REFLECTION ON WHAT OTHER COUNTRIES CAN LEARN FROM HOW IDCOL ADDRESSED AFFORDABILITY IN THE BANGLADESH SHS PROGRAM

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Thank you, Pauline, for the opportunity to present a few observations on Pavel's insightful presentation, and to reflect on how Bangladesh experiences might be useful for similar programs in Sub-Saharan Africa.

My work with the Bangladesh SHS Program and with Pavel dates back over 10 years and it is indeed a great pleasure and honor for me to participate in this seminar. I have learnt much from this program which I have been able to apply to similar projects in other countries.

In the next few minutes, I would like to touch on three aspects related to this program. They are:

1. Forms of subsidy
2. What is the right level of subsidy?
3. Was the Bangladesh subsidy really a subsidy?

And conclude with a few general observations.

1. Forms of Subsidy

The subsidy could be delivered in two forms – Upfront grant and concessional (low interest) financing.

Upfront Grant: The output-based grant was intended to reduce the cost to customers and make SHS more affordable and to strengthen the POs institutional capacity. The grant was a fixed amount per SHS, which in my opinion was appropriate and progressive as smaller SHS got a proportionately larger grant percentage. This is superior to a size-based grant such as $/Wp as was used in some other programs. It is also easier to monitor and manage.

Pavel's presentation demonstrated the effectiveness of this grant in making SHS affordable and the appropriateness of gradually reducing it as the market matured and technology costs declined.

Concessional Financing: In addition, the loans were said to be concessional. Were they indeed concessional?

There were Development Partner Loans to the Government, Government loans to IDCOL, IDCOL loans to POs, PO loans to customers.

1. At the consumer level, POs charged 12-16 percent flat rate interest – atypical way Bangladesh MFIs charge interest on loans [*However, Pavel in his presentation stated that this interest rate was on a declining balance basis*]. A 12-16 percent flat rate interest is equivalent to interest of 21-27% on a declining balance basis. This is comparable to the average interest charged on microcredit loans in Bangladesh at the time, which averaged 22-24% on a declining balance basis. These loans were therefore not concessional. [*However, if 12-16% interest was on a declining balance basis, the loans to customers were concessional*]
2. At the PO level, IDCOL refinanced the POs at 6-9% interest – the terms becoming increasingly tighter over time and more so for larger POs. During this time, the Microcredit Regulatory Authority reported that the average cost of funds for MFIs was 7% which is comparable to IDCOL loans to POs. I would not consider these loans concessional either.
3. IDCOL received funds in taka at 3 percent interest from the Government. This is comparable to IDCOL's average cost of capital (2.6 to 2.9%). These funds were also not concessional.

Appropriately, financial terms for loans from development partners to the Government were on concessional terms, which in the case of the World Bank, were on IDA terms. However, the Government bore the currency risk [Between 2003-2018, the Bangladesh Taka depreciated at about 2.5% per annum].

