



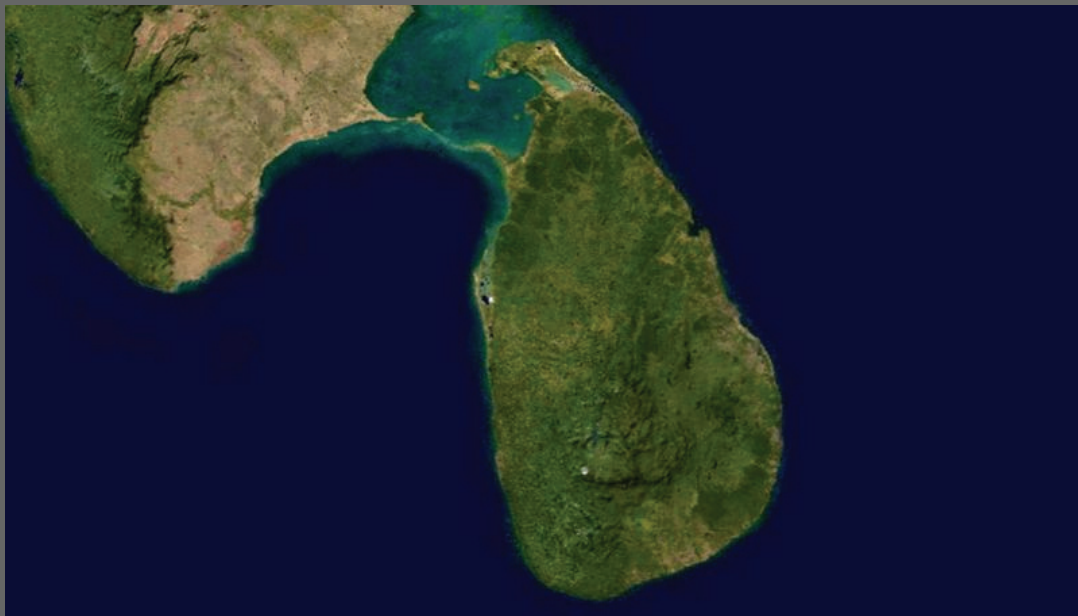
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SOCIAL MERCHANT BANK APPROACH RECONNAISSANCE REPORT: SRI LANKA

USAID SOUTH ASIA REGIONAL INITIATIVE FOR ENERGY
(USAID SARI/ENERGY)

CONTRACT NUMBER 386-C-00-07-00033-00; TASK ORDER 3.13



March 7, 2011

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Prepared for: USAID/New Delhi
New Delhi, India

Prepared by: Tetra Tech
DLF Cyber City
Building 9B, 11th Floor
Gurgaon, Haryana 122 002 India
Tel: + 91 (0)124 473 7400
Fax: + 91 (0)124 473 7444

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EXECUTIVE SUMMARY

This reconnaissance study was conducted to confirm the hypothesis outlined in the inception report: that there is a potential for applying S³DIF's Social Merchant Bank Approach (SMB) in Sri Lanka.¹ The study was also intended to answer various questions about the SMB's application:

- How should the SMB be applied?
- With which local partners?
- For what type(s) of projects initially?
- What would be the plan and steps forward for an initiative to apply the SMB, including budget estimates?

Confirming the working hypothesis included identifying small-scale clean energy projects and associated enterprise investment types for which the SMB would be appropriate.

STUDY APPROACH

Considerable desk research was conducted on the possible applicability of the SMB Approach in Sri Lanka. It was supplemented by in-country work by S³IDF and EnergySolve, which included preparations for a workshop.

The author's in-country work comprised interviews, a workshop with an extensive

¹ deLucia, Russell, S³IDF. *Social Merchant Bank (SMB) Approach: Dissemination for Bangladesh, Pakistan, and Sri Lanka: Inception Report*. USAID SARI/Energy. September 2010.

presentation on the SMB Approach (and associated presentations), and discussions. There were more than 50 attendees at the workshop representing financial institutions, government agencies, international agencies, energy supply, know-how and technology providers, and others (e.g., trade associations). Follow-up meetings were held to reconfirm the research findings and determine interest in partnering.

