

IDCOL Renewable Energy Activities

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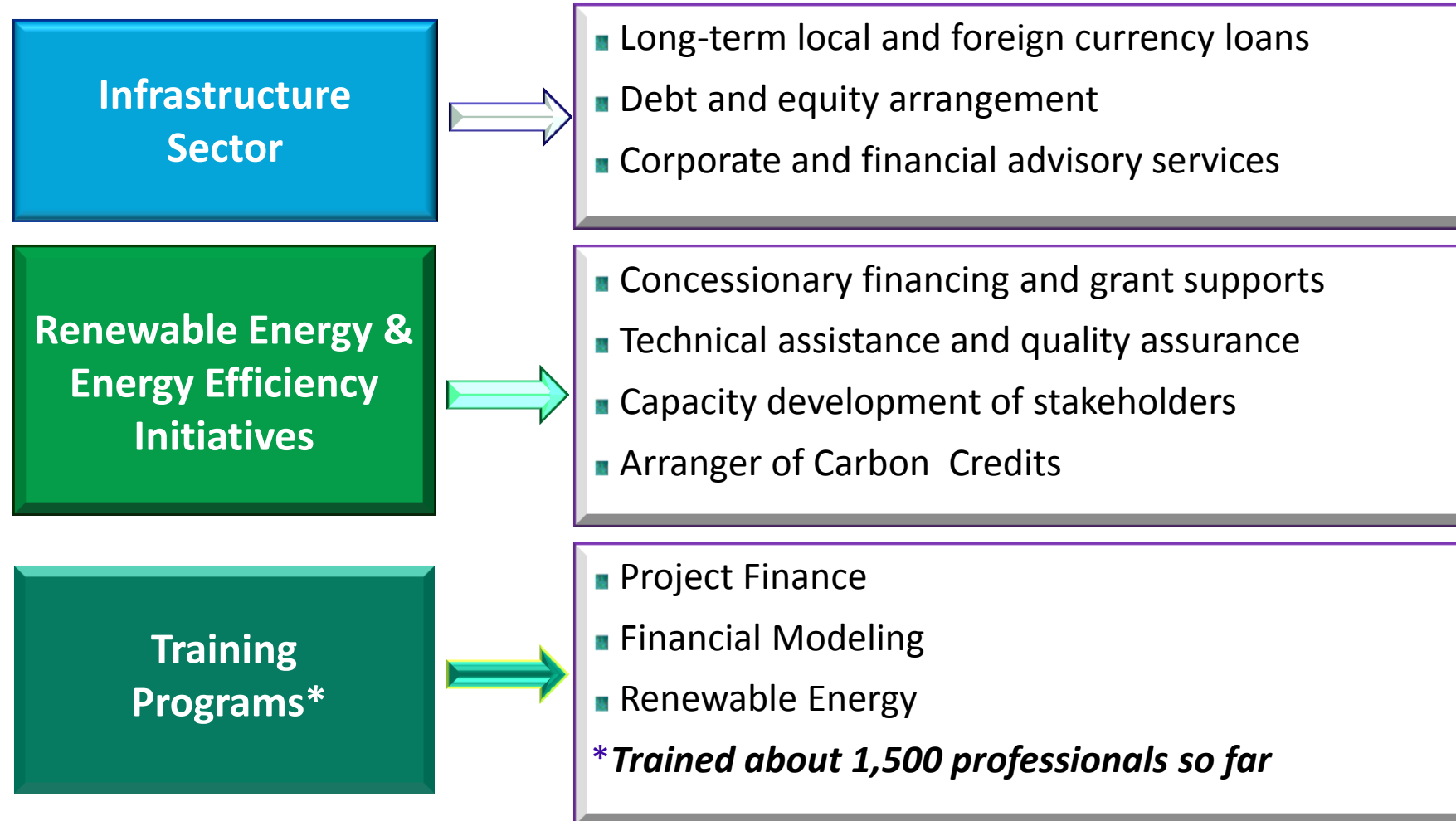


19 April 2016

Overview of IDCOL

- A fully Government owned development financial institution
- Started operation in 1997
- Mission: to catalyze and promote private sector participation in infrastructure, renewable energy, and energy efficient projects
- Largest financier in private sector infrastructure projects
- Market leader in renewable energy sector
- Funded by the government and multiple development partners i.e. the World Bank, ADB, IDB, KfW, GIZ, GEF, GPOBA, USAID, DFID, JICA and SNV

What We Offer



Major Infrastructure Projects of IDCOL

- IDCOL financed power plants of 1,538 MW capacity in total.
- Invested USD 43 ml in telecommunication and IT projects e.g. cellular network expansion, IGW, BWA, NTTN, etc.



