



Decentralized Energy Models

Challenges and Opportunities

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An Overview of IDCOL



- A fully government owned financial institution
- Started operation in 1997
- Catalyzes private sector participation in infrastructure and renewable energy projects/programs
- Largest financier in private sector **infrastructure projects** in Bangladesh
- Market leader in **renewable energy** financing



Infrastructure & PPP



Energy Efficiency



Renewable Energy



Green Climate Fund



Advisory Services

IDCOL's Renewable Energy Initiatives



**4.1 Million SHS
– 180 MWp**



**1,523 Solar Irrigation Pumps
– 42 MWp**



**27 Solar Mini grid Projects
– 5 MWp**



**2 Ground Mounted Solar Projects
– 108 MW**



63,000 Biogas Plants



3.4 million Improved Cook-stoves



55 MWp Solar Roof top Projects



300,000 Solar Street Lights

Uniqueness of IDCOL RE Initiatives



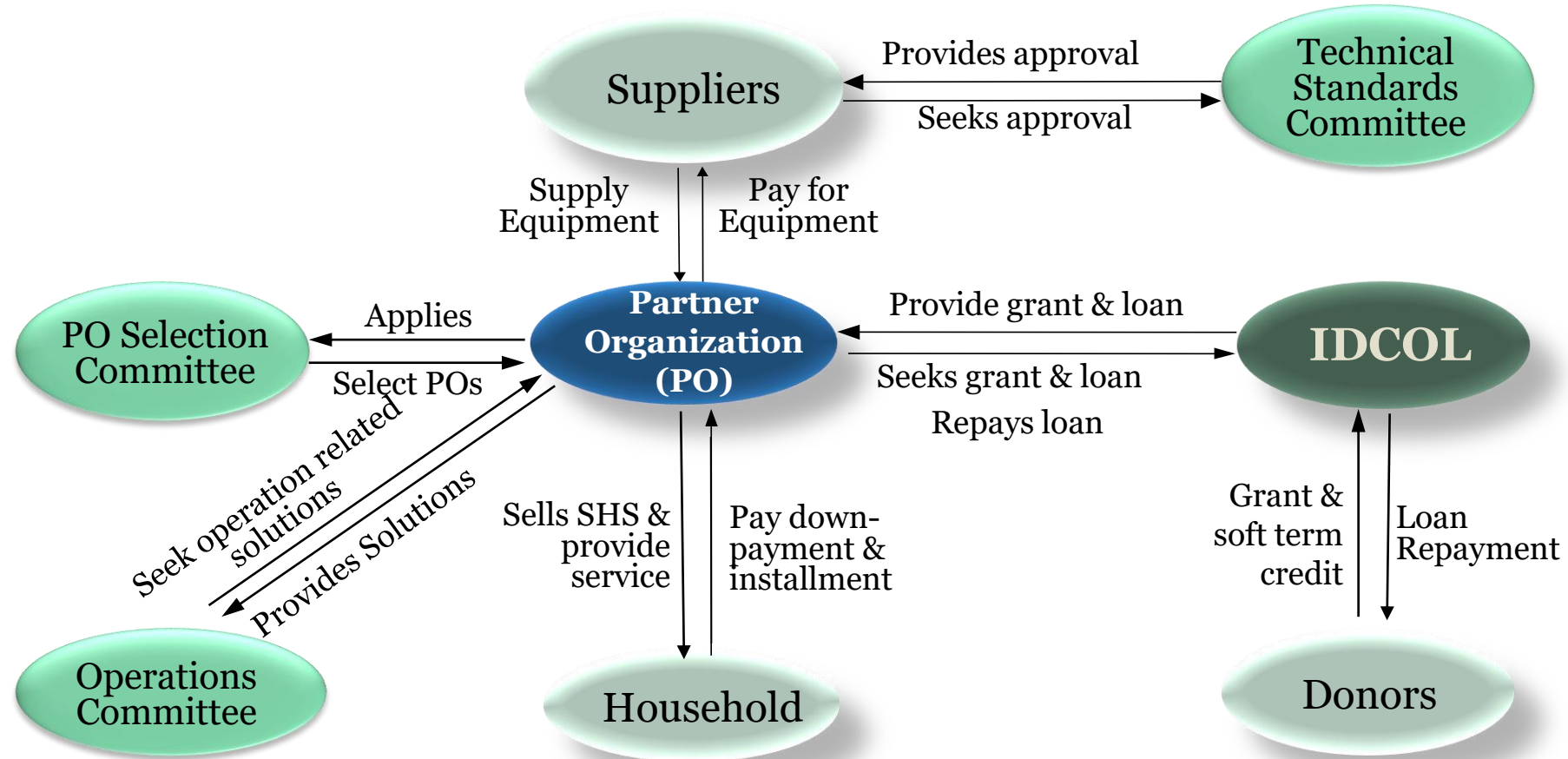
-  Sustainable business models
-  Ensures private sector engagement
-  Market development and awareness
-  Capacity development of stakeholders
-  Quality control and monitoring services
-  Tailored financing packages

