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HOW IDCOL ADDRESSED AFFORDABILITY: LESSONS FROM BANGLADESH'S SOLAR HOME SYSTEM PROGRAM

End-User Subsidy Lab Webinar

Monday 25th October at 9am EST / 3pm CET / 4pm EAT / 7pm Bangladesh

AGENDA



- Welcoming Remarks (Pauline Githugu - 5 mins)
- Introduction to the End User Subsidy Lab (Dana Rysankova - 5 mins)
- How IDCOL Addressed Affordability (Pavel Karim - 30 mins)
- Q&A (up to 20 mins)
- What other countries can learn from how IDCOL addressed affordability (Anil Cabraal – 10 mins)
- Q&A (up to 15 mins)
- Closing Remarks (Pauline Githugu – 5 mins)



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THE END USER SUBSIDY LAB

Dana Rysankova, Global Lead Energy Access, World Bank

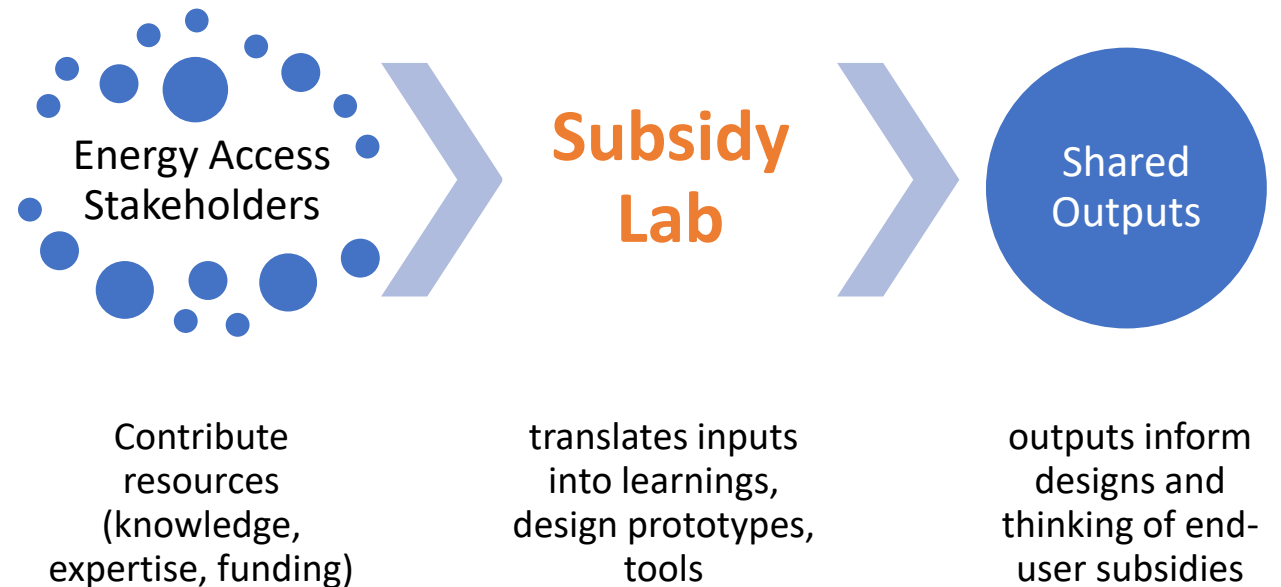
THE END USER SUBSIDY LAB

PURPOSE AND STRUCTURE

Significant progress has been made towards SDG7, but large portions of the population will remain unserved in 2030.

The End User Subsidy Lab seeks to promote the **uptake of carefully and well-informed end user subsidies**:

- Crowding in knowledge, resources and expertise from all stakeholders interested in participating
- Offering a platform for exchange, dialogue and extensive consultation among different stakeholders
- Sharing lessons learned, tools, and information broadly
- Testing prototype end user subsidy designs



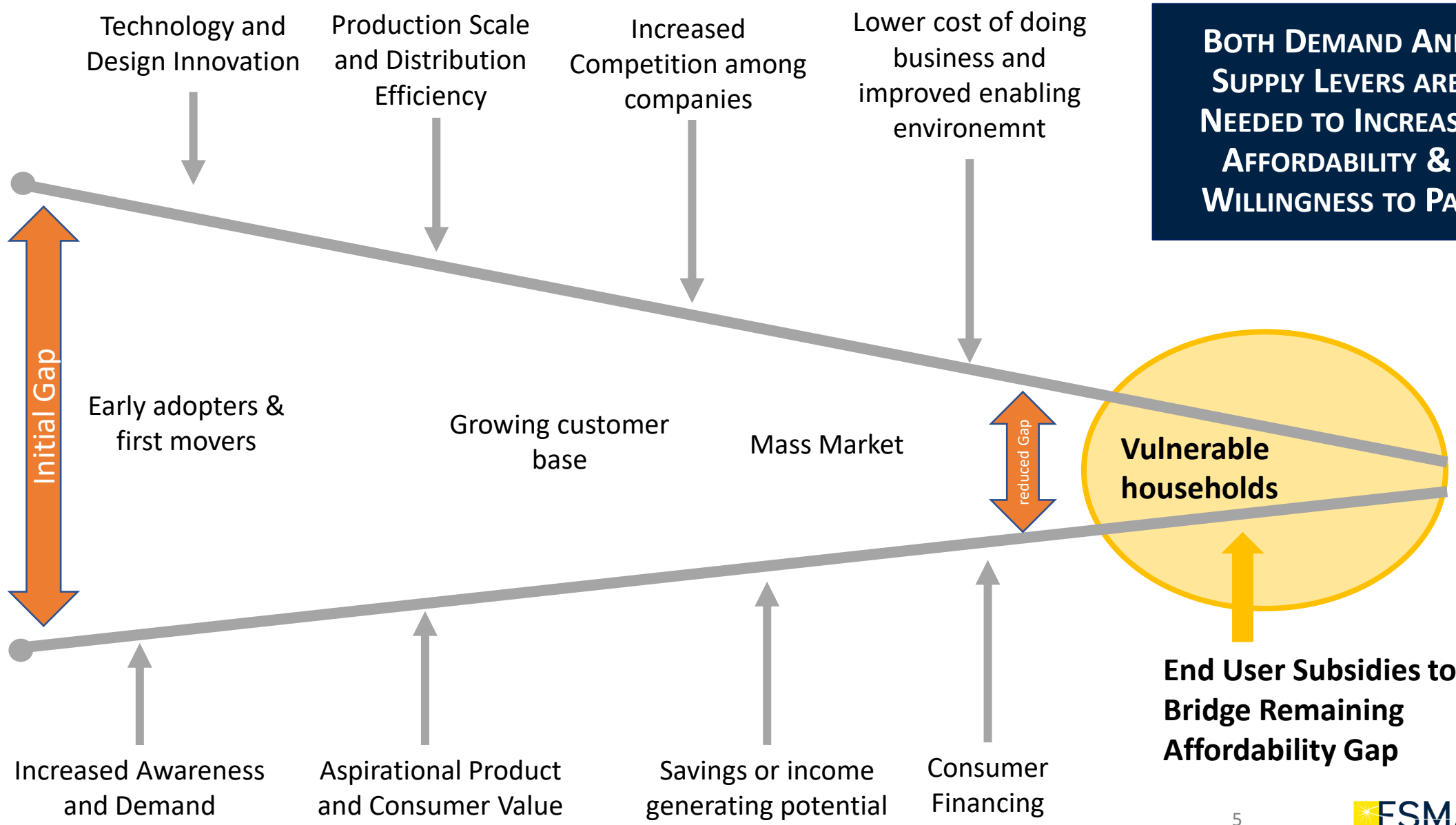
The lab is coordinated by ESMAP, GOGLA, and ACE TAF but welcomes the participation of all stakeholders.