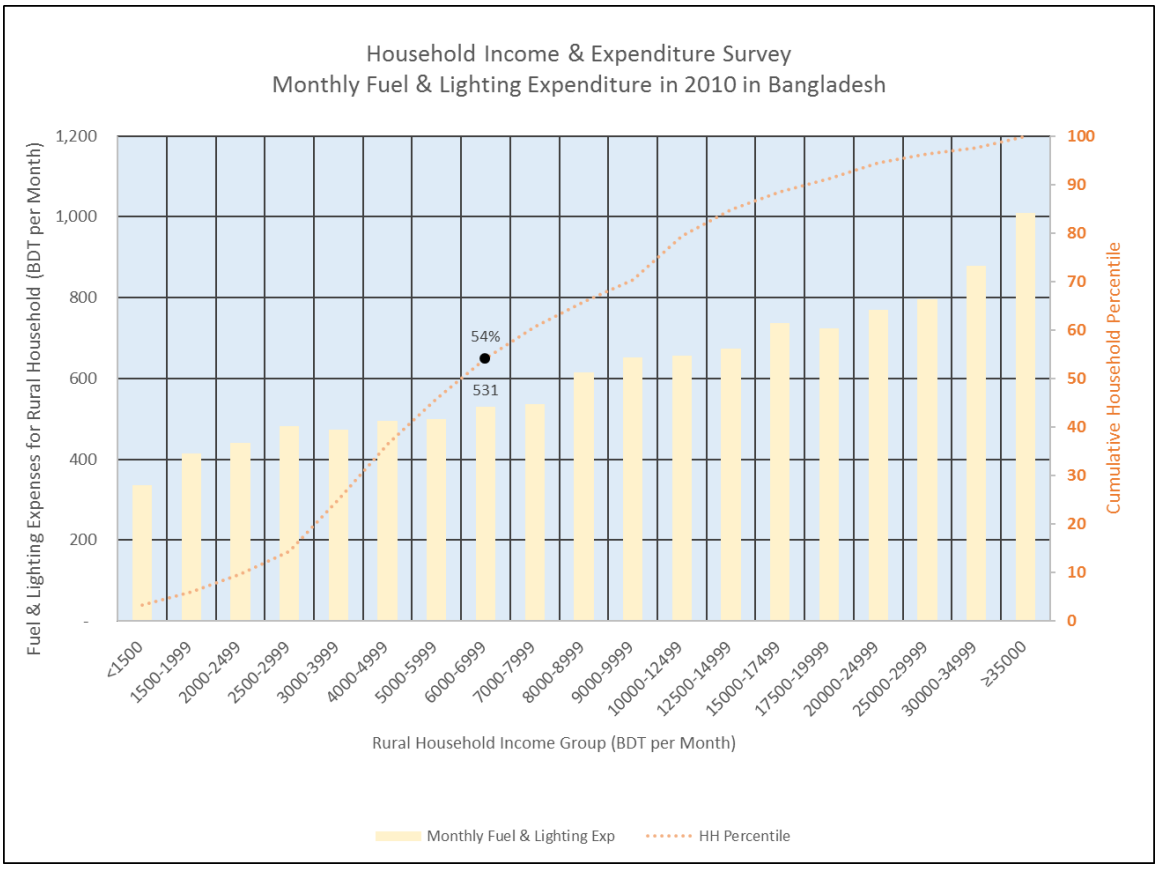
2. Is there a "right" level of subsidy and how should it be structured?

When preparing a new SHS program in a country, it is important to determine the level of subsidization based on the willingness and ability to pay.

This can be done using willingness to pay, or contingent value surveys to decide on what level of payments are affordable to customers. Such surveys are costly, time consuming and there are limitations, especially when asking about paying for services from an unfamiliar technology.

I suggest an alternative, using Household Income and Expenditure Survey data. Such surveys are available for over 40 Sub-Saharan African countries and so the approach could be broadly applicable.

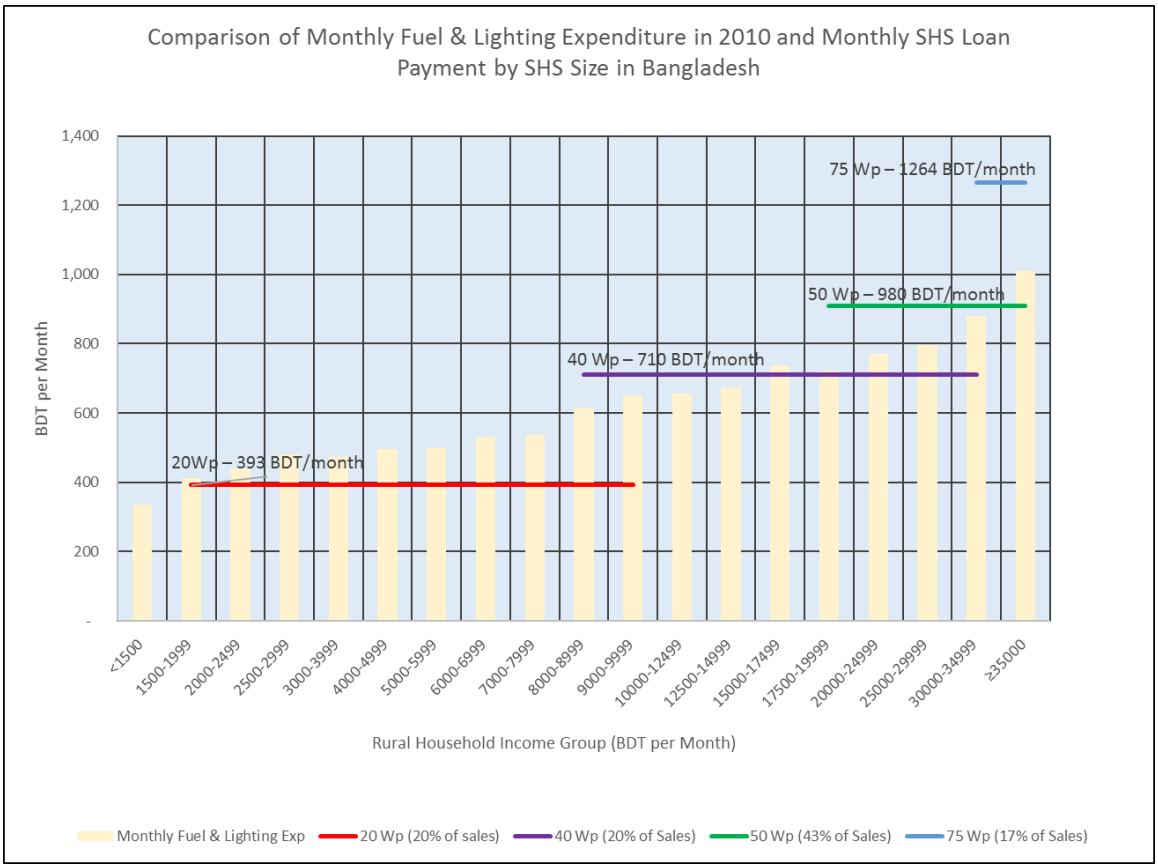
I will illustrate with an example from Bangladesh using their 2010 HIES survey.