Solar Home System Program (SHS)

- **System Size** : 10 Wp to 300 Wp
- **Installation** : **4.14** million
- **Beneficiaries** : 20 million (12% population)
- **Installed Capacity** : 180 MWp (approx.)
- **Fossil fuel saving** : 200,000 ton/yr. (USD 180 m)



SHS Program Implementation Structure



SHS - Challenges and Opportunities

Challenges	Opportunities
Lack of awareness among customers	<ul style="list-style-type: none"> – Promotional campaigns and customer training programs
Establishing a sustainable business model	<ul style="list-style-type: none"> – Social enterprise model through NGOs/MFIs/Private entities – Presence of multiple POs ensures healthy competition
Lack of institutional capacity	<ul style="list-style-type: none"> – Training and financial supports (long term concessionary credit) help create the capacity
High cost of SHS equipment	<ul style="list-style-type: none"> – Capital buy-down grant – Development of local support industry
Lack of quality assurance	<ul style="list-style-type: none"> – Quality control mechanisms i.e. selection of quality equipment and field level monitoring
Grid expansion	<ul style="list-style-type: none"> – Coordination among government entities

Solar Irrigation Program (SIP)



Installed
1,523 pumps
(42.08 MWp)



Beneficiaries
70,915 farmers



Coverage/pump
20 Hectare (Paddy)



Average Panel
Capacity/per pump
42 kWp



Average Pump
Capacity
18.5 kW



Output/pump
2 million Litres/day

Targets to be achieved by 2030 :