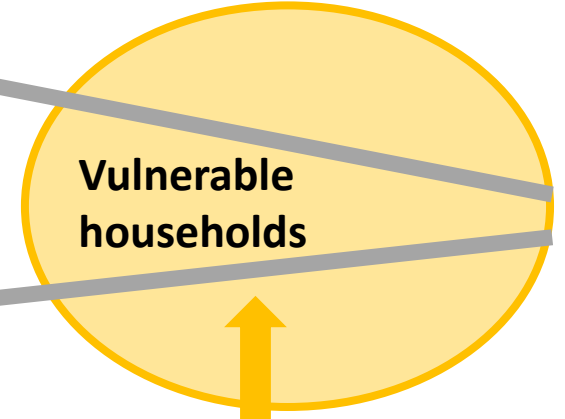


Initial Market Price

Initial Willingness to Pay



BOTH DEMAND AND SUPPLY LEVERS ARE NEEDED TO INCREASE AFFORDABILITY & WILLINGNESS TO PAY



End User Subsidies to Bridge Remaining Affordability Gap



ADDING END USER SUBSIDIES TO THE TOOLBOX

END USER SUBSIDIES CANNOT REPLACE ONGOING SUPPORT BUT COMPLEMENTS IT

Enabling Policy Environment

Quality standards, clear tax regulations, OGS embedded into access planning etc..



Access to Finance

Credit lines, dedicated debt funds, availability of equity.



End User Subsidies

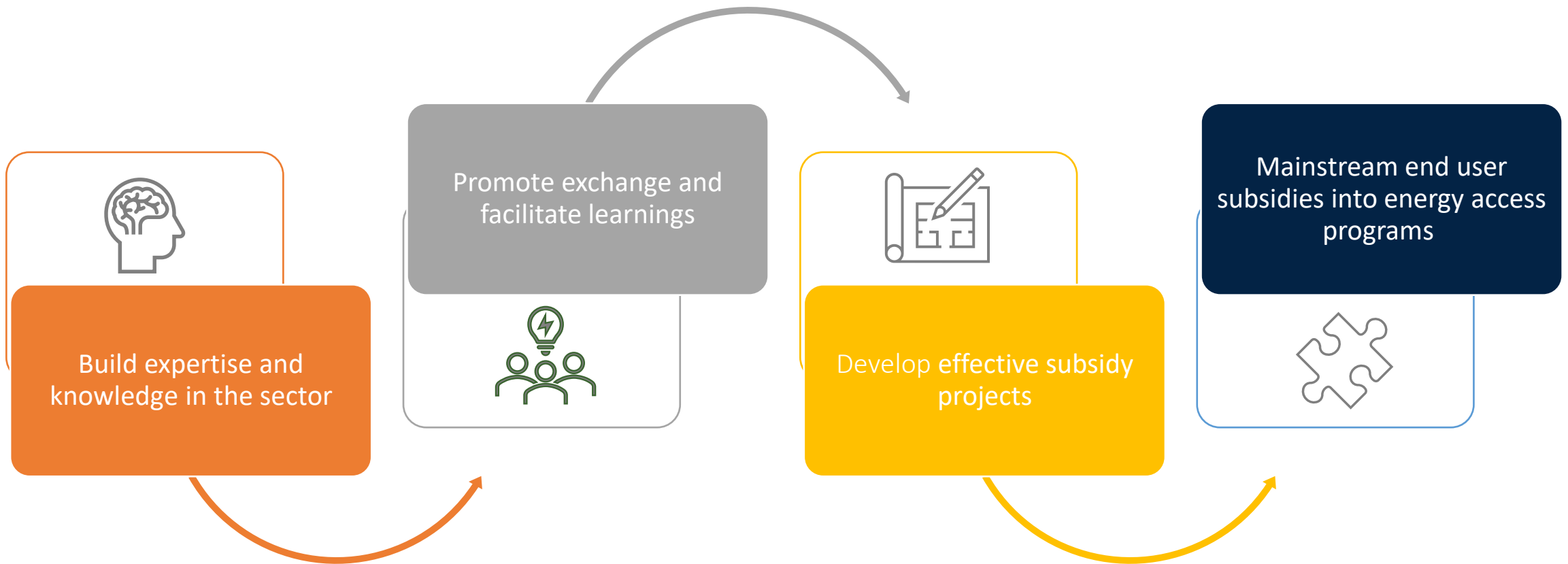
Providing support to low-income households in accessing products.



Grant Funding

Promote R&D, market entry, market research, results-based financing.

THE IDEA



ACTIVITIES



Go to knowledge hub (2021)

Insights from sector specific or adjacent sectors will be collected, curated, and made available via an easily searchable online platform.

- Resource Hub online: <https://www.gogla.org/off-grid-solar-smart-subsidies/reports-and-resources>
- Webinar series profiling learnings from end user subsidy pilots or projects: Rwanda, Bangladesh, Togo, Kenya



Create a Pipeline of 'ready to fund and roll out' country specific designs (2022)

Support country teams with guidance and expertise in developing and testing end user subsidy designs: the lab will partner with up to three countries.

- Support development of prototype design, incl. additional research or analytics work required
- Help to fundraise to implement the pilot
- Accompany pilot with monitoring & evaluation
- Inform potential scale-up of a successful pilot



Enabling Transformative Thought Leadership (Ongoing)

To further stimulate the development of innovative and impactful designs, the lab will act as a thought leader and ideate new frameworks and approaches that can help to reduce the affordability gap and promote inclusive and holistic market development.

To implement all foreseen activities, more funding is needed -> ESMAP and GOGLA continue to fundraise

PLEASE ENGAGE!



The Lab seeks to leverage network effects. If you have interest in the work or would like to contribute to its success, please be in touch with:

- ACE TAF,
- GOGLA,
- or ESMAP/Lighting Global

To stay up to date with our activities and learn more, please visit our website:

<https://www.gogla.org/end-user-subsidies-lab>

Thank you.

Please share comments and feedback!

drysankova@worldbank.org



HOW IDCOL ADDRESSED AFFORDABILITY: LESSONS FROM BANGLADESH'S SHS PROGRAM

PRESENTATION FROM PAVEL KARIM, IDCOL



BACKGROUND

In 2003:



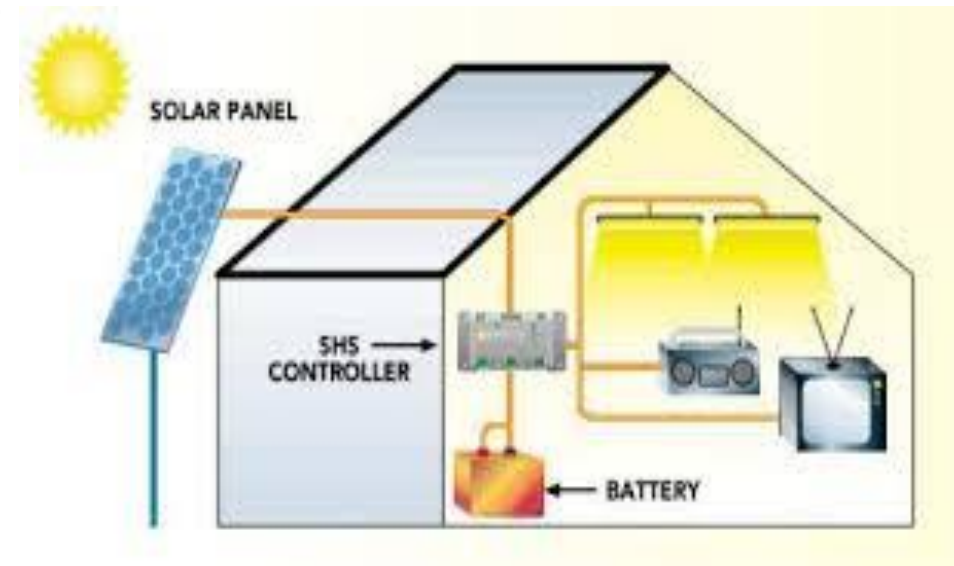
- Electricity access was 37%
- 15 million rural HH lacking access
- Universal access estimated to take another 30 years



