7	0.0	15.6	12.4
A3.	TA	28.3	5.1	4.7	5.0	3.6	0.6	1.0	1.5	1.8	0.0	0.0	0.0	0.0	5.0
в.	Household Energy	94.7	12.0	0.0	20.0	1.8	0.0	0.0	0.0	0.0	20.0	0.0	2.5	38.4	0.0
C.	Energy Efficient Lighting	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
D.	Sectoral TA	10.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Baseline Costs	538.3	150.0	78.4	55.0	15.0	7.1	10.0	12.3	11.8	20.0	1.7	2.5	157.3	17.4
	Contingencies	5.1	5.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0		0.0	0.0	0.0	0.0
	TOTAL FINANCING	543.4	155.0	78.4	55.0	15.0	7.1	10.0	12.4	11.8	20.0	1.7	2.5	157.3	17.4

#### Table 5: Revised Project Cost (US\$ Million) Estimated RERED II Project Cost to Dec 2021

<sup>&</sup>lt;sup>7</sup> The GCF Board has on February 27, 2018 approved the Bangladesh Clean Cooking Funding Proposal subject to the satisfaction of certain conditions. Pursuant to the fulfillment of these conditions and once the necessary agreement/s including the Funded Activity Agreement and the Grant Agreement are finalized with GCF, we will be submitting for management's approval, a separate additional financing package for the GCF financing.

## **IV. APPRAISAL SUMMARY**

## D. Economic and Financial (if applicable) Analysis

40. **Solar Irrigation Pumps**. Solar irrigation pumps displace diesel irrigation pumps. Economic benefits accrue from the savings in diesel fuel and in off-setting green-house gas (GHG) emissions. The analysis is based on a representative case where a 32 kWp SIP distributes water to a command area previously served by five smaller diesel pumps. An economic cost effectiveness analysis was conducted as the irrigation service levels provided by the SIP and the diesel alternative are the same. The economic analysis includes the program costs to IDCOL. The financial analysis is based on a representative SIP Project financed by IDCOL.

41. Economic Internal Rate of Return (EIRR) is 16.9 percent and drops to 14.7 percent without GHG emissions consideration. Economic cost of water is about 72 percent of that provided by diesel pumping. Sensitivity analyses show that economic cost of diesel must drop to two thirds of present cost of US\$0.66 for diesel water pumping to equal solar irrigation cost. The water demand needs to drop to 81 percent of the assumed demand for diesel pumping to be lower cost. Financial Internal Rate of Return (FIRR) is 11.7 percent and Return on Equity (ROE) is 14.1 percent. Average Debt Service Coverage Ratio (DSCR) is 1.5. A 10 percent drop in water sales revenue reduces DSCR to 1.26 and ROE to 11 percent.

42. **Solar Mini-grids**. Solar mini-grids displace a diesel grid providing the same level of service. The analysis is based on a representative case where a 228 kWp SMG sells electricity to 1099 households and businesses. The financial analysis is based on same SMG Project financed by IDCOL.

43. EIRR is 13.8 percent and it is 11.7 percent without GHG emissions consideration. Levelized cost of electricity is 36.8 BDT/kWh compared to 41.9 BDT/kWh from diesel. The breakeven diesel fuel cost is US\$ 0.46/liter. Electricity demand must drop to 74 percent for diesel electricity to be lower cost. The Project FIRR is 16 percent and ROE is 19 percent. A 20 percent drop in electricity revenue reduces the ROE to 10 percent, though debt service coverage is acceptable.

44. **Improved Cookstoves** displace traditional stoves. They save biomass fuels and have significant local environmental and health benefits, especially benefitting women and children. Global benefits accrue due to the reduction in use of unsustainably harvested biomass fuels.

45. The economic analysis uses project investment, marketing, sales and program management costs as costs and the value of fuel and health expenditure savings, and GHG emissions reductions as benefits.<sup>8</sup> The financial analysis from the household perspective considers the direct household investment and fuel savings. The EIRR when benefits accrue only from fuel savings is 39 percent. When fuel savings and health benefits are accounted for, it is 57 percent. EIRR cannot be computed with GHG emissions as the benefits outweigh the costs. Biomass savings are about 11 million tons from 4 million ICS over their lifetimes. Considering only fuel savings, ICS remains economically viable even if ICS fuel consumption is 26 percent more than in laboratory tests. The EIRR is 13 percent. Simple payback is in 8 months at a fuel cost 7 BDT/kg. Simple payback time increases to 12 months if fuel price drops to 5.90 BDT/kg.

<sup>&</sup>lt;sup>8</sup> GHG emissions reduction was estimated using the UNFCCC AMS-II G methodology.

46. The detailed economic and financial analysis and the spreadsheets are in the project files.

# GHG Accounting

47. **SIPs and SMG.** Greenhouse gas (GHG) emissions reduction was computed based on avoidance of diesel fuel use. Total GHG emissions reduction from the 1,000 SIPs and 30 SMGs are estimated at 434,000 tons and 163,000 tons respectively over the 20-year life of the systems.

48. *ICS*. About 11.5 million tons of CO2 emissions are expected to be reduced during the three-year lifetime of each of the 4 million ICS. In addition, black carbon emissions would also be reduced.

# E. Technical

49. 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 across all its programs.

50. For Monitoring and Quality Control under the SIPs program, IDCOL has a dedicated Monitoring Unit as well as agriculturists to monitor operational performance of solar irrigation pumps during preapproval and post-approval stages of projects. IDCOL conducts site inspections at the application stage as well as during construction and operation, including performance testing of the SIPs and irrigation acreage covered each season. At end of each irrigation season, the sponsors provide data related to irrigation coverage, irrigation charges, etc., which are subsequently, verified by IDCOL through direct communication with the operators. To further contribute to improved quality and performance, IDCOL is setting up a pump testing facility that can test and qualify pumps. Remote monitoring of SIPs is being implemented to monitor water delivery.

51. Similar Monitoring and Quality Control of SMGs is done using a dedicated Monitoring Unit. Site visits at all stages of projects are undertaken, including monthly visits during construction, observing commissioning, and multi-day on-site performance testing. Learning from the SHS Program, all SMGs are required to have pre-payment meters to ensure high collection efficiencies. Consumer surveys are conducted before the Project is implemented to establish baselines, and consumer responses are recorded during operations and feedback provided to the sponsors. IDCOL is implementing a remote monitoring program, and it will be rolled out in September 2018.

52. For the ICS Monitoring and Quality Control, 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 percent of ICS submitted under each disbursement request. In case of equal to or more than 20 percent discrepancy in a 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.

53. Given the size and growth of the ICS program, IDCOL is supporting the capability for testing of key components and systems to verify continued compliance, and to undertake performance testing of ICS systems in the laboratory and in the field. IDCOL will continue to take research and development

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. IDCOL conducts independent audits, air pollution studies, and health impact assessments.

54. Continuing with the current practice, regular inspections will be held by IDCOL to ensure the systems are installed as per the approved technical standards. In addition to the inspections, IDCOL will conduct annual technical audits by independent third parties to verify that approved products are installed as per the technical standards.