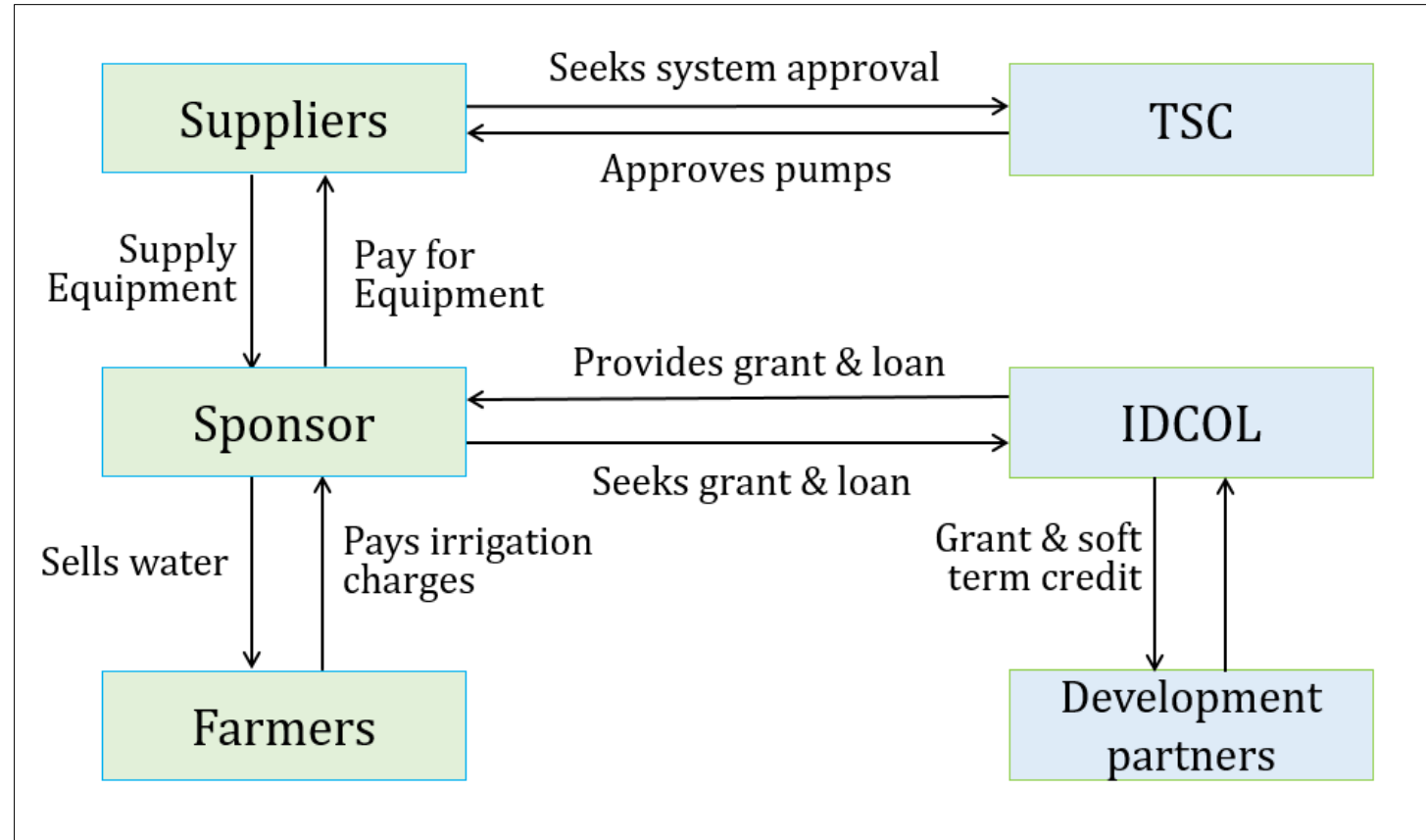
Installation
10,000



Emission Reduction
10 mil tons of CO₂
Project Life



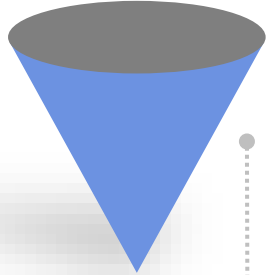
SIP Business Model



SIP - Challenges and Opportunities



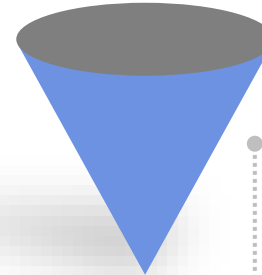
Challenges



- A huge amount of excess energy remains unutilized.
- Market distortion through parallel programs with full or higher subsidy.
- Electric pumps affect financial viability. SIP can strongly compete with diesel pumps but not with electric pumps.
- Lack of central monitoring by sponsors