Government commitment to universal access by 2021



Alternative technology and delivery model needed to meet universal access commitment



IMPLEMENTATION STRATEGY



Build on institutional strengths in Bangladesh



Considered public-private partnership models



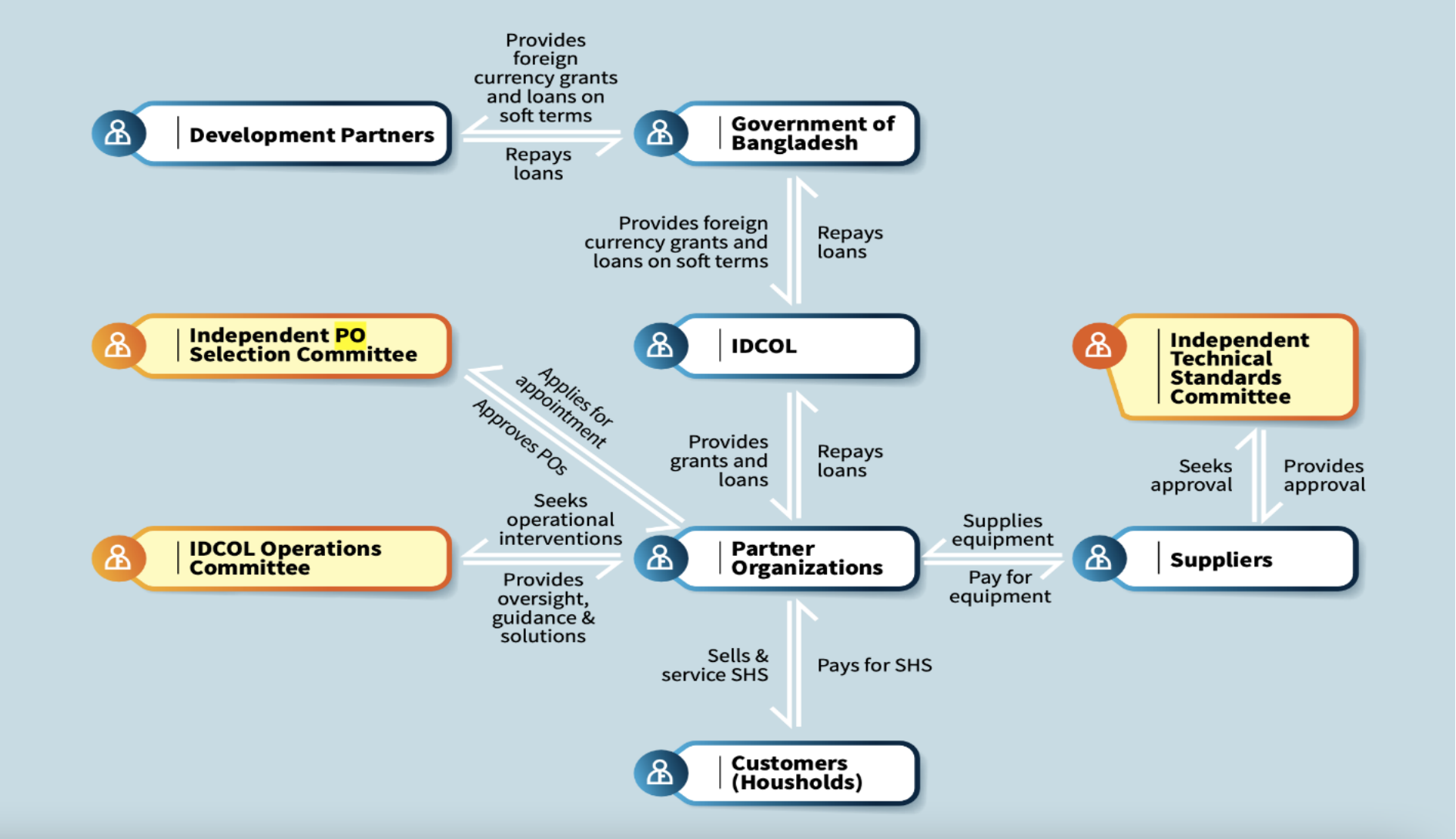
Pilots demonstrated effectiveness of public-private partnership



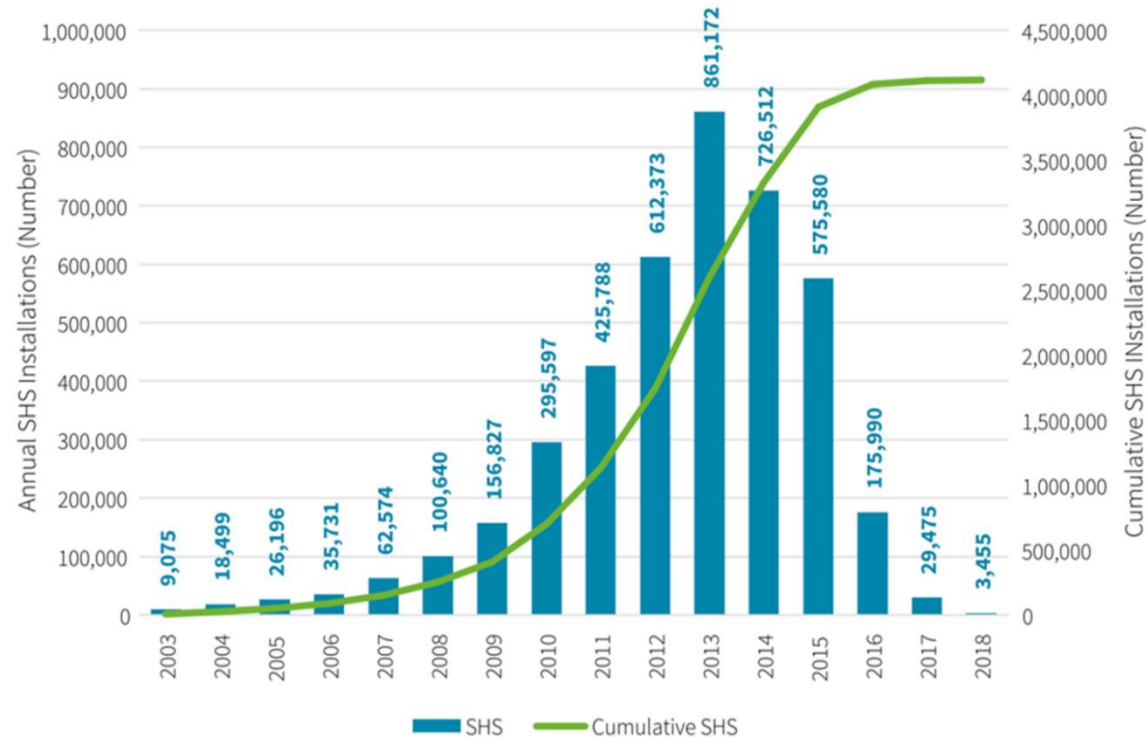
Implement through an agency with experience in public-private investment in infrastructure



Program Structure



Year-wise Installation of SHS



- 4.1 million SHS installed 2003- 2018, but only 50,000 SHS in first 4 years
- By 2016, 14% population got electricity from SHS
- 57 POs selling, servicing & financing SHS
- At its peak 29,000 people employed in SHS business

