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IDCOL Solar Mini-grid Project: Key Features

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Overview of Solar Mini-grid Project

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- ❑ Typically refers to 100 to 250kWp small PV plants providing electricity to 500-1000 customers.
- ❑ **Progress** : 24 in operation, 3 under construction
- ❖ **Financing structure** : Equity, Loan and Grant: 20%: 30% :50%
- ❖ **Financing terms** : Interest rate: 6%; Tenor: 10 yrs; Grace period: 2 yrs;
- ❖ **Tariff** : BDT 30/ kWh (0.38 USD/kWh)
- ❖ **Funding sources** : Grant: DFID, GPOBA, KfW, USAID, ADB
: Loan: IDA, JICA

Key Features of Typical Mini-grid Project

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- ❑ Located in isolated off-grid areas
- ❑ Cleared by Power Division where possibility of grid extension is remote
- ❑ Plant location is free from flood and river erosion
- ❑ Concentration of customers is high
- ❑ Possibility of day load usage
- ❑ Willingness and capability of the customers

Mini-grid Vs. SHS

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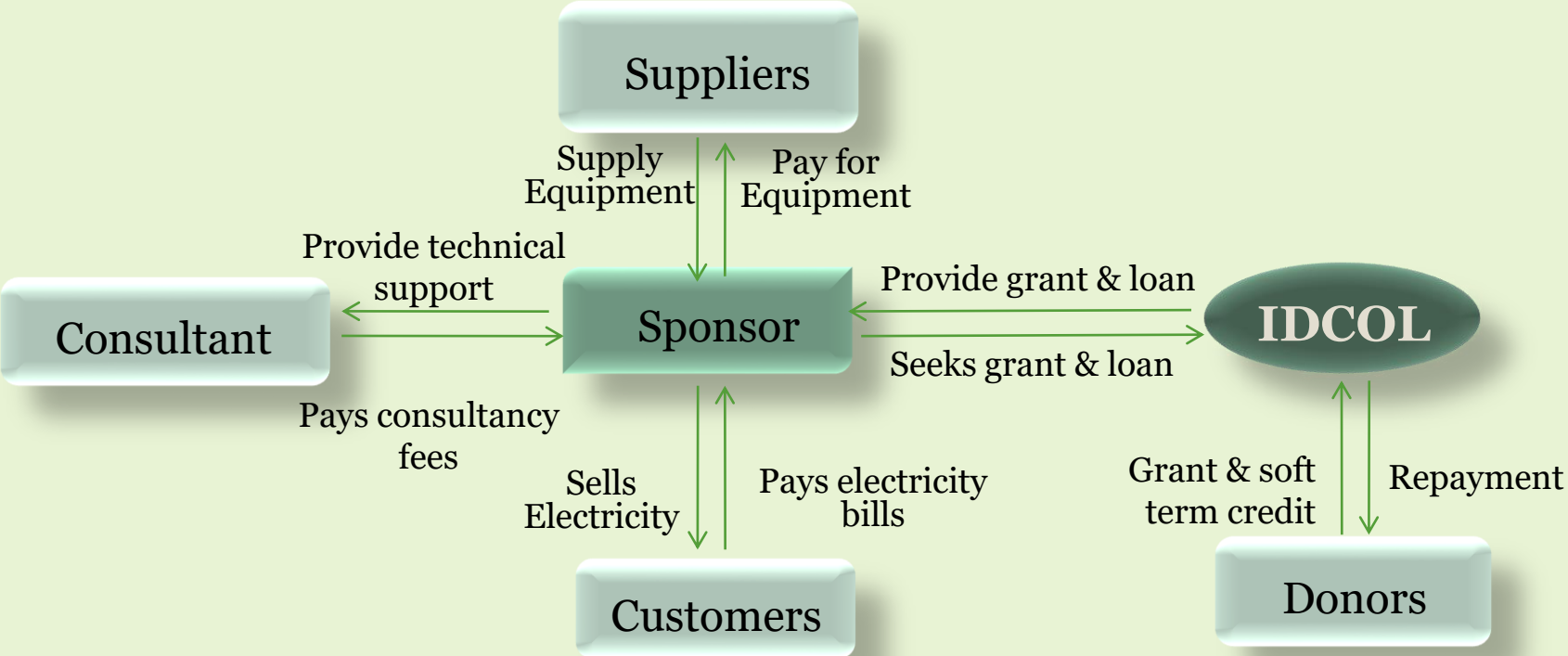
Aspects	SHS	Mini-grid
Use of higher loads i.e. ceiling fans, color TV, refrigerator etc.	Not possible in typical SHS	Possible
Operation of industrial loads	Not possible	Possible
Initial investment of the customer	High, for system purchase	Low, for one time connection fee
Maintenance requirements	Need to be done by owner	Done by plant owner
Replacement of battery by customer	Needs to be replaced after 3-5 years	Not needed. Done by plant owner after 7 years.

Mini-grid Vs. Grid

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- ❖ Grid extension in remote river and sea islands is extremely challenging
- ❖ Grid expansion is not financially feasible due to less number of customers
- ❖ Distribution line set-up is challenging due to distance from main land to islands

Role of Partners: At a Glance



Eligibility Criteria of Sponsor

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- ❑ NGO/ limited company or of any other form as deems appropriate to IDCOL
- ❑ Capability to inject minimum equity of 20% of the project cost
- ❑ Capability to provide collateral against IDCOL loan
- ❑ In-house technical capacity for implementing and operating project
- ❑ Have a successful track-record in doing business
- ❑ Prior experience in implementing similar projects is an added advantage

Challenges

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Development
stage

- Selection of appropriate project site
- Lack of previous experience of sponsor in similar project
- Limited technical know-how in the market

Implementat-
ion stage

- Transportation of equipment to the project site
- Impact of seasonal variation in construction progress

Operational
stage

- Slow growth in customer acquisition at the beginning
- Utilization of excess energy generated in daytime
- Excess electricity consumption against projection
- Conflict with expanding national utility grid
- Customer reaction to high tariff relative to utility tariff

Mitigation Measures

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Development stage

- Selection of areas with high customer concentration
- Survey of potential customers on their willingness and affordability to pay
- Discussion with relevant government authority to have clearance on a site
- Technical support from international consultants under donor financing
- IDCOL's technical support

Implementation stage

- Ensuring proper planning to access project site
- Proper implementation schedule designing to avoid seasonal adversities.
- Technical support and monitoring from IDCOL

Mitigation Measures

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Operational Stage

- Concession on initial connection rate to encourage potential customers
- Connection of productive load e.g. rice mill, saw mill, irrigation pumps in day time
- Introduction and promotion of energy efficient appliances to reduce monthly bill
- Clear policy on integration of mini grid with national grid.

Success Factors

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THANK YOU