## F. Financial Management

The financial management rating of the Project is Satisfactory. IDCOL, the implementing agency for the Access to Electricity and Household Energy components, has been implementing the SHS and other renewable energy programs with support of the eligible POs under the RERED Project since 2003. 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. The Participation Agreement between IDCOL and the POs include provisions requiring the POs/sponsors to maintain appropriate accounting and financial control. With a dedicated financial management staff appointed under the original RERED II credit, Power Cell now has adequate financial management capacity. Both IDCOL and Power Cell have been submitting the required financial reports (interim unaudited financial reports (IUFR) and audited financial statements) in a timely manner. The IUFR for FY 17 and Draft Audit Inspection Report, FY 2016-17 has been submitted for IDCOL and was cleared with no issue. There are no material audit observations for IDCOL. The reporting/auditing arrangements, reporting of expenditures to IDCOL, accounting arrangements will remain the same as in the parent project. However, there would be a separate Designated Account for this project. As a result, there would be separate withdrawal application with supporting documentation, which would be the basis for disbursements. There is no change in the geographical area for the additional financing project. Overdue audit report from December 31, 2017 for FY2016-17 from Powercell has been submitted and cleared by the Bank.

55. POs would submit expenditure details to IDCOL, which would be the basis for IDCOL to submit withdrawal applications to IDA. Operating costs claims are to be made as per the definition in the Financing Agreement. In view of multiple sources of financing, separate budget and books of accounts would be maintained for this AF to ensure charging of expenditures under relevant source of financing. The terms of reference of Internal Audit would include provision to review this aspect.

56. **OP 10 Financial Intermediation Review:** There is an adequate macroeconomic situation in place for effective financial intermediation. The financial sector's overall performance, supervision and regulation are satisfactory, raising the likelihood of effective financial intermediation. IDCOL, the wholesale financial intermediary (FI) for the Project, is supervised on a regular basis by national authorities using internationally accepted indicators. Institution selection criteria and financing terms are included in Operating Guidelines and will remain same for the additional financing. The overall finding is that this Project complies with Bank Policy on Investment Project Financing, but also faces vulnerabilities that may lead to pressure to move to a more subsidized system over time. However, the review suggests that frequent Bank team monitoring of loan portfolio quality should be emphasized. Technical Assistance component will focus on portfolio risk and loan monitoring systems including:

- a. Measurement of portfolio at risk (30, 60 or 90 days) in addition to the system in place in IDCOL already.
- b. Identification of specific operational solutions for the loan portfolio viability in the medium term.

#### G. Procurement

Both IDCOL and Power Cell have experience and capacity in managing Bank financed 57. procurement. Under the ongoing RERED II Project, there was no major procurement related issues observed in these organizations except delays in processing consultancy procurement activities. The risk of the Project is rated as "moderate" from the standpoint of procurement operation and contract management. Several risk mitigations measures including the following are in place as detailed in the Project Procurement Strategy for Development (PPSD) document - (i) IDCOL, with guidance from the Bank prepared a PPSD considering activity level risks and capacity of IDCOL in managing those risks, value of the activities, prevailing market conditions, geographical locations of the activities, etc. PPSD spelled out the appropriate procurement strategy for this Project. PPSD is a live document and it is to be updated at least annually. As an output of the PPSD exercise, the initial Procurement Plan for the Project was also prepared. The agreed Procurement Plan contains procurement activities to be financed under the Project, the different selection methods for procurement including applicable conditions, market approach, contracting arrangement, estimated costs, Bank's prior review requirements, applicable standard procurement documents, and time frame; (ii) Both IDCOL and Power Cell have formed the bid/proposal evaluation committees for this Project in a manner acceptable to the Bank; (ii) the Project is using the Bank's Systematic Tracking of Exchanges in Procurement (STEP) system in managing its procurement activities.

58. Additional financing of the Project will follow World Bank Procurement Regulations 2016 (Revised November 2017) for all the procurements except the procurements conducted under the sub-loans as the Procurement Regulations is not applicable for loans made by eligible financial intermediaries to private borrowers. However, procurements under the sub-grants will be governed by Procurement Regulations. The POs under the sub-grant will conduct their own procurement following established commercial practices governed by Section 6.46 of the Procurement Regulations. As done earlier, IDCOL will engage a technical cum fiduciary audit firm to review the procurements conducted by the POs on a sample basis.

#### H. Environment and Social (including Safeguards)

59. The Project is designated as environmental Category B (partial assessment) according to the relevant guidelines of the Bank and the policies for environmental impact and indigenous peoples (OP 4.01 and OP4.10) have been triggered. The Access to Electricity component yields net positive environmental impacts. Since the additional financing will be for components A and B, it is not anticipated that there will be any significant and/or irreversible adverse environmental and social issues. The discharge of lead sulfate in the local environment during recycling of used SHS batteries is the only environmental concern relevant to the Project. Several measures have been undertaken by IDCOL to strengthen SHS battery recycling including refinancing for battery replacement and enhanced incentives for POs and manufacturers for collection of expired batteries. IDCOL has required the compliance of

International Organization for Standardization (ISO) 14001:2004 and Occupational Health and Safety Management (OHSAS) 18001:2007 by all battery recyclers and battery manufacturers.

60. No public land will be used for the Project, and no land acquisition will be financed under the Project. Land required for the RAPSS sub-projects will be private lands made available by the sub-project sponsors via direct purchase or by leasing. IDCOL requires that the land for the sub-projects be free of disputes and encumbrances. All land for Project use, whether made available via direct purchase or leasing, will be screened to ensure that no physical or economic displacement of communities/persons will take place; and lands which are disputed or have encroachments on them (informal settlers, non-titled entities) will not be used for the Project. Visits are made by the staff to all battery recycling plants on half-yearly basis for ensuring environment compliance.

61. 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 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.

62. IDCOL has gained experience in implementing the ESMF. A revised ESMF has been disclosed at both IDCOL and the Bank's website on January 4, 2018<sup>9</sup>. A separate Environment and Social Safeguards Management Unit (ESSMU) is now part of IDCOL organogram. IDCOL has two full-time environment staff members.

# I. Other (if applicable)

# Gender Responsive Social Assessment

63. RERED I and II have been highlighted as a good practice by the Bank's energy and extractives gender team and are considered operations that are fully gender-informed (Sourcebook for Task Team Leaders (TTLs)<sup>10</sup>). A lot of work has already been done in terms of gender analysis, action, and M&E. A number of gendered initiatives were taken which included women centered training and consultations to maximize benefits of SHS to women; extended user training on maintenance and use of cook stoves to women who are the main users; encouraging POs to consider employing both female & male employees who will have the access to the women and men in rural community and advise them about installing biogas plants. 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 considering the learning and feedback from the Project beneficiaries. Using a gender lens of analysis, the assessment 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. In addition, the

<sup>&</sup>lt;sup>9</sup> http://idcol.org/download/7fc4bc2bdb41575ce77c46a8cc0b8113.pdf

<sup>&</sup>lt;sup>10</sup> https://www.esmap.org/.../Focus%20on%20Gender%20in%20Energy%20and%20Extr...

M&E specified in the Project design included gender specific indicators such as

- Women and girls in the household getting electricity connection through SHS & mini-grids;
- Females in the household getting access to clean cooking solutions;
- Female-headed businesses/shops getting connection through mini-grids;

Presently the former initiatives have been continued. In addition, following IDCOL's gender policy 20 percent of training under the mini grid program should be women; but in reality, they were able to bring 10 percent women. In the case of ICS user training, the majority of the participants are women but men participate sometimes as observers.