FUNDS MOBILIZED



International development partners - 2002-2014

- Loans: US\$602 million
- Grants: US\$81 million

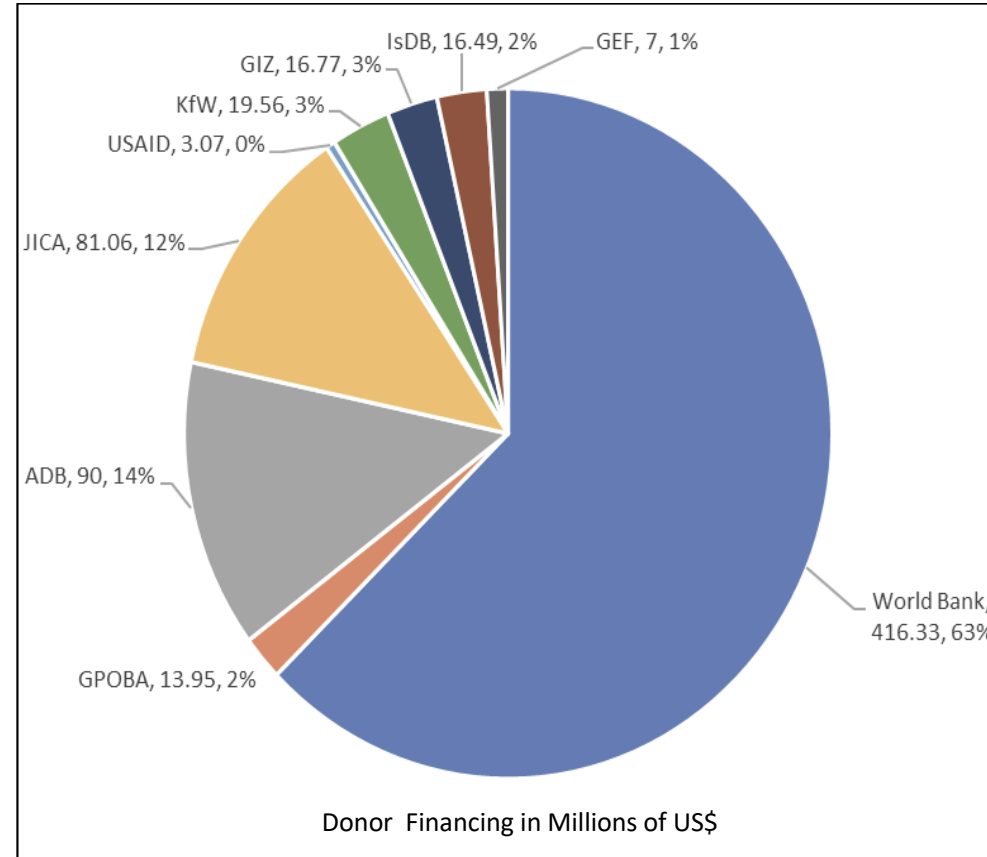


Domestic

- Down payment – US\$160 million
- POs equity – US\$219 million
- Manufacturers – US\$32 million

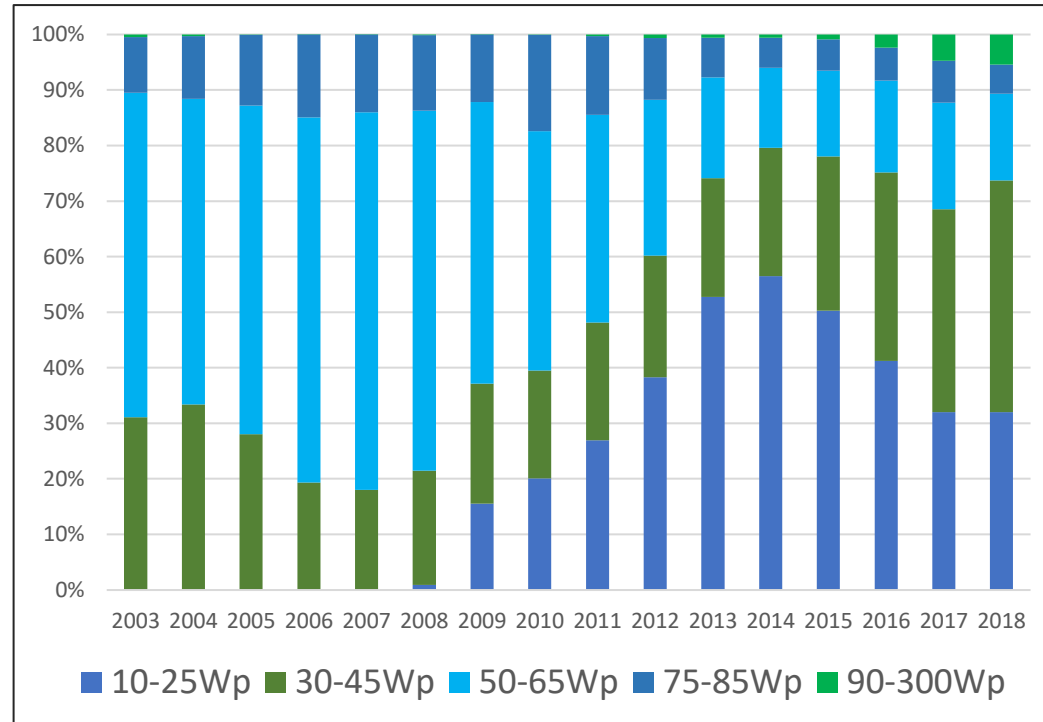


Total US\$1.1 billion



RESPONDING TO CONSUMER DEMAND

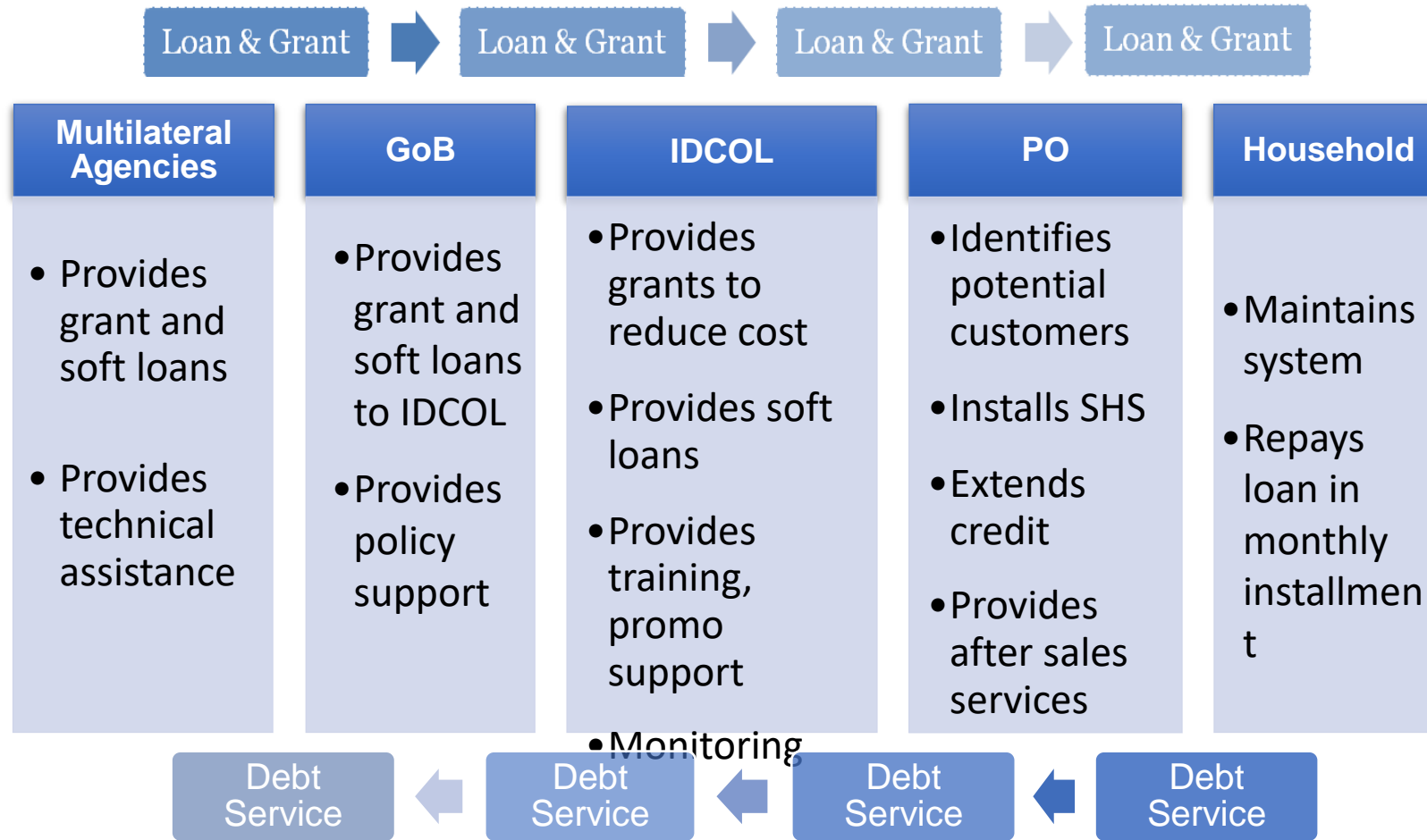
- Customers demanded **mainly 30-65 Wp SHS initially.**
- With **advent of LED lighting**, and smaller SHS approved, demand for 10-25 Wp rose.
- As **costs dropped**, in **later years**, demand for larger SHS rose.