Opportunities



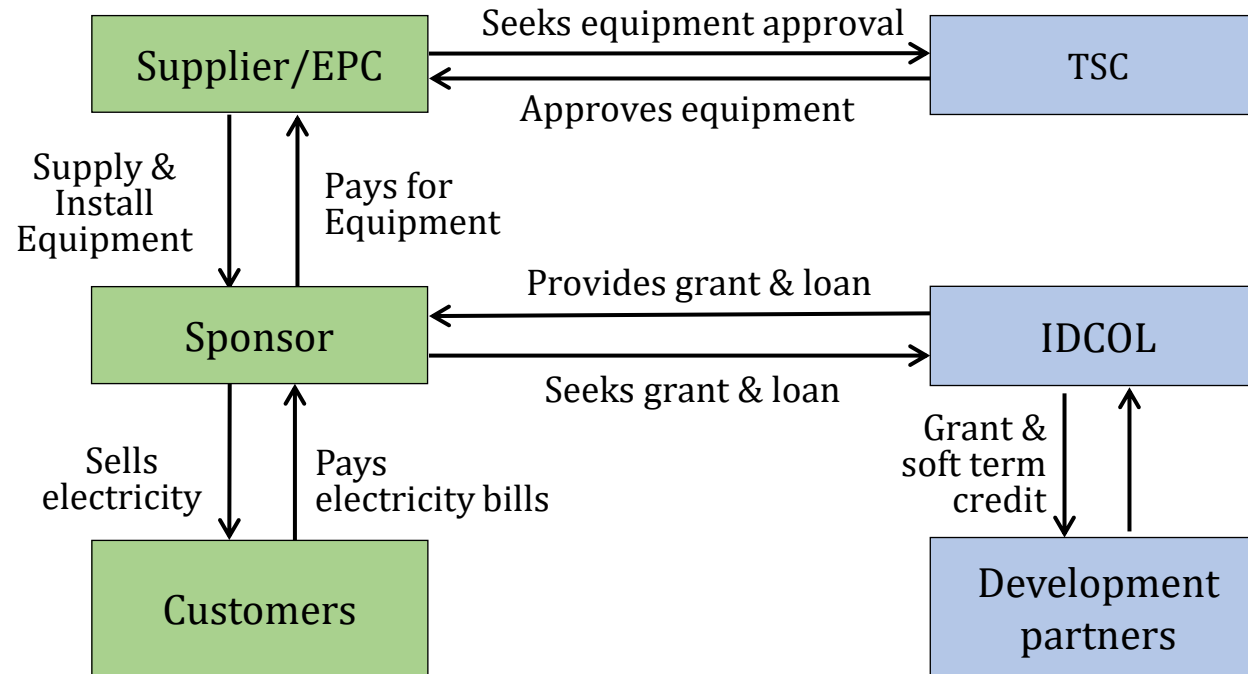
- Excess energy from SIP can be fed into national grid.
- Grant component ensures SIP offers competitive irrigation rates to farmers
- The loan component incentivizes the sponsors to properly operate the pump
- Efficient groundwater management
- Approval process of irrigation sites by the Government

Solar Mini-grid Projects

- **Average Size** : *100 kWp to 280 kWp*
- **Location** : *Isolated off-grid areas*
- **Installation** : **26** projects
- **Beneficiaries** : **120,000+**
- **Supply** : 24/7



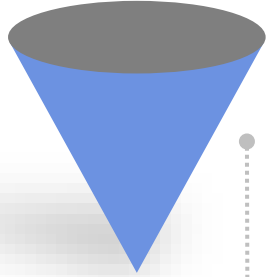
SMG Business Model



SMG - Challenges and Opportunities



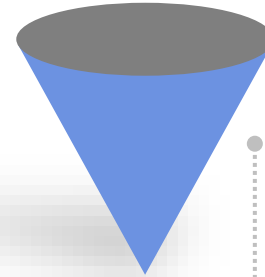
Challenges



- Grid expansion in SMG areas
- Higher electricity tariff due to high initial outlay of the project