64. The gender gaps and corresponding actions taken by the Project are highlighted below. The activities started in the earlier Project will be continued under the Additional Financing:

a) One of the most important gender gaps identified was in women's participation and decision making. There was a lack of advertisement aimed at rural women regarding the benefits of biogas plants. POs also followed a male-oriented approach to marketing and coverage of SHS and did not target women. IDCOL introduced several measures including incorporating requirements in its SHS installation manual to consult with the women in the households before putting in the light connections. Although numbers of new installations have fallen recently, this approach is being continued. Since 2013 5.5 percent of the SHSs have been sold to female headed households. Bio-gas user training participants are mostly female as they are the main users. Cookstove models were developed that are suitable for women, and women-centered customer training and maintenance initiatives were taken, are ongoing and will be continued. However, after sales service is generally done by men and women, depending on the nature of the service required as well as the PO staffing. Since the beginning of the program 39 percent of the customers are female.

b) Another gender gap identified in women's access to energy sector jobs (livelihoods) was that POs do not have an adequate number of qualified female employees to access women in rural areas, publicize and advocate for ICS/biogas plants, and women experienced uneasiness in dealing with POs. During the present phase, IDCOL will encourage POs to employ female staff for advising on ICS and installation of biogas plants through regular follow-up by IDCOL and by highlighting POs successful in employing women. At the field level women will be given more responsibilities on the promotion side since they have greater access to the women in the household. Accordingly, an intermediate indicator on number of female jobs has been included as part of additional financing. In addition, POs are encouraging interested women (non-staff) to undertake a promotional role, and they are given financial incentives if they manage to make sales.

c) IDCOL had its own institutional gender policy approved in January 2016. Another Gender-Responsive Social Assessment for the RERED II Project will be carried out to understand better how the various initiatives taken have worked and learn lessons of what approaches worked and what did not.

# Climate Co-benefits Assessment

65. According to the Multilateral Development Bank (MDB) methodology for climate finance, the full amount (100 percent) of the additional financing (US\$55 million) will generate climate change mitigation co-benefits.

## Citizen Engagement

66. The Project has a robust citizen engagement (CE) strategy and includes: (i) satisfaction surveys, including customer satisfaction feedback via text messaging or citizen reports cards, as the primary tool to ensure that beneficiaries are satisfied with the services provided (both access to electricity, and cook stoves); (ii) development of Grievance Redressal Mechanism (the customer hotline to report problems) to respond to the needs of beneficiaries and to address and resolve their grievances and serve as a conduit for soliciting inquiries, inviting suggestions, and increasing community participation; (iii) consultations with women especially on the ICS component; and (iv) grievances-addressed indicator. The grievances-addressed indicator measures percentage of grievances resolved within two months of receipt.

#### V. WORLD BANK GRIEVANCE REDRESS

67. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported Project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints the World Bank's corporate Grievance Redress Service (GRS), to please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org

# VI. SUMMARY TABLE OF CHANGES

	Changed	Not Changed
Change in Results Framework	$\checkmark$	
Change in Components and Cost	$\checkmark$	
Change in Loan Closing Date(s)	$\checkmark$	
Reallocation between Disbursement Categories	$\checkmark$	
Change in Disbursements Arrangements	$\checkmark$	
Change in Procurement	$\checkmark$	
Change in Implementing Agency		$\checkmark$
Change in Project's Development Objectives		$\checkmark$
Cancellations Proposed		$\checkmark$
Change in Safeguard Policies Triggered		$\checkmark$
Change of EA category		$\checkmark$
Change in Legal Covenants		$\checkmark$
Change in Institutional Arrangements		$\checkmark$
Change in Financial Management		$\checkmark$
Change in APA Reliance		$\checkmark$
Other Change(s)		$\checkmark$

#### VII. DETAILED CHANGE(S)

#### **RESULTS FRAMEWORK**

#### **Project Development Objective Indicators**

Number of households, farmers, and businesses having access to clean energy services Unit of Measure: Number Indicator Type: Custom

	Baseline	Actual (Current)	End Target	Action			
Value	0.00	2,152,989.00	6,085,082.00	Revised			
Date	31-Dec-2012	30-Sep-2017	31-Dec-2021				
Generation Unit of Me Indicator T	n Capacity of Renewable En asure: Megawatt ype: Custom	ergy (other than hydropo	wer) constructed				
	Baseline	Actual (Current)	End Target	Action			
Value	0.00	49.00	88.00	Revised			
Date	31-Dec-2012	30-Sep-2017	31-Dec-2021				
Generation Unit of Me Indicator Ty	n Capacity of Renewable En asure: Megawatt ype: Custom Breakdown	ergy constructed-Solar					
	Baseline	Actual (Current)	End Target	Action			
value	0.00	49.00	88.00	Revised			
Unit of Me Indicator T	asure: Number ype: Custom						
	Baseline	Actual (Current)	End Target	Action			
Value	0.00	6,370,000.00	9,800,000.00	Revised			
Date	31-Dec-2012	30-Sep-2017	31-Dec-2021				
Female ber Unit of Me Indicator Ty	neficiaries asure: Percentage ype: Custom Supplement						
	Baseline	Actual (Current)	End Target	Action			
Value	0.00	58.00	76.00	Revised			
People provided with new or improved electricity service Unit of Measure: Number Indicator Type: Core							
	Dasenne		Line in get	//////			

Date	31-Dec-2012	30-Sep-2017	31-Dec-2021	
Ppl provid Unit of Me Indicator T	ed wth elec. by hhold con easure: Number Type: Custom Breakdown	nn.–Offgrid/minigrid–Only n	enewable sources	
	Baseline	Actual (Current)	End Target	Action
Value	0.00	5,420,000.00	5,500,000.00	Revised
Date	31-Dec-2012	30-Sep-2017	31-Dec-2021	
People that	at gained access to more e	energy-efficient cooking and	d/or heating facilities	
People tha Unit of Me Indicator 1	at gained access to more e easure: Number Type: Custom Baseline	energy-efficient cooking and Actual (Current)	d/or heating facilities	Action
People tha Unit of Me Indicator T Value	at gained access to more of easure: Number Type: Custom Baseline 0.00	Actual (Current) 1,010,657.00	End Target 5,000,000.00	Action Revised
People tha Unit of Me Indicator 1 Value Date	at gained access to more e easure: Number Type: Custom Baseline 0.00 31-Dec-2012	Actual (Current) 1,010,657.00 30-Sep-2017	End Target 5,000,000.00 31-Dec-2021	Action Revised
People tha Unit of Me Indicator T Value Date People tha Unit of Me Indicator T	at gained access to more of easure: Number Type: Custom Baseline 0.00 31-Dec-2012 at gained access only thro easure: Number Type: Custom Breakdown Baseline	Actual (Current) 1,010,657.00 30-Sep-2017 rugh switching of cooking ar Actual (Current)	End Target 5,000,000.00 31-Dec-2021 d/or heating systems End Target	Action Revised
People tha Unit of Me Indicator T Value Date People tha Unit of Me Indicator T	at gained access to more of easure: Number Type: Custom Baseline 0.00 31-Dec-2012 at gained access only thro easure: Number Type: Custom Breakdown Baseline 0.00	Actual (Current) 1,010,657.00 30-Sep-2017 rugh switching of cooking ar Actual (Current) 1,010,657.00	End Target 5,000,000.00 31-Dec-2021 ad/or heating systems End Target 5,000,000.00	Action Revised Action Revised