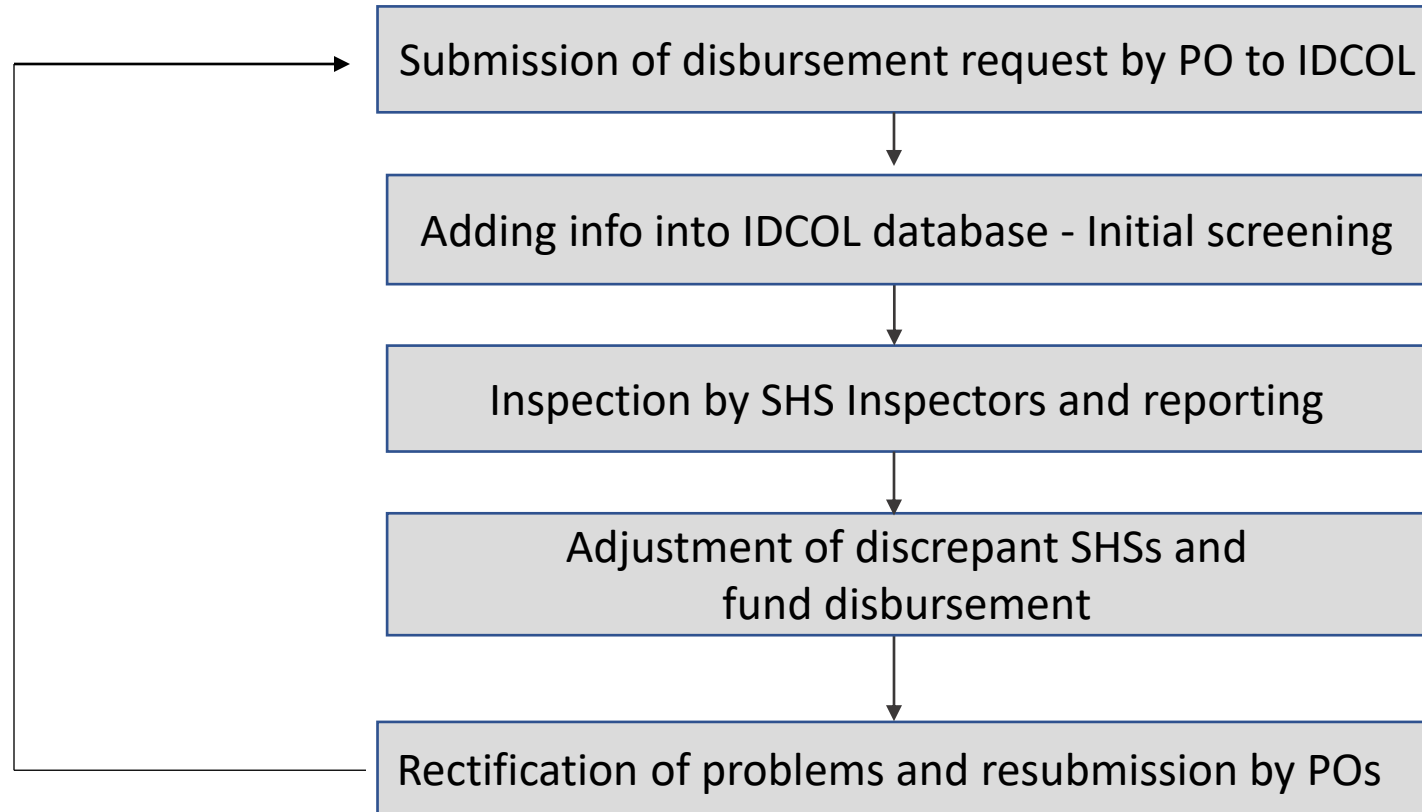
MODE OF FINANCING: AN EXAMPLE

(a) Market Price of a 20 Wp SHS	USD 140
(b) Buy-down Grant (Grant A)	USD 20
(c) System Price for Household [(b)-(a)]	USD 120
(d) Down Payment from Household to PO [15% of (c)]	USD 18
(e) Loan Payable from Household to PO [(c)-(d)]	USD 102
Loan Tenor	2 years
Interest Rate	16% p.a.
Monthly Installment Amount	USD 5
(f) IDCOL Refinance [80% of (e)]	USD 82
Loan Tenor	5~7 years
Interest Rate	6~7% p.a.