- IDCOL financed small and medium infrastructure projects e.g. effluent treatment plant, land port, automatic brick manufacturing projects, etc.

IDCOL Renewable Energy Activities

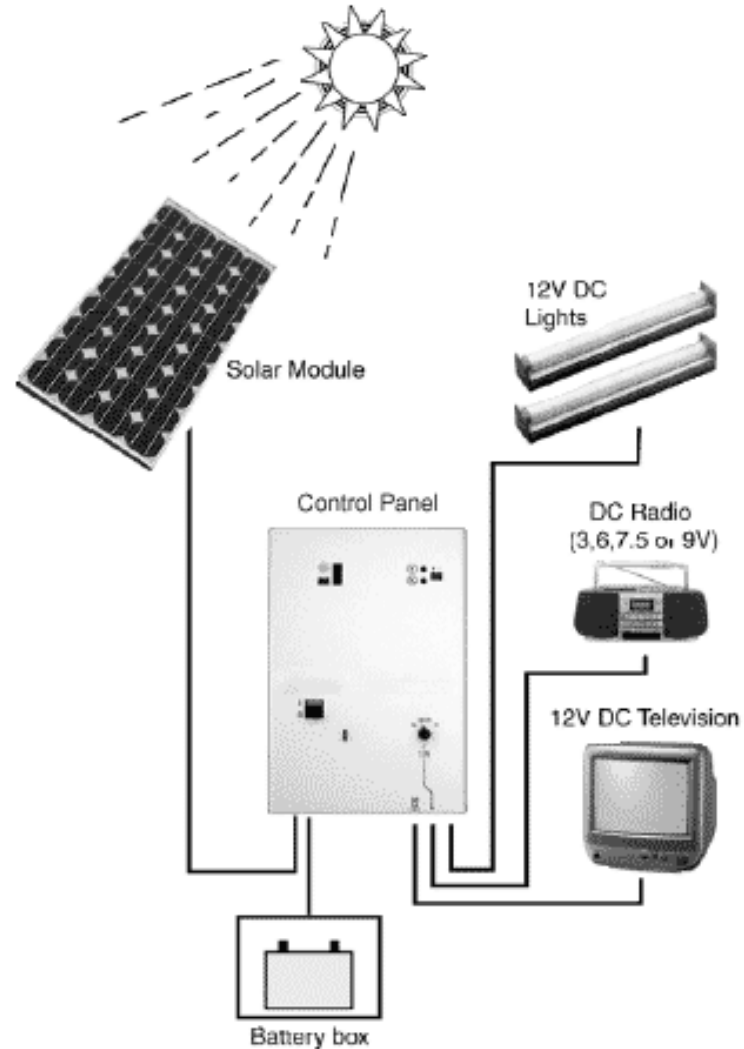
- IDCOL Solar Home System (SHS) Program
- IDCOL Biogas Program
- Improved cook-stoves (ICS) Program
- Renewable Energy Projects
 - Solar Irrigation Pumps
 - Solar Mini-grid Projects
 - Biogas Based Power Plant

Solar Home System (SHS) Program



- Program started in Jan 2003.
- **Program Target:** 6 million SHS by 2018
- **Program Achievement:** 3.96 million up to Nov'15
- **Power generation:** 151 MW
- **Beneficiaries:** 18.2 million, 12% of the population.
- **Fossil Fuel Savings:** 242,000 tons of kerosene
- **Job creation:** 35,000 direct and 40,000 indirect.
- **IDCOL Investment:** USD 600 million