Number of solar home systems installed Unit of Measure: Number Indicator Type: Custom								
	Baseline	Actual (Current)	End Target	Action				
Value	0.00	1,202,000.00	1,202,174.00	Revised				
Date	31-Dec-2012	30-Sep-2017	31-Dec-2021					
Number of connections made through mini-grid systems and captive plants Unit of Measure: Number Indicator Type: Custom								

Value0.003,435.0028,100.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Image: Sep-2017 </th <th></th> <th>Baseline</th> <th>Actual (Current)</th> <th>End Target</th> <th>Action</th>		Baseline	Actual (Current)	End Target	Action
Date31-Dec-201230-Sep-201731-Dec-2021Number of solar :rrigation pumps Unit of Measure: Number Indicator Type: CustomActual (Current)End TargetActionValue0.00486.002,170.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Number of higher : Efficiency cook stoves disseminated Unit of Measure: Number Indicator Type: CustomActual (Current)End TargetActionValue0.001,010,657.005,000,000.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Value0.001,010,657.005,000,000.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Number of biogas- plants for cooking Unit of Measure: Number Indicator Type: CustomInter-201230-Sep-201731-Dec-2021Number of biogas- plants for cooking Unit of Measure: Number Indicator Type: CustomInter-201230-Sep-201731-Dec-2021Value0.001,797.008,300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Collection efficier-y of the SHS POS Unit of Measure: Percentage Indicator Type: CustomEnd TargetActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021Value96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021Value96.0082.	Value	0.00	3,435.00	28,100.00	Revised
Number of solar irrigation pumps Unit of Measure: Number Indicator Type: Custom       Actual (Current)       End Target       Action         Baseline       Actual (Current)       End Target       Action         Value       0.00       486.00       2,170.00       Revised         Date       31-Dec-2012       30-Sep-2017       31-Dec-2021       Sep-2017       31-Dec-2021         Number of higher efficiency cook stoves disseminated Unit of Measure: Number Indicator Type: Custom       End Target       Action         Value       0.00       1,010,657.00       5,000,000.00       Revised         Date       31-Dec-2012       30-Sep-2017       31-Dec-2021       Sep-2017       Sep-2017         Number of biogas plants for cooking Unit of Measure: Number Indicator Type: Custom       Actual (Current)       End Target       Action         Value       0.00       1,797.00       8,300.00       Revised         Date       31-Dec-2012       30-Sep-2017       31-Dec-2021       Sep-2017       Sep-2017         Value       0.00       1,797.00       8,300.00       Revised       Sep-2017       Sep-2017	Date	31-Dec-2012	30-Sep-2017	31-Dec-2021	
BaselineActual (Current)End TargetActionValue0.00486.002,170.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Number of higher of ficiency cook stoves discerninatedIntervention of Measure: NumberEnd TargetActionMaselineActual (Current)End TargetActionValue0.001,010,657.005,000,000.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Number of biogas plants for cooking Unit of Measure: Number Indicator Type: CustomActual (Current)End TargetActionValue0.001,797.008,300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Collection efficiency of the SHS POS Unit of Measure: Percentage Indicator Type: CustomActual (Current)End TargetActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021ActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021Grievances recutty et that are addressed with two months of receipt Unit of Measure: Percentage Indicator Type: CustomActual (Current)End TargetActionDate28-Feb-201430-Sep-201731-Dec-2021ActionActionDate28-Feb-201430-Sep-2017S1-Dec-2021ActionDate28-Feb-201430-Sep-2017S1-Dec-2021Action <td>Number of s Unit of Meas Indicator Typ</td> <td>olar irrigation pumps sure: Number be: Custom</td> <td></td> <td></td> <td></td>	Number of s Unit of Meas Indicator Typ	olar irrigation pumps sure: Number be: Custom			
Value0.00486.002,170.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021		Baseline	Actual (Current)	End Target	Action
Date31-Dec-201230-Sep-201731-Dec-2021Number of Nigsure: Number Indicator Type: CustomKatual (Current)End TargetActionValue0.001.010.657.005.000.000.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Number of Niesure: Number Indicator Type: CustomKatual (Current)End TargetActionNumber of Dioget Plants for cooking Unit of Measure: Number Indicator Type: CustomKatual (Current)End TargetActionValue0.001.797.008.300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Value0.001.797.008.300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Value0.00RevisedKationDate31-Dec-2012SolonRevisedValue9.60.08.2.509.0.00RevisedDate38-BeineActual (Current)1.0-Lec-2021Value9.0.08.2.509.0.0RevisedDate38-Beine30-Sep-201731-Dec-2021Value8.38.008.2.509.0.00RevisedDate38-Be-201430-Sep-201731-Dec-2021SelineActual (Current)SelineKationNit of Measure: VercentageSer201731-Dec-2021SelineActual (Current)Ser2018Ser2018Seli	Value	0.00	486.00	2,170.00	Revised
Number of higher efficiency cook stoves disseminated Unit of Measure: Number Indicator Type: CustomBaselineActual (Current)End TargetActionValue0.001,010,657.005,000,000.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Number of biogas plants for cooking Unit of Measure: Number Indicator Type: CustomEnd TargetActionValue0.001,797.008,300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Value0.001,797.008,300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Collection efficiency of the SHS POS Unit of Measure: Percentage Indicator Type: CustomEnd TargetActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021Crievances received that are addressed within two months of receipt Unit of Measure: Percentage Indicator Type: CustomSin Sep-201731-Dec-2021SealineActual (Current)End TargetActionSealineActual (Current)End TargetActionSealineActual (Current)Sin Sep-2021Sin Sep-2021Date38-Sep-201731-Dec-2021Sin Sep-2021SealineActual (Current)End TargetActionSealineActual (Current)Sin Sep-2021Sin Sep-2021SealineSin Sep-2021Sin Sep-2021Sin Sep-2022SealineActual (Current)Sin Sep-202	Date	31-Dec-2012	30-Sep-2017	31-Dec-2021	
BaselineActual (Current)End TargetActionValue0.001,010,657.005,000,000.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021	Number of h Unit of Meas Indicator Typ	nigher efficiency cook stove sure: Number pe: Custom	es disseminated		
Value0.001,010,657.005,000,000.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021		Baseline	Actual (Current)	End Target	Action
Date31-Dec-201230-Sep-201731-Dec-2021Number of biogramWith of Measure: Number Indicator Type: Unit of Measure: Number BaselineActual (Current)End TargetActionValue0.001,797.008,300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Image: Constraint of Measure: Vercentage Indicator Type: Unit of Measure: Vercentage BaselineActual (Current)End TargetActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021Image: Constraint of Measure: Vercentage Indicator Type: Unit of Measure: Vercentage BaselineActual (Current)End TargetActionValue96.0082.5090.00RevisedImage: Constraint of Measure: Vercentage Indicator Type: Unit of Measure: Vercentage Indicator Type: Unit of Measure: VercentageActual (Current)End TargetActionBaselineActual (Current)End TargetActionImage: Constraint of Measure: VercentageImage: Constraint of Measure: VercentageNotion of Measure: VercentageActual (Current)End TargetAction	Value	0.00	1,010,657.00	5,000,000.00	Revised
Number of biogss plants for cooking Unit of Measure: Number Indicator Type: CustomBaselineActual (Current)End TargetActionValue0.001,797.008,300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Collection efficiers of the SHS POS Unit of Measure: Percentage Indicator Type: CustomEnd TargetActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021Grievances received that are addressed within two months of receipt Unit of Measure: Percentage Indicator Type: Custom30-Sep-201731-Dec-2021Date28-Feb-201430-Sep-201731-Dec-2021Sep-2017Sep-2017DateSep-Sep-2017Sep-Sep-2017Sep-Sep-2014Sep-Sep-2014Sep-Sep-2014DateSep-Sep-2014Sep-Sep-2017Sep-Sep-2014Sep-Sep-2014Sep-Sep-2014DateSep-Sep-Sep-Sep-Sep-Sep-Sep-Sep-Sep-Sep-	Date	31-Dec-2012	30-Sep-2017	31-Dec-2021	
BaselineActual (Current)End TargetActionValue0.001,797.008,300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021Collection efficiers of the SHS POs Unit of Measure: Percentage Indicator Type: UstomActual (Current)End TargetActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021Grievances recerstage Indicator Type: Vercentage BaselineActual (Current)End TargetActionDate8.50.0082.5090.00RevisedDateBaselineActual (Current)S1-Dec-2021BaselineActual (Current)Actual (Current)Actual Action	Number of b Unit of Meas Indicator Typ	viogas plants for cooking sure: Number pe: Custom			
Value0.001,797.008,300.00RevisedDate31-Dec-201230-Sep-201731-Dec-2021		Baseline	Actual (Current)	End Target	Action
Date31-Dec-201230-Sep-201731-Dec-2021Collection efficiery of the SHS POS Unit of Measure: Percentage Indicator Type: UstomBaselineActual (Current)End TargetActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021	Value	0.00	1,797.00	8,300.00	Revised
Collection efficiency of the SHS POs Unit of Measure: Percentage Indicator Type: CustomEnd TargetActionBaselineActual (Current)End TargetActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021	Date	31-Dec-2012	30-Sep-2017	31-Dec-2021	
BaselineActual (Current)End TargetActionValue96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021	Collection ef Unit of Meas Indicator Typ	ficiency of the SHS POs sure: Percentage be: Custom			
Value96.0082.5090.00RevisedDate28-Feb-201430-Sep-201731-Dec-2021		Baseline	Actual (Current)	End Target	Action
Date28-Feb-201430-Sep-201731-Dec-2021Grievances received that are addressed within two months of receipt Unit of Measure: Percentage Indicator Type: CustomBaselineActual (Current)End TargetAction	Value	96.00	82.50	90.00	Revised
Grievances received that are addressed within two months of receipt         Unit of Measure: Percentage         Indicator Type: Custom         Baseline       Actual (Current)         End Target       Action	Date	28-Feb-2014	30-Sep-2017	31-Dec-2021	
Baseline Actual (Current) End Target Action	Grievances r Unit of Meas Indicator Typ	eceived that are addresse sure: Percentage pe: Custom	d within two months of rece	ipt	
		Baseline	Actual (Current)	End Target	Action