The bar chart shows the monthly expenditure incurred for fuel and lighting by rural households as a function of increasing income categories. As expected, the richer households spend more for Fuel & Lighting. It shows that about half the households spent about 530 taka (~$7) per month for fuel and lighting.

This approach works if there are little or no constraints to obtaining fuel and lighting services.

Then, one could superimpose the monthly repayment terms for various sizes of SHS, after accounting for the grant, down payment, and loan terms as show in this chart.



Here I have superimposed the loan repayment terms for small 20 Wp SHS over the lower income classes and repayment terms for increasingly larger SHS over the richer households.

The subsidy amount, down payment, loan interest and tenor could be varied to decide on what would be appropriate payment terms. At the beginning of a program, when familiarity of SHS is low, the SHS repayment terms could be at or below current expenditures, especially for lower income households. As greater acceptance is gained, the payment could be higher, recognizing that households (especially richer ones), would be willing to pay for greater quality of services and knowing that the payment is limited to 1 to 3 years.

Finally, I ask the question:

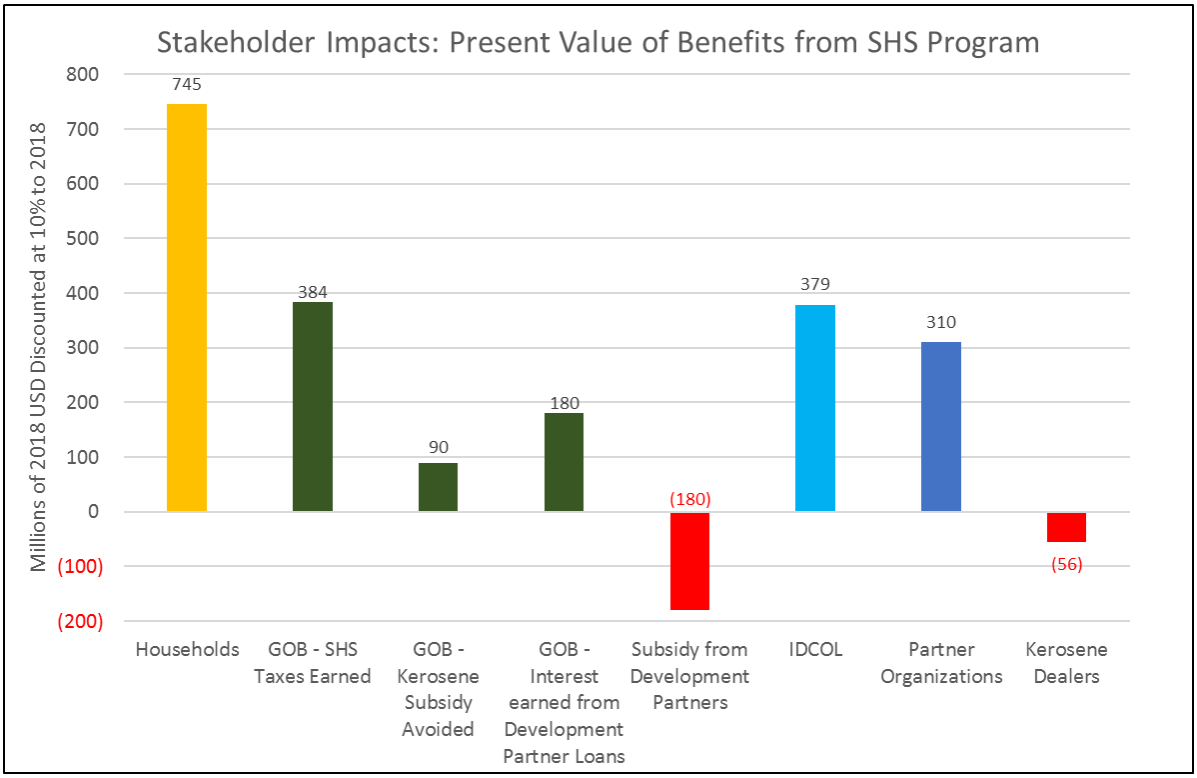
3. Was the Bangladesh subsidy really a subsidy?