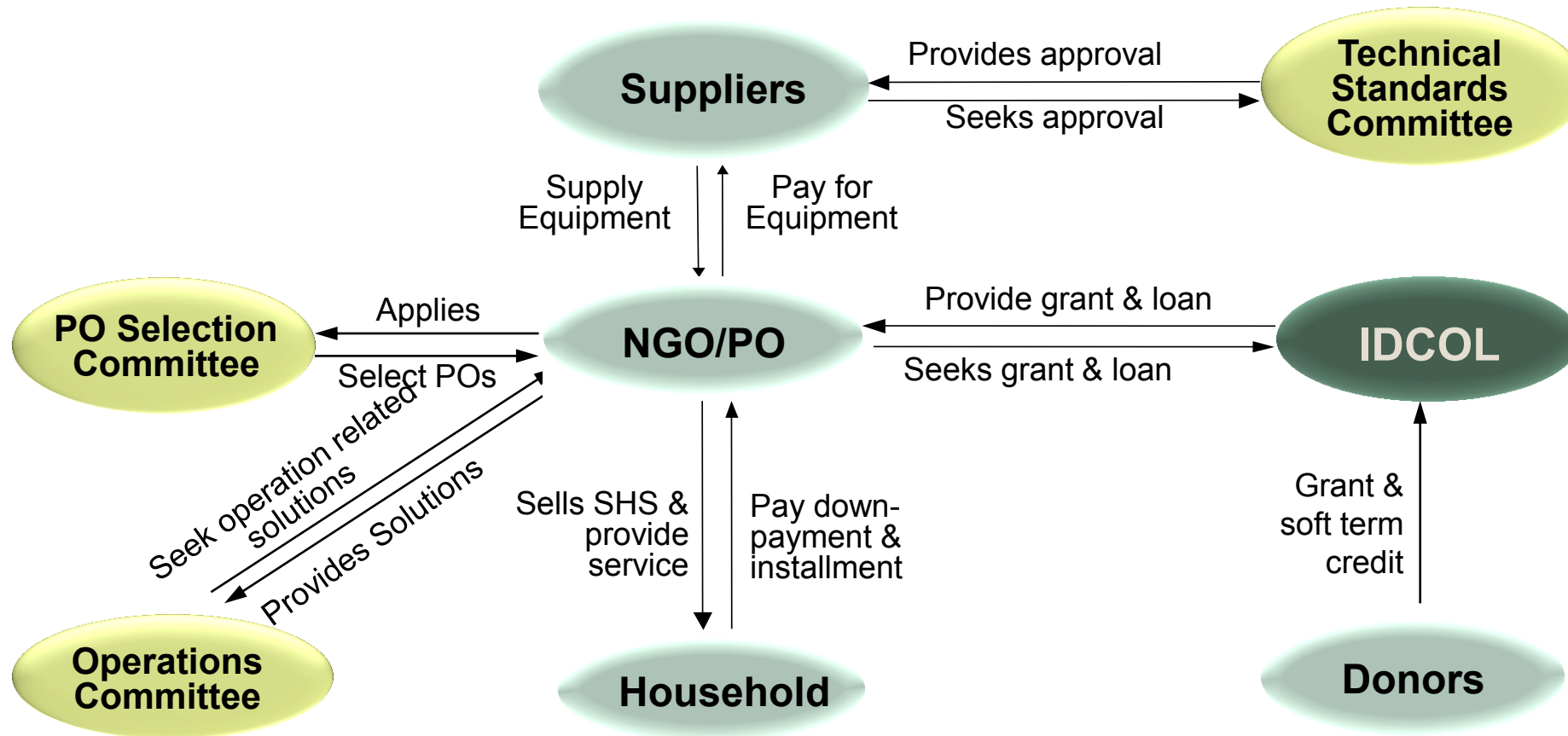
What is a Solar Home System (SHS)?



Capacity	Appliances	Operation
20Wp	3 W LED Lamp: 2 Mobile Charger: 1	4-5 hours
50Wp	3 W LED Lamp: 5 LED Color TV: 1 Mobile Charger: 1	4-5 hours
85Wp	3 W LED Lamp: 7 LED Color TV: 1 Mobile Charger: 1 12 W DC Table Fan: 1	4-5 hours

- Lead Acid Battery
- DC-DC Converter to run color television, fan etc.