FUND FLOW AND ROLE OF PARTNERS



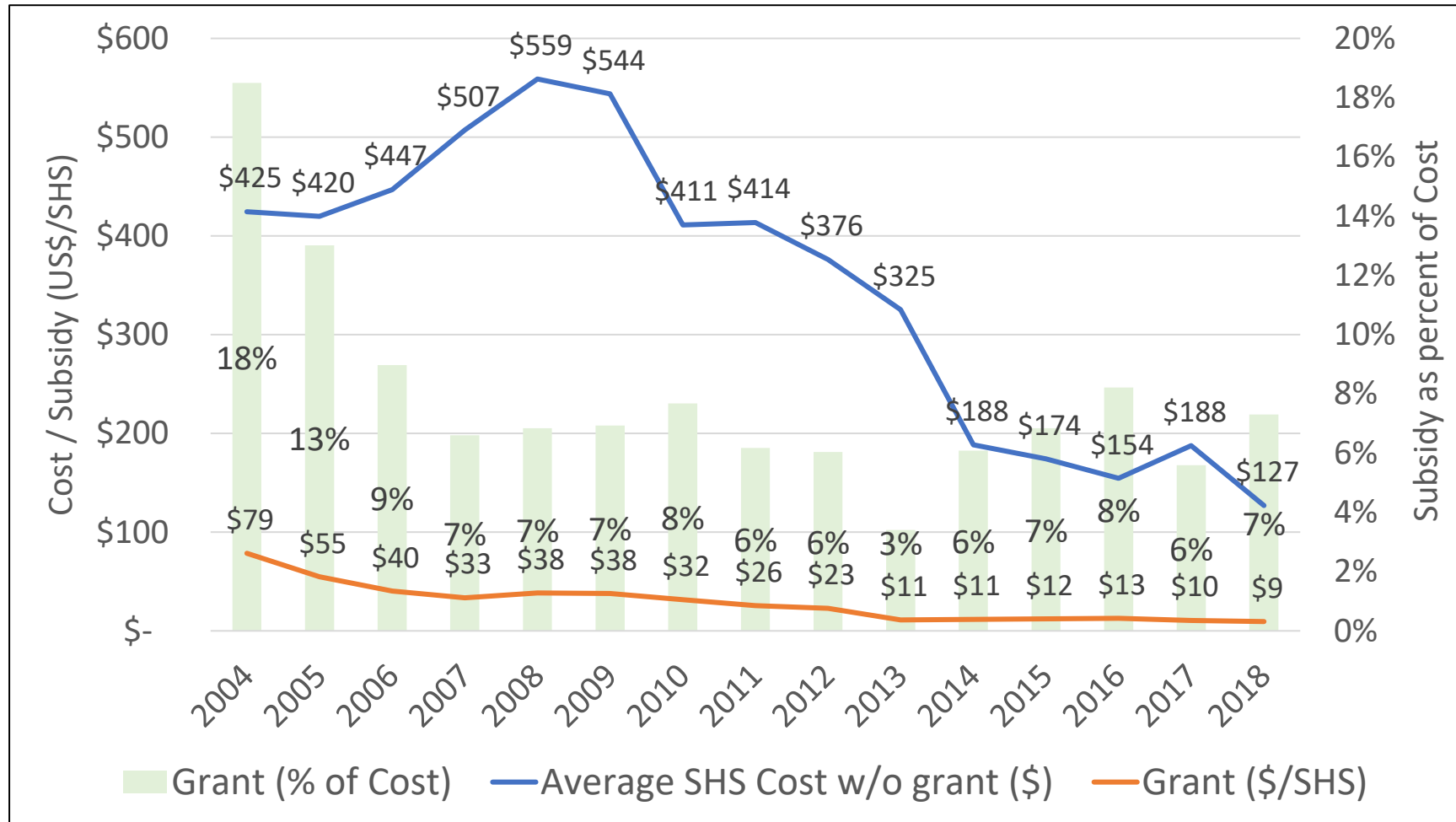
FUND DISBURSEMENT PROCESS



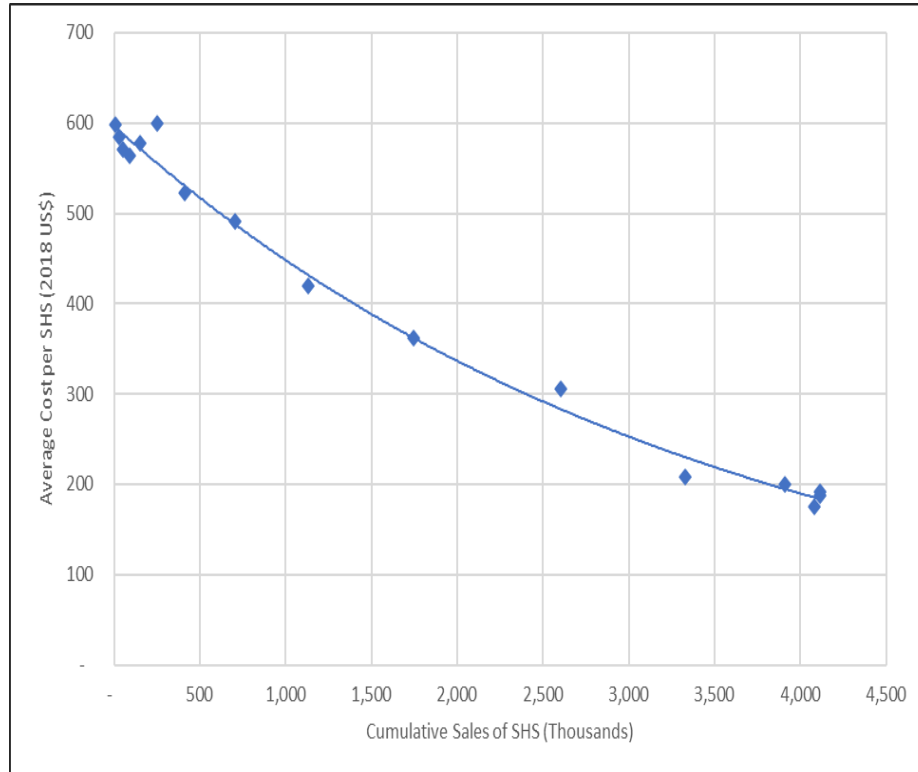
DETERMINANTS OF SUBSIDY

- No increase in HH monthly expenditure for kerosene lamps
 - loan installment size is less than the expense
- Sales price of SHS without subsidy
 - Cost of SHS equipment
 - Marketing, after sales service, collection expenses of POs
 - Mark-up of PO sales
- Economies of scale - SHS price is expected to reduce gradually
- Reduction of panel price over time
- Introduction of CFL then LED – reduced SHS size with same benefits
- Competition in the market – selection of more POs

TREND IN SHS COST AND SUBSIDY



SHS COSTS DECLINED



21% cost decline in real terms for every doubling of SHS sales

Example: 50 Wp SHS

- 2004: US\$11.30/Wp
- 2017: US\$4.40/Wp

Declining subsidy support

- 2003: US\$2.72/Wp (19.2% of SHS cost)
- 2017: US\$0.24/Wp (5.6% of SHS cost)

Positive and negative consequences

- Increased affordability
- Cut-throat competition

SHS PRICE FOR HOUSEHOLDS

- Installation of first 50,000 SHS
 - some control on sales price
 - PO cannot go 10% above of its proposed price
- Subsequent Price was determined by the market
 - More POs recruited –competition in the market
 - Local capacity development - more suppliers
 - Control on price was lifted
 - Customers had options to buy

A SUSTAINABLE FINANCING STRUCTURE

Phased -out Subsidy

	2003	2004~5	2006~7	2008~9	2010~11	2012	2013 onwards
Capital Buy down Grant	\$70	\$55	\$40	\$40	\$25	\$25	\$20*
Institutional Development Grant	\$20	\$15	\$10	\$5	\$3	\$0	\$0

**only for smaller SHS*

Concessional to Semi-Commercial Credit

	2003~8	2009~11	2012~15	2016
Loan Tenor	10 yrs	6-8 yrs	5-7 yrs	5-7 yrs
Interest Rate	6%	6%-8%	6%-9%	6%-7%
% of Loan Refinanced	80%	80%	70%-80%	70%-80%

YEAR-WISE PO SELECTION

Year	Number of New POs
2002	5
2003	4
2005	5
2009	7
2010	9
2013	17
2015	11
Total	58

Equipment Suppliers

Equipment	Number of Suppliers
Solar Panel	46
Battery	17
Charge Controller	53
LED Lamp	44
DC-DC convertor	13

QUALITY CONTROL MECHANISMS

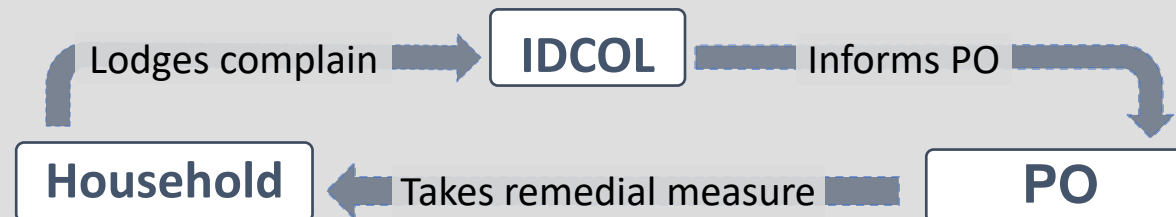
Physical inspection

- Physical inspection by technical inspectors of IDCOL
- Verification of collection efficiency by collection efficiency inspectors
- Independent technical and financial audit

Training Programs

- Training for trainers
- PO Staff / customer training
- Supplier consultation

Call Centre



IDCOL MONITORING SYSTEM

• **Monitoring by IDCOL:**

- 3 Divisional and 12 regional inspection offices
- 103 technical inspectors, monthly inspection - 350 SHS per inspector
- Total inspection - 51% of total financed SHS
- Re-inspection by Regional and Divisional Managers and IDCOL Officials