Value	0.00	0.00	100.00	New
Date	28-Nov-2017	28-Nov-2017	31-Dec-2021	
Number of Fem Unit of Measure Indicator Type:	ale Staff in POs e: Number Custom			
	Baseline	Actual (Current)	End Target	Action
Value	282.00	282.00	480.00	New
Date	30-Nov-2017	30-Nov-2017	31-Dec-2021	

#### COMPONENTS

Current Component Name	Current Cost (US\$, millions)	Action	Proposed Component Name	Proposed Cost (US\$, millions)
Access to Electricity	310.19	Revised	Access to Electricity	340.19
Household Energy	45.41	Revised	Household Energy	85.41
Sector Technical Assistance	6.50	Revised	Sector Technical Assistance	11.50
TOTAL	362.10			437.10

# LOAN CLOSING DATE(S)

Ln/Cr/Tf	Status	Original Closing	Current Closing(s)	Proposed Closing	Proposed Deadline for Withdrawal Applications
IDA-51580	Effective	31-Dec-2018	31-Dec-2018	31-Dec-2021	30-Apr-2022
IDA-55140	Effective	31-Dec-2018	31-Dec-2018	31-Dec-2021	30-Apr-2022
TF-15034	Effective	30-Jun-2016	31-Dec-2018	31-Dec-2018	30-Apr-2019
TF-15077	Closed	31-Dec-2016	31-Dec-2016		
TF-A3639	Effective	31-Dec-2018	31-Dec-2018		

## **REALLOCATION BETWEEN DISBURSEMENT CATEGORIES**

Current Allocation	Actuals + Committed	Proposed Allocation	Finar (Type	ncing % e Total)
			Current	Proposed

IDA-51580-001 | Currency: XDR

iLap Category Sequence No: 1	Current Expend	liture Category: SUB LOANS	S PART A1 A2	
81,480,000.00	71,497,739.72	81,479,915.00	100.00	100.00
iLap Category Sequence No: 2	Current Expend	liture Category: GOODS CS	TR IOC PART A	
3,400,000.00	3,400,084.99	3,400,085.00	100.00	100.00
iLap Category Sequence No: 3	Current Expend	liture Category: GOODS CS	TR IOC SG PART	В
8,000,000.00	6,782,067.96	8,000,000.00	100.00	100.00
iLap Category Sequence No: 4	Current Expend	liture Category: GOODS CS	TR PART C1	
0.00	0.00	0.00	100.00	100.00
iLap Category Sequence No: 5	Current Expend	liture Category: GOODS CS	TR IOC PART D	
6,620,000.00	5,959,324.28	9,920,000.00	100.00	100.00
iLap Category Sequence No: 6	Current Expend	liture Category: Unallocate	d Amount	
iLap Category Sequence No: 6 3,300,000.00	Current Expend	liture Category: Unallocate	d Amount	
iLap Category Sequence No: 6 3,300,000.00 Total 102,800,000.00	Current Expend 0.00 <b>87,639,216.95</b>	liture Category: Unallocate 0.00 <b>102,800,000.00</b>	d Amount	
iLap Category Sequence No: 6 3,300,000.00 <b>Total 102,800,000.00</b> IDA-55140-001   Currency:	Current Expend 0.00 <b>87,639,216.95</b> XDR	liture Category: Unallocate 0.00 <b>102,800,000.00</b>	d Amount	
iLap Category Sequence No: 6 3,300,000.00 Total 102,800,000.00 IDA-55140-001   Currency: iLap Category Sequence No: 1	Current Expend 0.00 <b>87,639,216.95</b> XDR Current Expend	liture Category: Unallocate 0.00 <b>102,800,000.00</b> liture Category: SUB LOANS	d Amount 5 PART A1 A2	
iLap Category Sequence No: 6 3,300,000.00 <b>Total 102,800,000.00</b> IDA-55140-001   Currency: iLap Category Sequence No: 1 47,552,500.00	Current Expend 0.00 <b>87,639,216.95</b> XDR Current Expend 44,118,831.59	liture Category: Unallocate 0.00 <b>102,800,000.00</b> liture Category: SUB LOANS 45,531,534.00	d Amount 5 PART A1 A2 100.00	100.00
iLap Category Sequence No: 6 3,300,000.00 Total 102,800,000.00 IDA-55140-001   Currency: iLap Category Sequence No: 1 47,552,500.00 iLap Category Sequence No: 2	Current Expend 0.00 87,639,216.95 XDR Current Expend 44,118,831.59 Current Expend	liture Category: Unallocate 0.00 <b>102,800,000.00</b> liture Category: SUB LOANS 45,531,534.00 liture Category: GOODS CS	d Amount 5 PART A1 A2 100.00 TR IOC PART A	100.00
iLap Category Sequence No: 6 3,300,000.00 <b>Total 102,800,000.00</b> IDA-55140-001   Currency: iLap Category Sequence No: 1 47,552,500.00 iLap Category Sequence No: 2 3,032,512.00	Current Expend 0.00 <b>87,639,216.95</b> XDR Current Expend 44,118,831.59 Current Expend 713,886.23	liture Category: Unallocate 0.00 <b>102,800,000.00</b> liture Category: SUB LOANS 45,531,534.00 liture Category: GOODS CS 5,053,478.00	d Amount 5 PART A1 A2 100.00 TR IOC PART A 100.00	100.00
iLap Category Sequence No: 6 3,300,000.00   Total 102,800,000.00   IDA-55140-001 Currency:   iLap Category Sequence No: 1 47,552,500.00   iLap Category Sequence No: 2 3,032,512.00   iLap Category Sequence No: 3 3,032,512.00	Current Expend 0.00 87,639,216.95 XDR Current Expend 44,118,831.59 Current Expend 713,886.23 Current Expend	liture Category: Unallocate 0.00 <b>102,800,000.00</b> liture Category: SUB LOANS 45,531,534.00 liture Category: GOODS CS 5,053,478.00 liture Category: GOODS CS	d Amount 5 PART A1 A2 100.00 TR IOC PART A 100.00 TR IOC SG PART	100.00 100.00 B