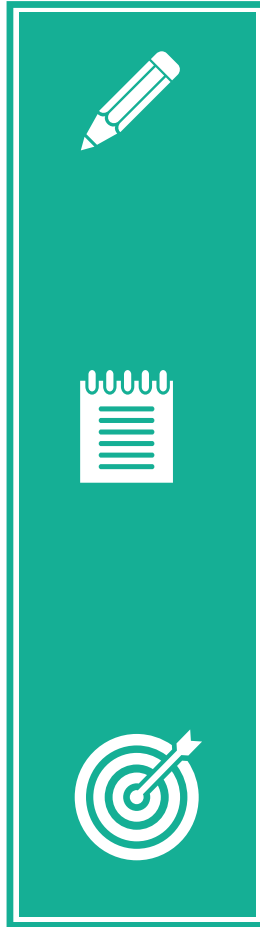
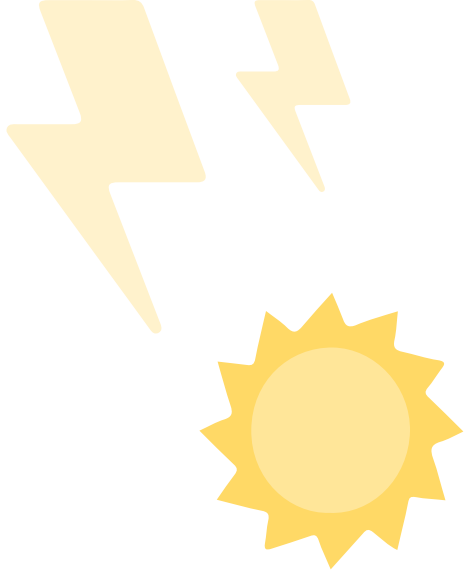


Opportunities



- Capable to provide 24/7 electricity services
- Grant component ensures SMG offers affordable tariff to consumers
- The loan component incentivizes the sponsors to properly operate the project
- Policy safeguard offered by the Government