• **Technical audit:** by independent technical auditors in every two years

• **Evaluation by Development Partners** by engaging third parties

TRAINING AND CAPACITY DEVELOPMENT

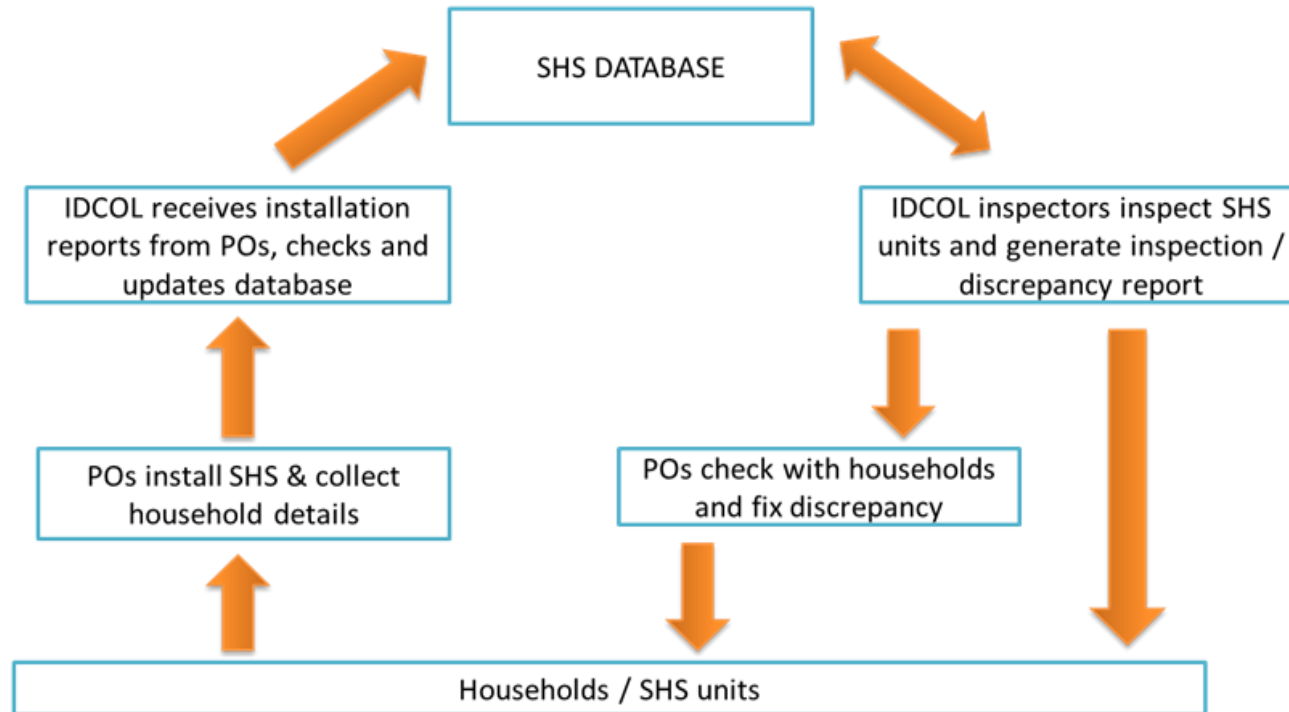
Type of Training	Arranged by	Participants	Trained so far
ToT Training	IDCOL	PO Officials	496
Management Training	PKSF	PO Officials at Head Office	202
Staff Training	PO	PO Field Staffs	30,197
Customer Training	PO	Customers	1.57 million
Technician Training	Technical Institutes	Local people	1,894



THANK YOU

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Database Management Flow



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Q&A

The logo for GOGLA, featuring the letters 'GOGLA' in white on a dark blue square background.The logo for LIGHTING GLOBAL, featuring the text 'LIGHTING GLOBAL' and 'Catalyzing markets for modern off-grid energy'.

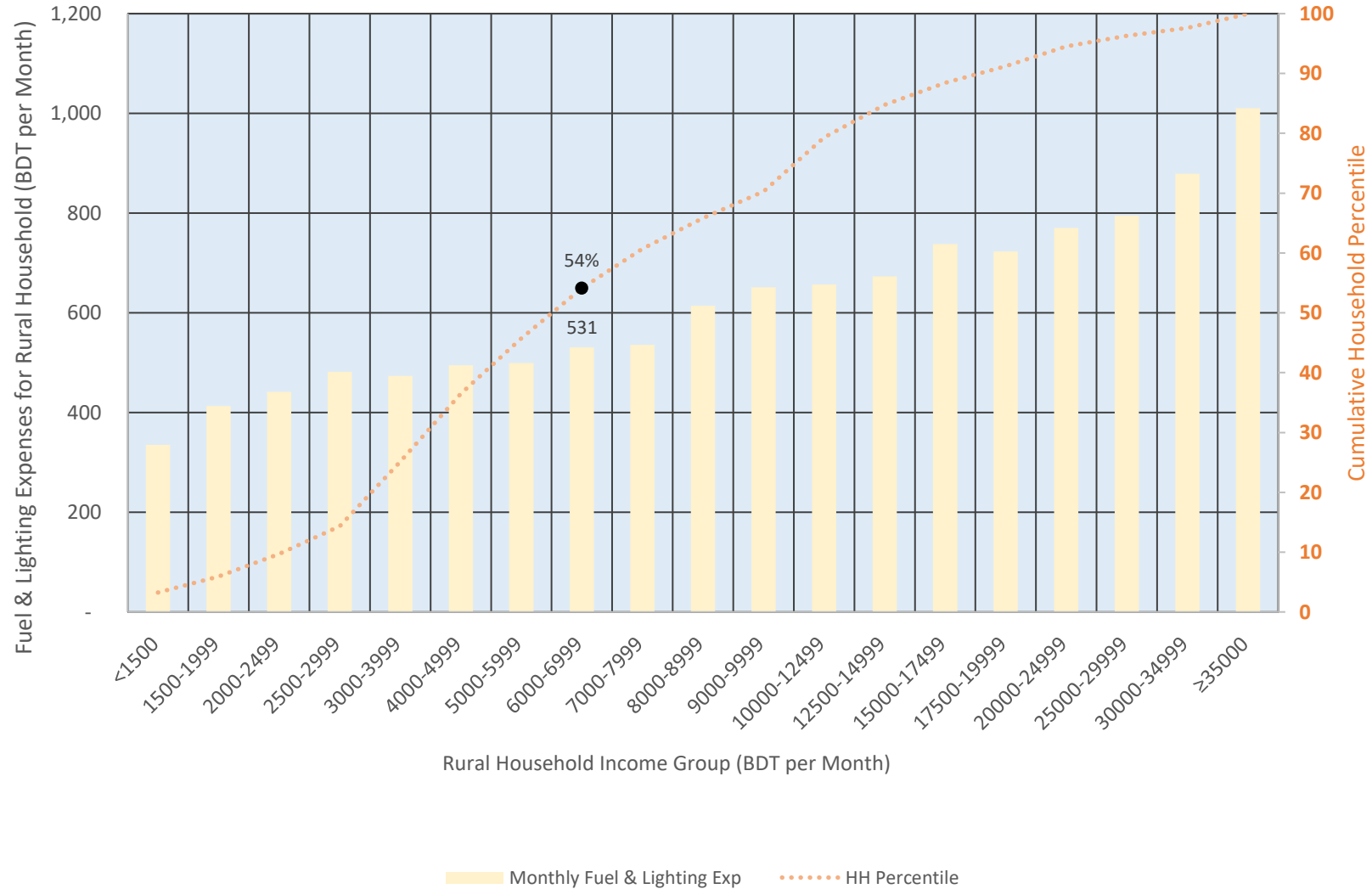
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The logo for ESMAP, featuring the text 'ESMAP' and 'Energy Sector Management Assistance Program'.