During appraisal of a project by the World Bank, economic and financial rates of return are computed, but rarely is a distributional or stakeholder analysis done. Such an analysis to determine who the winners and losers are, is a powerful tool to make sure benefits flow as intended and to aid in a policy dialogue with the government. See World Bank Guidance at https://openknowledge.worldbank.org/handle/10986/22777.

A stakeholder analysis is useful to determine if the Bangladesh subsidy is really a subsidy. I would argue, it was not a subsidy, but a payment to offset economic distortions in the SHS market. I illustrate this point using the ex-post distributional analysis we did for the SHS

Program and urge that similar analyses be done ex-ante during the project design stage as it would be useful for discussions with the government for creating a level playing field.

This chart shows the benefits from the SHS Program for various stakeholders. It is calculated in millions of 2018 USD, discounted at 10% to 2018.



The largest beneficiary of the SHS Program were households with $745 million in benefits – which is as it should be. IDCOL ($379 million) and the POs ($310 million) also benefitted, even accounting for the payment defaults experienced at the end of the SHS Program.

The Government of Bangladesh is the second largest beneficiary due to taxes it obtained on SHS ($384 million), kerosene subsidies avoided ($90 million), and the benefits it obtained from on-lending concessionary development partner loans to IDCOL ($180 million).

While obtaining these financial benefits, the Government was able to convince the development partners to provide $180 million in grants for SHS –in 2018 USD discounted at 10% to 2018.

One could therefore argue, that had this information been available ex-ante, it would be an effective tool during the project design stage, for a dialogue with the Government to rationalize duties and taxes on SHS, and/or on convincing the Government to bear some of the cost of the grant.

Since duties and taxes were on common use component of an SHS, such as batteries, cables, lamps etc., it would have been difficult to carve out a duty exception for such components

assembled into an SHS. Therefore, seeking an offsetting contribution from the government for the subsidy would have been the more appropriate and practical alternative.

A few additional observations, in conclusion:

- In Bangladesh the grant did decline along with the SHS costs and from 2014, only small SHS got a grant. Surprisingly while the grant was given only for small SHS, their market share declined. It is unclear why: Did the rapid price decline make the grant irrelevant? Did increased rural incomes and consequent raised expectations make customers want larger SHS rather than the small ones? So, a question one needs to ask, was the grant for small SHS necessary? If in mid-2014, the grant for small SHS had been eliminated, about $14 million could have been saved.
- We have seen that both grants and access to financing were necessary. In countries without strong micro-credit facilities, delivering financing would be difficult. However, today with the availability of Pay-as-you-Go (PayGo) technology integrated into an SHS, making repayments on affordable terms can be done more efficiently and at lower cost and risk.
- Competition is good, but make sure consumers and POs do not suffer from cutthroat competition by compromising quality and risk a race to the bottom. There was some evidence of this in the later years of the SHS program as sales declined precipitously.
- IDCOL had a rigorous monitoring program, and was able to do so cost effectively using its own staff and because of the large scale of the SHS Program. Program management cost was only 1% of total costs. In Sub-Saharan African countries with smaller program scale and far more dispersed customers, using a similar monitoring method would be costly. Consider instead, technology with location tracking, performance monitoring, and PAYGO capabilities that can be integrated into an SHS at reasonable cost.[1]
- My concluding message to World Bank and development partners is Patience is a virtue – be a partner for the long term. Don't declare success (or failure), early and walk away. Imagine if in 2006, when 50,000 SHS target was achieved, and World Bank had declared success and walked away?

For more information

Cabraal, Anil; Ward, William A.; Bogach, V. Susan; Jain, Amit. 2021. *Living in the Light: The Bangladesh Solar Home Systems Story*. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/35311. License: CC BY 3.0 IGO

[1] Peter Alstone, Dimitry Gershenson, Nick Turman-Bryant, Daniel M. Kammen, and Arne Jacobson. 2015. Off-grid Power and Connectivity. Lighting Global Market Research Report. https://rael.berkeley.edu/wp-content/uploads/2015/05/LG-2015-PAYG-Report-Alstone-etal.pdf