Program Structure



Mode of Financing: an Example

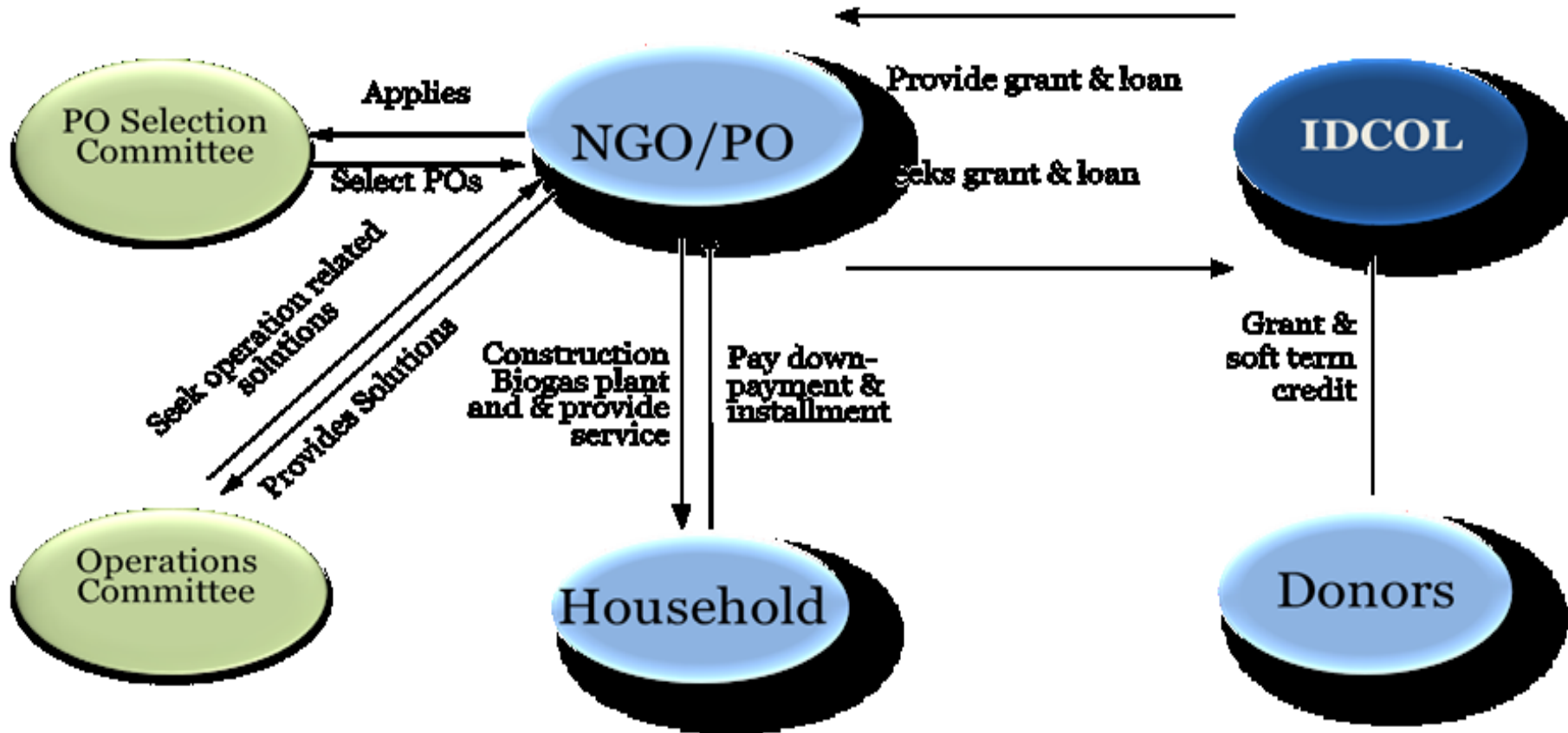
(a) Market Price of 20 Wp SHS	USD 138
(b) Buy-down Grant (Grant A)	USD 20
(c) System Price for Household [(b)-(a)]	USD 118
(d) Down Payment from Household to PO [15% of (c)]	USD 17.7
(e) Loan Payable from Household to PO [(c)-(d)]	USD 100.3
Loan Tenor	3 years
Interest Rate	16% p.a.
Monthly Installment Amount	USD 4
(f) IDCOL Refinance [70%~80% of (e)]	USD 80~70
Loan Tenor	5~7 years
Interest Rate	6~9% p.a.

IDCOL Biogas Program



- **Start of Operation** : 2006
- **Program Target** : 60,000 Biogas Plants by 2018
- **Installation** : 40,750 plants up to Mar 2016
- **Beneficiaries** : 183,375 beneficiaries
- **Yearly Savings:**
 - 39,120 tons of firewood worth USD 3.4 million and
 - 15,375 tons of chemical fertilizer worth USD 4.7 million
- **Job creation** : 2,000 direct and 5,000 indirect jobs.
- Recently, registered as CDM project under UNFCCC
- **Funding sources** : Grant: KfW, IDA and SNV
: Loan: KfW, IDCOL's own fund

Program Structure



Improved Cook-stoves (ICS) Program



● Program Brief:

- **Start of Operation :** August, 2014
- **Target** : 1 million stoves by 2018
- **No. of Installation :** 440,172 up to Feb 2016

● Program Objective:

- To increase energy efficiency while reducing exposure to indoor air pollution
- Strengthening supply of acceptable stoves
- Establishing supply chain of alternative fuels
- Establishing a strong base for achieving 100% clean cooking solutions by 2030

- **Financing Support:** The World Bank

Solar Irrigation Pumps

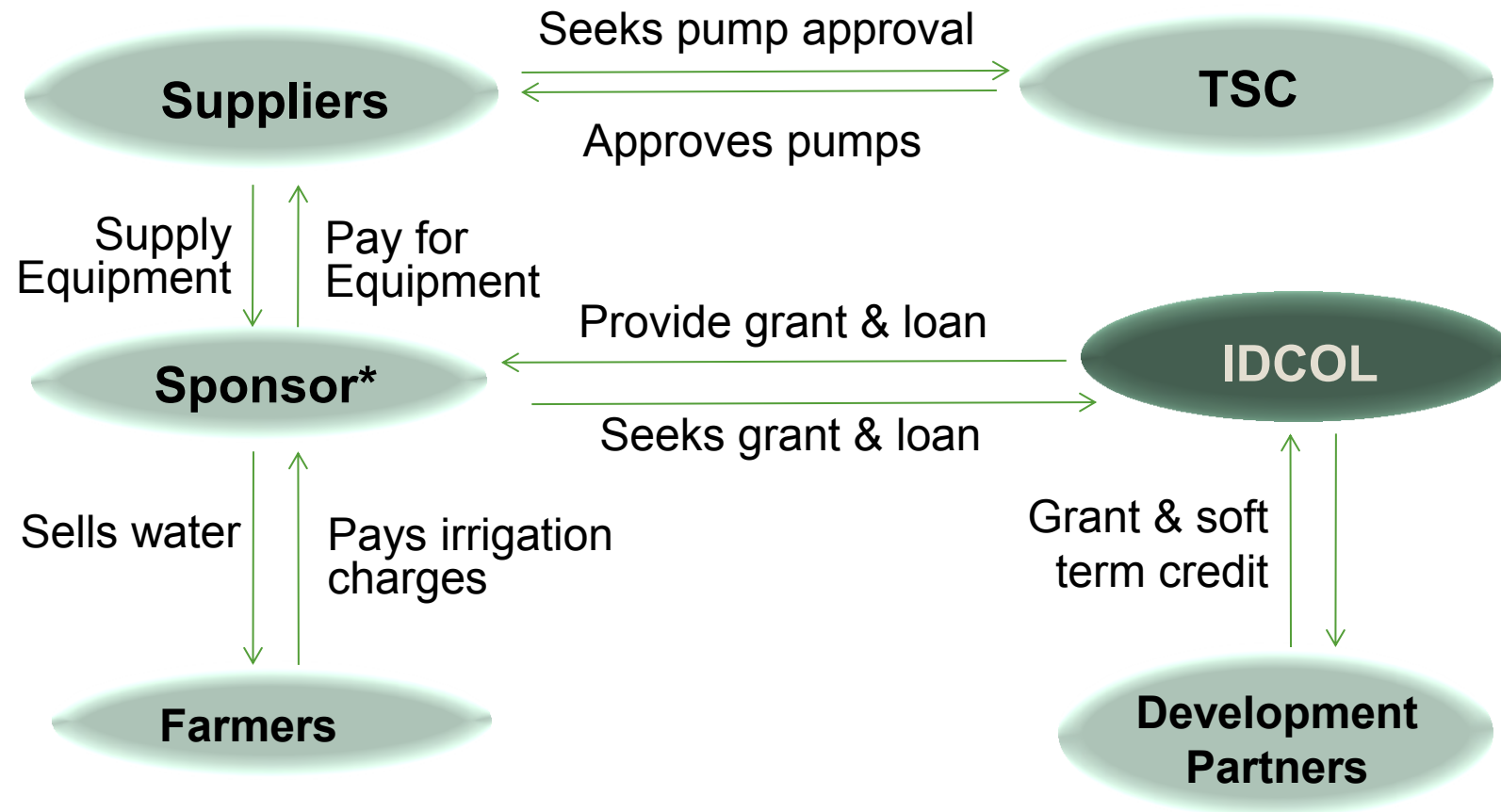


- **Approved** : 449 pumps
- **Installed** : 314 pumps
- **Under installation** : 235 pumps
- **Pipeline projects** : 400 pumps
- **Target** : 50,000 by 2025 (Pilot: 1,500 up to 2018)
- **Financing Structure**: Equity – 15%, Grant – 50%, Loan – 35%
- **Funding sources** : **Grant**: BCCRF, KfW, GPOBA, USAID, ADB
☞ **Loan**: IDA, JICA