iLap Category Sequence No	4 Current Expend	liture Category: GOODS CS	TR PART C1	
0.0	0.00	0.00	100.00	100.00
iLap Category Sequence No	5 Current Expend	liture Category: GOODS CS	TR IOC PART D	
0.0	0.00	0.00	100.00	100.00
iLap Category Sequence No	6 Current Expend	liture Category: UNALLOCA	TED	
0.0	0.00	0.00		
Total 50,585,012	00 44,832,717.82	50,585,012.00		
TF-15034-001   Currenc	: USD			
iLap Category Sequence No	1 Current Expend	liture Category: SUB GRANT	rs - Part a 1	
4,800,000.0	3,068,562.85	3,070,000.00	100.00	100.00
iLap Category Sequence No	2 Current Expend	liture Category: SUB GRANT	rs - Part a 2	
597,500.0	0 605,479.97	1,597,500.00	100.00	100.00
iLap Category Sequence No	3 Current Expend	liture Category: GDS, CS, TR	R, IOC - PART A	
600,000.0	0 188,727.99	1,330,000.00	100.00	100.00
Total 5,997,500	00 3,862,770.81	5,997,500.00		
TF-15077-001   Currenc	: USD			
iLap Category Sequence No	2 Current Expend	liture Category: SUB GRAN	rs - Part a 2 (b	)
8 011 170 9	0.011.170.00	8 911 179 89	100.00	100.00
0,511,175.0	9 8,911,179.89	0,511,175.05		
iLap Category Sequence No	9         8,911,179.89           3         Current Expendence	liture Category: GDS, CS, TR	R, IOC - PART A	3

Total	9,911,98	0.31	9,9	911,980.31		9,91	1,980.31				
TF-A3639-001	Curren	cy: USD									
iLap Category S	Sequence N	lo: 3	Cur	rent Exper	nditure C	ategory: G	iDS, CS, TR	, IOC - PART	A 3		
	1,072,500	.00		0.00		1,07	2,500.00	100.0	00	100.00	
Total	1,072,50	0.00		0.00	)	1,07	2,500.00				
DISBURSEMENT ARRANGEMENTS Change in Disbursement Arrangements Yes											
Expected Disb	ursements	(in US\$,	millions)								
Fiscal Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Annual	0.00	0.00	0.00	0.00	0.00	6.97	9.59	11.36	11.66	15.42	
Cumulative	0.00	0.00	0.00	0.00	0.00	6.97	16.56	27.92	39.58	55.00	
SYSTEMATIC O	PERATION	S RISK-R/	ATING TOO	L (SORT)							
Risk Category					Latest IS	R Rating	Curr	ent Rating			
Political and Go	overnance				• High		• Hi	gh			
Macroeconom	ic				Low		• La	w			
Sector Strategi	es and Poli	cies			Subst	tantial	θ Sι	ıbstantial			
Technical Desig	gn of Projec	t or Prog	gram		Low		• M	oderate			
Institutional Ca Sustainability	apacity for I	mpleme	ntation and		Low		• M	oderate			
Fiduciary					Mode	erate	• M	oderate			
Environment a	nd Social				Mode	erate	• M	oderate			
Stakeholders					Low		• Lo	w			
Other											

Overall

Moderate

Moderate

# LEGAL COVENANTS – Additional Financing II for Rural Electrification and Renewable Energy Development II (P165400)

Sections and Description

NA

# Conditions

Type Effectiveness	<ul> <li>Description</li> <li>The Additional Condition[s] of Effectiveness consists of the following:</li> <li>(a) The amendment to the Subsidiary Loan Agreement for the Original</li> <li>Project has been executed on behalf of the Recipient and the Project</li> <li>Implementing Entity to take into account the Financing.</li> <li>(b) The amendment to the Subsidiary Grant Agreement for the Original</li> </ul>
	(b) The amendment to the Subsidiary Grant Agreement for the Original Project has been executed on behalf of the Recipient and Project Implementing Entity to take into account the Additional Financing.



# **VIII. RESULTS FRAMEWORK AND MONITORING**

## **Results Framework**

COUNTRY : Bangladesh

Additional Financing II for Rural Electrification and Renewable Energy Development II

## **Project Development Objectives**

Increase access to clean energy through renewable energy in rural areas.

# **Project Development Objective Indicators**

Action	Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source / Methodology	Responsibility for Data Collection
Revised	Name: Number of households, farmers, and businesses having access to clean energy services		Number	0.00	6,085,082.0 0	IDCOL	Project Progress Report capturing data collected from the POs	Quarterly
Description: This incluc captive plants, solar irr	des access to electricit igation etc) and acces	y throu s to cle	igh Solar Home an cooking sol	e Systems (SHS utions	) and other rene	ewable energy op	tions (mini-grids, biog	gas/biomassbased
Revised	Name: Generation Capacity of Renewable Energy (other than hydropower)		Megawatt	0.00	88.00	IDCOL	Data reported by the POs in refinancing applications	Quarterly