Rooftop Solar Projects



65 MWp
Approved Projects

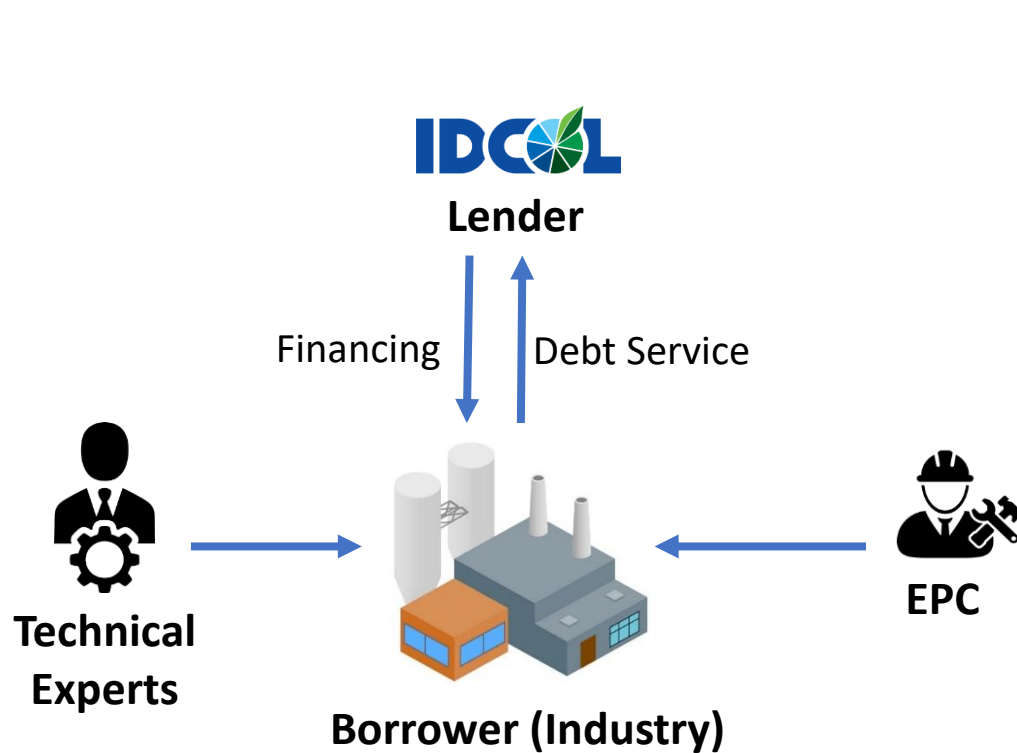
157 MWp
Projects in Pipeline

300 MWp
Financing
Target by 2025

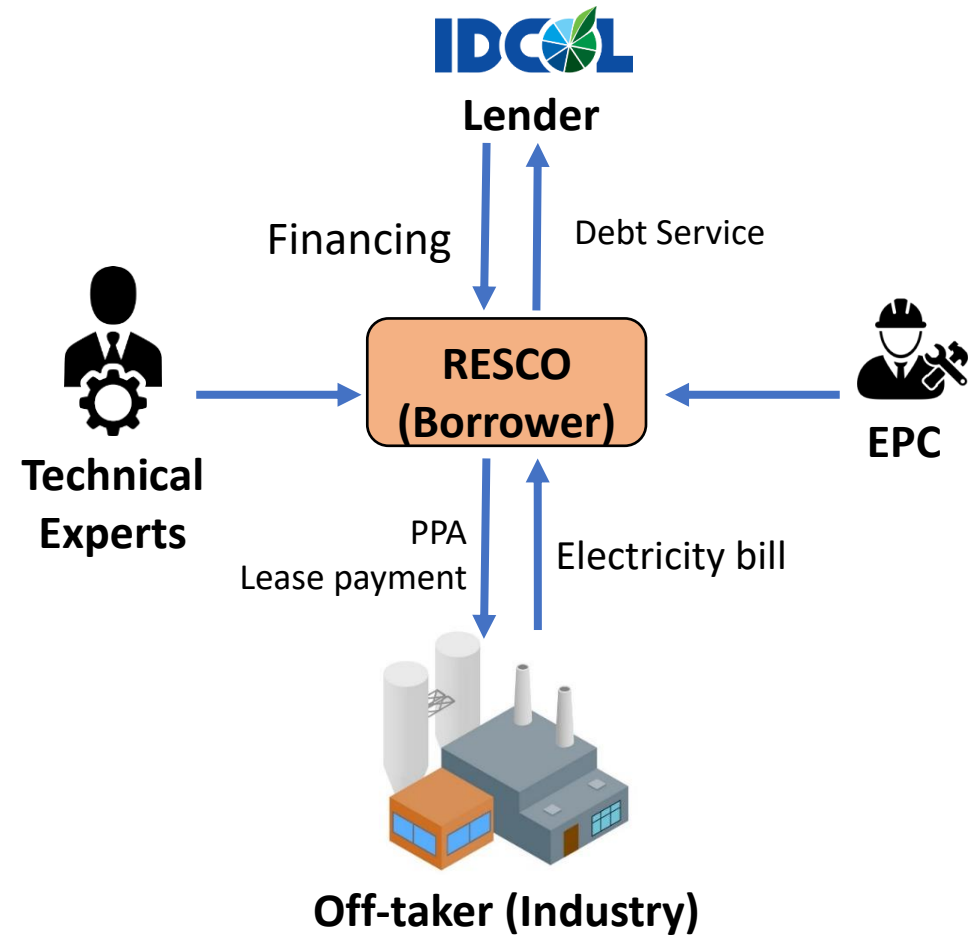


4.1 million Ton
Emission Reduction

Solar Rooftop Business Models



CAPEX Model

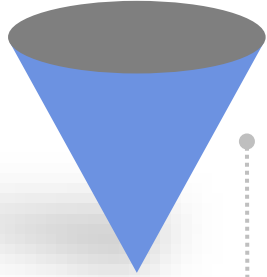


OPEX/RESCO Model

Solar Rooftop- Challenges and Opportunities



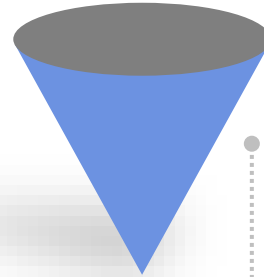
Challenges



- Cannot run without grid/generator
- Cost saving model rather than revenue earning
- Affects Government utilities' revenue



Opportunities



- Cheaper than grid electricity
- Does not require land
- Bangladesh has potential of few thousand megawatts.
- Excess electricity can be exported by net metering.

Thank You!