Key Features of typical SIPs

Particulars	11 kWp Pump	4 kWp Pump
PV capacity	11.0 kWp	4 kWp
Flow rate	900,000 liter/day	250,000 liter/day
Total head	14 meter	
Major equipment	Pump and PV panel	
Project cost	USD 32,000	USD 8,500
Grant	USD 12,800	USD 3,400
Land coverage	Paddy: 5.4 hectare; Others: 8 ~9 hectare	Paddy :2.2 hectare; Others: 4~5 hectare
Irrigation charges	USD 260~300/hectare for paddy (Boro)	

Program Structure



*So far, 17 organizations have implemented projects under the program.

Solar Mini Grid Projects



● Area Selection

- Isolated off-grid areas
- Concentration of customers
- Willingness and capability to pay
- Consult with Power Division on possibility of grid extension in next 5-10 yrs

● **Target** : Install 50 solar mini-grid by 2018.

● **Progress** : 7 in operation, 11 under construction, 21 in pipeline

● **Financing structure** : Equity, Loan and Grant: 20%: 30%:50%

● **Financing terms** : Interest rate: 6%; tenor: 10 yrs; grace period: 2 yr

● **Funding sources** : Grant: KfW, DFID, GPOBA, USAID, ADB
: Loan: IDA, JICA

Biogas Based Power Project



● **Sector Outlook:** Country has 1.5 lac poultry farms which can generate 800 MW electricity

● **Area Selection**

- Poultry or dairy farms
- May be within grid/off-grid areas
- May only be used for captive consumption

● **Target** : Install 130 plants by 2018.

● **Progress** : 5 in operation, 3 under construction, 8 in pipeline

● **Financing structure** : Equity: Loan : 20%: 80%
Grant: 20% up to 100 kW plant capacity

● **Financing terms** : Interest rate: 6%; tenor: 8 yrs; grace period: 1 yr

● **Funding sources** : Grant: KfW, GPOBA, USAID
: Loan: IDA, JICA

IDCOL Corporate Advisory Services

● **Scopes:**

- Training on IDCOL Renewable Energy Projects & Programs
- Attachment with IDCOL Office, and POs to gain hands-on experience
- Meeting with several stakeholders
- Field and factory visits



● **Experience sharing with African Countries:**

- Mali
- Gambia
- Niger
- Senegal
- Mauritania
- Uganda
- Guinea
- Sudan
- Ethiopia

THANK YOU

Challenges & Mitigations

Challenges	Mitigation
Lack of awareness	<ul style="list-style-type: none">– Promotional campaigns– Training programs
Untested business model	<ul style="list-style-type: none">– Social enterprise model with an ultimate goal of commercialization– Presence of multiple POs ensures healthy competition– Phased reduction nature of grant
Lack of institutional capacity	<ul style="list-style-type: none">– Institutional development grant / Long-term concessionary credit– Staff training program
High cost of SHS equipment	<ul style="list-style-type: none">– Capital buy-down grant / Concessionary credit facility– Local support industry development
Lack of quality assurance	<ul style="list-style-type: none">– Technical standard committee– Quality control mechanisms by IDCOL
Lack of fiscal support	<ul style="list-style-type: none">– Tax holiday– Duty free import

Battery Recycling

- Battery recycling policy was adopted in 2006.
- Customers will receive 24% of new battery price as salvage value of warranty expired batteries.
- IDCOL inspected 65,652 warranty expired batteries since Nov'12.
- 91% of these batteries are functioning well, 5% has been replaced by PO.
- POs are collecting old batteries while selling new batteries.
- IDCOL provides USD 5 each to PO and battery recycler for collection and recycling of battery.
- POs receive up to USD 100 as refinance for selling of each new battery
- There are 4 ISO certified battery recyclers in Bangladesh

Clean Development Mechanism Fund

- IDCOL signed agreement with the World Bank, the trustee of Community Development Carbon Fund for SHS program.
- 393,203 Certified Emission Reductions (CER) generated from IDCOL SHS program has been contracted to the Fund.
- Selling rate is EUR 9 per CER.
- UNFCCC have issued 230,855 CERs for IDCOL SHS Program for reporting year July 1, 2012 to April 30, 2014.
- CDM benefits will be passed through to the POs. IDCOL will retain 25% as administration cost.