The World Bank Additional Financing II for Rural Electrification and Renewable Energy Development II (P165400)

	constructed							
Revised	Generation Capacity of Renewable Energy constructed- Solar		Megawatt	0.00	88.00			
Description: This meas renewable power (i) w will be zero.	ures the capacity of re ind; (ii) geothermal; (iv	newab /) solar	ble energy (oth ; or (iv) other.	er than hydror For hydropow	oower) construct er refer to code	ted under the pro Hydropower (LH)	ject. The TTL should s . The baseline value	pecify the type of for this indicator
Revised	Name: Direct project beneficiaries		Number	0.00	9,800,000.0 0			
Revised	Female beneficiaries		Percentage	0.00	76.00			
Description: Direct ber program; families that Female beneficiaries ( beneficiaries are fema	neficiaries are people c have a new piped wat percentage). Based on le. This indicator is calo	or grou er con the ass culated	ps who directly nection). Pleas sessment and o l as a percenta	y derive benefi e note that thi definition of di ge.	ts from an interv s indicator requi rect project ben	vention (i.e., child ires supplementa eficiaries, specify	ren who benefit from information. Suppler what proportion of th	n an immunization mental Value: ne direct project
Revised	Name: People provided with new or improved electricity service	~	Number	0.00	5,500,000.0 0			
Revised	Ppl provided wth elec. by hhold conn.– Offgrid/minigrid –Only renewable		Number	0.00	5,500,000.0 0			



# The World Bank

Additional Financing II for Rural Electrification and Renewable Energy Development II (P165400)

	sources						
Description: This in connecting househ	dicator measures the numbe olds. The baseline value for t	er of people that hav his indicator is expe	ve received ar ected to be ze	n electricity con ro.	nection under the	e project via new coni	nections aimed at
Revised	Name: People that gained access to more energy- efficient cooking and/or heating facilities	Number	0.00	5,000,000.0 0			
Revised	People that gained access only through switching of cooking and/or heating systems	Number	0.00	5,000,000.0 0			

Description: This indicator measures the number of people living in households that switched to more energy-efficient stoves or systems as the primary source of energy for cooking, space heating, or both. The baseline value for this indicator should be zero

# Intermediate Results Indicators

Action	Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source / Methodology	Responsibility for Data Collection
Revised	Name: Number of solar home systems installed		Number	0.00	1,202,174. 00	IDCOL	Minutes of the Operations Committee meeting of IDCOL reporting data collected from sales records of the	Monthly



						Partner Organizations	
Description:							
Revised	Name: Number of connections made through mini-grid systems and captive plants	Number	0.00	28,100.00	IDCOL	Financial Monitoring Report	Quarterly
Description:							
Revised	Name: Number of solar irrigation pumps	Number	0.00	2,170.00	IDCOL	Sub-project status update by the irrigation team	Quarterly
Description:							
Revised	Name: Number of higher efficiency cook stoves disseminated	Number	0.00	5,000,000. 00	IDCOL	Monthly Operations Committee meeting minutes of IDCOL reporting data collected from the Partner Organizations	Monthly
Description:							
Revised	Name: Number of biogas plants for cooking	Number	0.00	8,300.00	IDCOL	Minutes of the Operations Committee meeting of IDCOL reporting data collected from the Partner Organizations	Monthly



Description:								
No Change	Name: Enabling policy for renewable energy development	Text	SREDA not operation al	SREDA operationa l with core staff appointed				
Description:								
Revised	Name: Collection efficiency of the SHS POs	Percentage	96.00	90.00				
Description:								
New	Name: Grievances received that are addressed within two months of receipt	Percentage	0.00	100.00				
Description:								
New	Name: Number of Female Staff in POs	Number	282.00	480.00				
Description:								



# **Target Values**

# Project Development Objective Indicators

Action	Indicator Name	End Target
Revised	Number of households, farmers, and businesses having access to clean energy services	6,085,082.00
Revised	Generation Capacity of Renewable Energy (other than hydropower) constructed	88.00
Revised	Generation Capacity of Renewable Energy constructed-Solar	88.00
Revised	Direct project beneficiaries	9,800,000.00
Revised	Female beneficiaries	76.00
Revised	People provided with new or improved electricity service	5,500,000.00
Revised	Ppl provided wth elec. by hhold conn.–Offgrid/minigrid–Only renewable sources	5,500,000.00
Revised	People that gained access to more energy-efficient cooking and/or heating facilities	5,000,000.00
Revised	People that gained access only through switching of cooking and/or heating systems	5,000,000.00

# **Intermediate Results Indicators**

Action	Indicator Name	Baseline	End Target
Revised	Number of solar home systems installed	0.00	1,202,174.00
Revised	Number of connections made through mini-grid systems and captive plants	0.00	28,100.00
Revised	Number of solar irrigation pumps	0.00	2,170.00



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Revised	Number of higher efficiency cook stoves disseminated	0.00	5,000,000.00
Revised	Number of biogas plants for cooking	0.00	8,300.00
No Change	Enabling policy for renewable energy development	SREDA not operational	SREDA operational with core staff appointed
Revised	Collection efficiency of the SHS POs	96.00	90.00
New	Grievances received that are addressed within two months of receipt	0.00	100.00
New	Number of Female Staff in POs	282.00	480.00



#### Annex 1: Status Report on IDCOL SHS Program

#### Background

- 1. IDCOL started its Solar Home System (SHS) Program in January 2003. The program was being implemented through different Partner Organizations (POs) of IDCOL which are mostly local NGOs, Micro Finance Institutions (MFIs) and Private Entities.
- 2. Objective of the program was to fulfill the basic electricity requirements in the rural areas of Bangladesh as well as to supplement the Government's vision of ensuring Access to Electricity for all by 2021.
- 3. The program has so far saved consumption of 1.14 million tons of kerosene worth US\$411 million (considering US\$0.30 per liter). In addition, already installed 4.12 million SHS will save consumption of another 3.6 million tons of kerosene worth US\$1300 million in the next 15 years. Therefore, total saving in terms of reduction in kerosene use is almost 3 times of IDCOL's total credit investment.
- 4. The Bangladesh Institute of Development Studies (BIDS) conducted an impact assessment study of IDCOL SHS Program in 2012 which showed that total market for SHS in about 10 million. Based on this, IDCOL raised its target from 4 million SHS to 6 million SHS. Also, number of POs have been increased to achieve the target.
- 5. Ultimate objective of IDCOL SHS Program was to commercialize SHS when the market would take care of SHS sales and this would assist IDCOL to gradually exit this business.
- 6. Keeping this into consideration, IDCOL decided to gradually reduce loan facility to the POs to decrease its exposure. It reduced the refinancing amount from 80 percent to 70 percent of the loan amount since January 2012 and reduced it to 60 percent since 2013. IDCOL also had a plan to further reduce the refinancing amount.
- 7. Lending terms were also made stringent by reducing loan tenor and increasing interest rate on the basis of exposure limit to gradually prepare the POs to receive commercial loans.

#### **Reasons for Decline in SHS Business**

- 8. However, sharp decline in SHS sales did not allow IDCOL to implement this plan. This happened so dramatically that all efforts in this regard became ineffective. Neither POs nor IDCOL or development partners could anticipate this. Notably, SHS sales in 2013 was about 71,000 SHS per month which came down to 4,474 SHS per month in last 6 months in 2017.
- 9. IDCOL SHS Program has observed negative growth since the end of 2013 due to a number of challenges. Two major aspects of the program i.e. SHS installation and collection efficiency of POs had been severely affected by the external challenges as described below:
  - **Development of an unregulated parallel market** outside IDCOL program has captured a significant portion of the market share. IDCOL conducted two separate surveys on this market. Operators in this market are not being regulated by the government. Therefore, quality and after sales services are not ensured unlike IDCOL program. As a result, operators can sell their systems

at much lower prices than that of IDCOL program. Consequently, POs are facing uneven competition in selling their products.