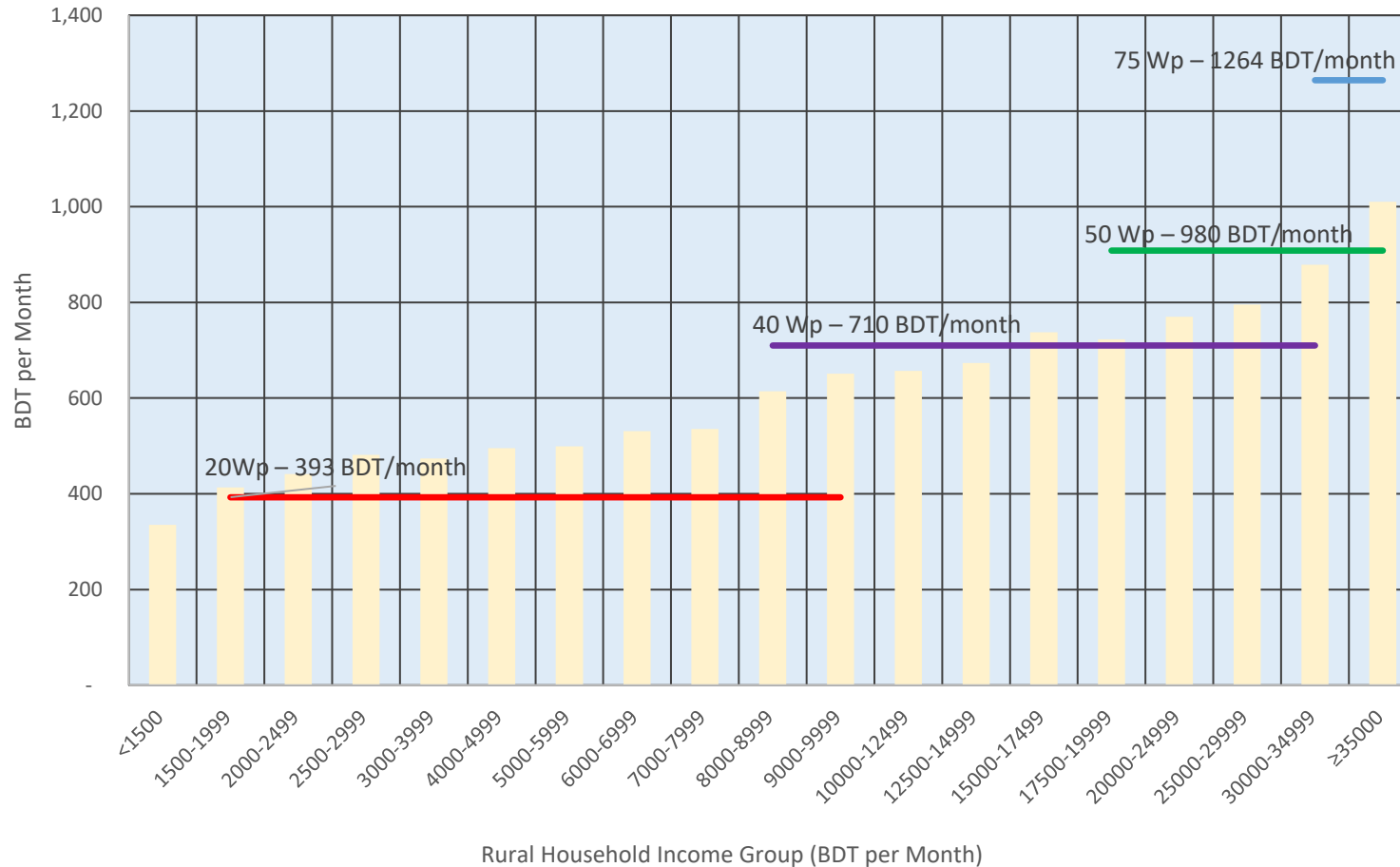
WHAT OTHER COUNTRIES CAN LEARN FROM HOW IDCOL ADDRESSED AFFORDABILITY

REMARKS FROM ANIL CABRAAL

Household Income & Expenditure Survey Monthly Fuel & Lighting Expenditure in 2010 Among Rural Households in Bangladesh

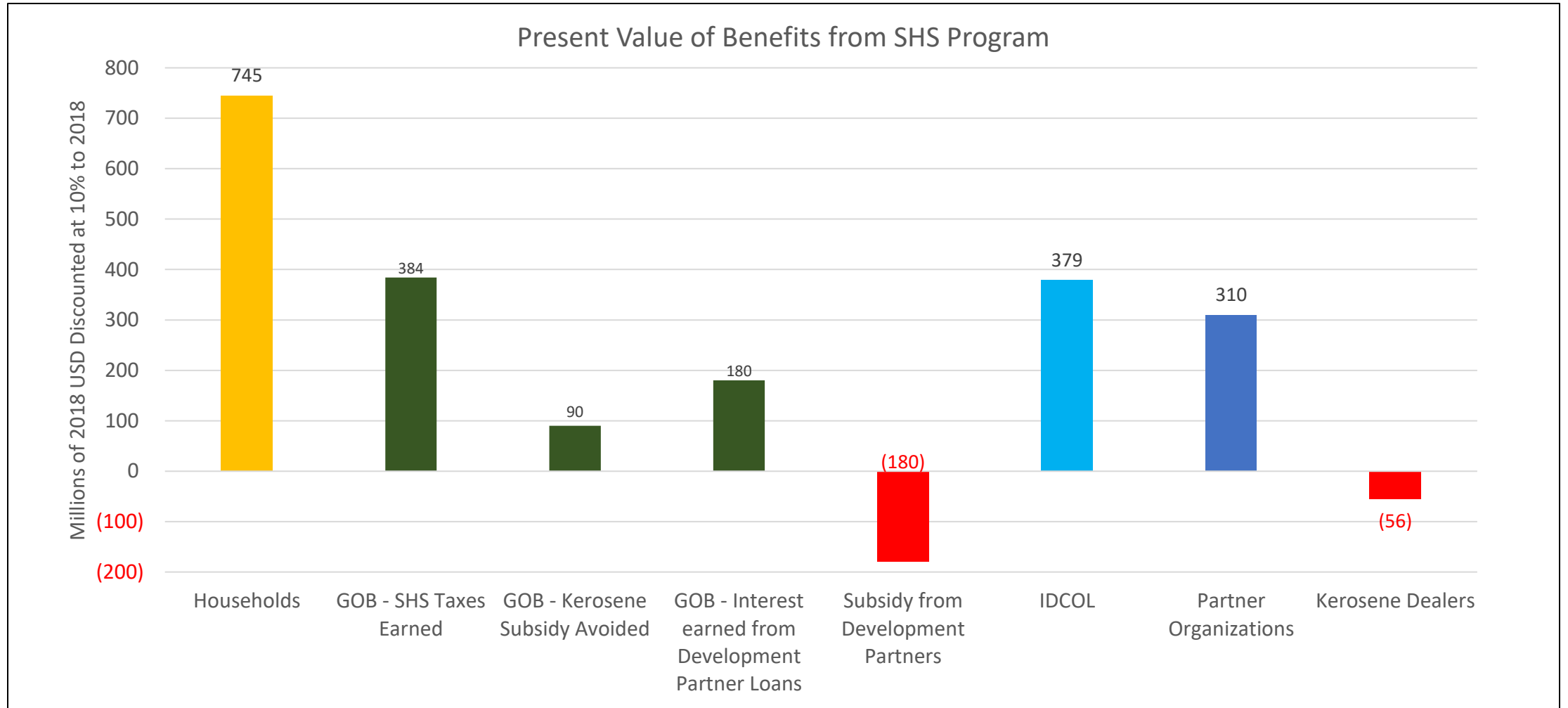


Comparison of Monthly Fuel & Lighting Expenditure in 2010 of Rural Households and Monthly SHS Loan Payment by SHS Size in Bangladesh



■ Monthly Fuel & Lighting Exp
 — 20 Wp (20% of sales)
 — 40 Wp (20% of Sales)
 — 50 Wp (43% of Sales)
 — 75 Wp (17% of Sales)

STAKEHOLDER IMPACTS: WINNERS & LOSERS



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Q&A

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THANKYOU!

For more information, the World Bank publication “Living in the Light: The Bangladesh Solar Home Systems Story”, by Anil Cabraal, William A. Ward, Susan Bogach and Amit Jain, can be downloaded from <https://openknowledge.worldbank.org/handle/10986/35311>.

Please share comments and feedback!

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