- Free SHS under TR/KABITA: Distribution of free SHS under 50 percent of the total allocated budget for Food for Work (FFR)/Test Relief (TR) fund in FY 2014-15 had a negative impact by reducing sales and collection of the POs.
- **Rapid expansion of BREB grid** reduced the off-grid areas. The Government has undertaken a major initiative to expand grid connection across the country under its vision of Access to Electricity for all by 2021. On an average, 300,000 new electricity connections are established in each month. Due to rapid connection of grid, SHS sales have reduced significantly in those areas. At the same time, a significant number of SHS are being returned by the existing SHS customers.
- Collection performance of the POs has declined. Starting with prolonged political unrest since end of 2013, the collection performance of POs has deteriorated further due to lack of efficient financial management of some POs and high staff turnover. Due to non-collection, some POs could not make quarterly debt service payments to IDCOL. It has been observed during IDCOL monitoring that staffs of many POs do not regularly visit customer household to provide aftersales service and collection installment payments. This has resulted in the decline of collection efficiency.

#### Initiatives Taken to Address the Problem

- 10. Magnitude of the problem: The overdue debt classified as Special Mention Accounts or worse is BDT 3.4 billion which is 0.5 percent of total MFI debt outstanding as of June 2016 (http://www.cdfbd.org/new/page.php?scat\_id=154). For comparison, the non-performing loans in the Bangladesh banking sector in June 2017 was about 10 percent of BDT 7,310 billion in credit disbursed by 57 commercial banks (this is after writing off BDT 450 billion in bad debt, http://www.dhakatribune.com/business/banks/2017/10/06/defaulted-loans-amount-12-gdp/). Also, the overdue debt amounts to only BDT 800 per SHS that has been installed under IDCOL program.
- 11. IDCOL management took a number of remedial measures to address these challenges including the following:
  - To resolve TR/KABITA issue, IDCOL had approached different levels of the government including Prime Minister's Office, Ministry of Disaster Management and Relief, Economic Relations Division, Power Division including SREDA and raised the concerns of IDCOL and POs. IDCOL had been able to convince the government that safety net funding in renewable energy can be better utilized through IDCOL POs. As a result, IDCOL and its POs have been engaged for installation of renewable energy systems under TR/KABITA program.

Engagement in TR/KABITA Program is helping POs in generating additional cash flows. This is helping them make debt service payment to POs. Most of the POs are generating enough revenue to repay significant portion of their debt service payments to IDCOL.

POs will be able to pay a major portion of their loan to IDCOL if installation of solar system under TRA/KABITA continues for at least another 2-3 years.

 Launching of "Collection Efficiency Improvement Program" had been another major intervention from IDCOL. In January 2016, IDCOL undertook the program by engaging its monitoring staffs to support POs. It is a joint effort of IDCOL and POs with support from local administration mainly to improve collection performance of POs in the areas with poor collection efficiency.

CEIP deals with overdue customers and supplements POs' regular efforts for collection. Under CEIP, a total of 73,260 overdue customers have been visited by 581 working committees in 230 Upazilas. IDCOL representatives were present in most of the committees. Gradually, overdue customers in other 58 other Upazilas will also come under the supervision of program.

CEIP has already identified that PO staffs are not visiting overdue customers on a regular basis which was the major reason for poor collection. Many overdue customers are not getting proper after-sales service which was their reasons for not paying installments. CEIP has already started addressing this problem and by now has a reasonable impact on improving collection as reported by the POs in the Operations Committee meetings.

 IDCOL has taken initiatives to arrange Upazila level meeting and district level conference in the areas with poor collection performance with a view to stimulating the POs' staffs working in those areas. In the Upazila meetings, Upazila Chairman, Upazila Chairmen are invited and in the district conference, Deputy Commissioner (DC) and Police Super (SP) are invited to seek their support in improving collection efficiency.

IDCOL has already arranged and participated in 176 Upazila level meetings, 6 district level conferences, and 3 district law and order meetings. Senior officials of IDCOL including CEO and top management of POs attended the conferences. DCs and SPs of respective districts attended the conferences and assured their full cooperation in improving collection efficiency.

 IDCOL in 2015 engaged an international consultancy firm to identify technically and financially viable pre-paid technologies to be introduced under IDCOL SHS program and hence support POs to improve its collection performance.

IDCOL has already implemented the recommendations made by the consultancy firm. Technical Standards Committee under SHS Program has set forth the technical standards of the pre-paid components and 3 suppliers have been enlisted.

After conducting a piloting of this technology in Matlab Uttar Upazila of Chandpur district from August 2016 to November 2016, POs are now implementing pay-as-you-go technology countrywide since March 1, 2017.

- IDCOL already approached BREB to get their support in collection of overdue from their newly connected customers. Upon IDCOL's persuasion, BREB chairman in June 2016 instructed Palli Bidyut Samitys (PBS) to require clearance from IDCOL POs before giving connection to an SHS customer.
- To address the adverse effect of the market outside IDCOL program, IDCOL approached Sustainable and Renewable Energy Development Authority (SREDA) for setting up a national standard for solar home system. SREDA asked Bangladesh Standards and Testing Institution (BSTI) to adopt necessary standards for the components of Solar Home Systems. BSTI has already developed the National standards for PV modules and related system components considering the standards followed by IDCOL. Implementation of national standard will ensure sale of quality products in the market and hence help reduce uneven competition with outside vendors.
- IDCOL conducted awareness campaign through publishing notification in the national dailies jointly with the SREDA to inform the potential customers about buying quality SHS products. IDCOL also telecast programs in various TV channels to promote the quality of SHS products sold by POs under IDCOL program.



12. In addition, IDCOL sought support from the Board to overcome the challenges under the program. With the approval of the Board, IDCOL has already **reduced the interest rate** as per the following:

Cumulative Refinancing Amount (BDT)	Existing Interest	<b>Revised Interest</b>	
	Rate	Rate	
Up to 25 crore*	6% p.a.	6% p.a.	
From 25 crore to 50 crore	7% p.a.		
From 50 crore to 100 crore	8%p.a.	7% p.a.	
More than 100 crore	9% p.a.		

- 1 crore is equivalent to 10 million
- 13. IDCOL also **rescheduled a number of loan accounts** to make the quarterly installment size smaller which helped POs to make debt service payments to IDCOL. Late payment charge has also been reduced from 2 percent to 1 percent.
- 14. As of June 2017, IDCOL disbursed an amount of BDT 4,544 crore as refinance (Term loan) to the POs. Out of which the POs have repaid BDT 2,312 crore as principal (51 percent of loan disbursed). Therefore, BDT 2,232 remained as principal outstanding with the POs. Total interest received from the POs by was BDT 1,038 crore.
- 15. A small portion of principal outstanding is secured through reserves deposited by the POs in the debt service reserve account amounting BDT 486 Crore (22 percent of loan outstanding).

#### Way Forward

- 16. According to the decision of the Board, IDCOL is now in the process of engaging a consultant to independently assess the present realities of the Program including challenges and opportunities and to propose a way forward for resolving the problem. This may take about 3-4 months.
- 17. As per the Board's instruction, IDCOL management is working on preparing an in-depth report for the Board on this.
- 18. Both the reports will be presented before the Board so that the Board can take appropriate decisions to overcome the adverse situations as identified by the IDCOL PO Forum as well as the consultants and IDCOL management.