OVERALL RESULTS

The results of this reconnaissance study confirm that the SMB Approach is applicable in Sri Lanka. Moreover, there is significant potential² for the Approach to increase the very limited market penetration of selected small-scale clean energy investments in a way that could be pro-poor. All of the classes of investments types discussed here have considerable market potential and some are very large (tens of thousands of dollars or more of potential investments). However, none of these investment classes has been the focus of a major initiative, at least not one that is explicitly pro-poor. As outlined in Section 2, there are

² "Significant potential" means classes of small-scale investments numbering at least in the hundreds, preferably in the thousands or more, per class. The classes are determined by the screening criteria presented in Section 2.2.

potential partners to implement the SMB Approach to achieve such market penetration.

All three investment classes discussed focus on small-scale energy end-users: households, small-holder farm and livestock operations, micro and small enterprises, and selected village schemes. The three primary classes of technology and equipment investment types considered in this report (more were considered, but even a reconnaissance-level examination was not feasible for them) are:

Liquefied petroleum gas (LPG). LPG could be used, for example, in stoves and cylinders for household and micro- to small-enterprise cooking.

Biogas plant. These investments include various end-use devices. The initial focus is on simple devices like stoves and lamps; more complex and costly devices such as small-scale electricity generators could be included in an initiative, but were not part of this study.

Equipment for the productive end-use of electricity. These are of two broad scales and can be applied in two contexts with regard to electricity source:

- *off-grid:* equipment for existing non-grid connected village hydro schemes (primarily for lighting) that have surplus capacity, especially during the daytime (for example, a sawmill)
- *on-grid:* customer side of the meter equipment for micro-enterprises (at the household level), such as spice grinders and sewing machines.³

³ Grid connection financing investments for poor unconnected households with access to the grid were not included as an investment class because

In general, while investments in the off-grid class will be larger than those in the on-grid class, they will still be small. For example, a small off-grid sawmill requiring 20 kW and costing a few thousand dollars is still a small investment in conventional terms; but it is a larger investment than a sewing machine costing a few hundred dollars (in the on-grid class). There is some overlap within these broad classes.

Based on experience in Sri Lanka and other South Asian countries, these investments will typically fall in a range from less than US \$100 (for LPG equipment for very small users) to a few thousand dollars (for example, for some village productive applications such as sawmills and related equipment).

But even at the lower cost end of the range, these investments are above the “first cost barrier” for poor Sri Lankan households and hence require financing. Ensuring a mechanism for such financing (which is part of the SMB Approach) is critical to the pro-poor focus of this work.

SELECTED FINDINGS

The following findings are relevant to an initiative to achieve significant pro-poor market penetration of the three classes of investments:

- For each investment class, there are some local players who can provide the know-how and technology, and who could be partners in an initiative.
- But with the exception of LPG investments, these players have little in the way of developed and widespread supply chains of know-how and technology. The LPG supply chains are well developed and have a

recent project initiatives, including one supported by the ADB, address this pro-poor requirement.

footprint covering much of the country.

- For biogas, some such supply chains exist in three provinces (Uva, Sabaragamuwa, and Southern), including a player in the Galle area employing different technology and using a wider range of feedstocks.
- Thus, any initiative to achieve significant market penetration of these investment classes will have to include investments along the supply chain as well as with the end-user. Even in the case of LPG, in order to make an initiative explicitly pro-poor, it may be necessary to support investments and know-how along the supply chain.
- There are also other small-scale energy technologies and projects that have had support from various agencies and non-government organizations (NGOs). While they may hold promise, they are not yet sufficiently developed or do not have the necessary players involved to justify further examination for this study. But if additional efforts are made, some of them (for example, small-scale gasifiers) could be revisited.
- Sri Lanka appears to have made only limited efforts to tap the carbon market, and as far as the authors can determine no clean development mechanism (CDM) project incorporating very small investments has been implemented. This is particularly relevant for the biogas investment class as there are examples of CDM projects for large numbers of small and household biogas projects that have been successful in overcoming financial and other constraints to the market penetration of this technology.⁴ Any initiative that supports this

⁴ Because of the potential importance of carbon financing for the proposed initiative, two

class of investments should attempt to integrate carbon financing as an element.

- The operations footprint of banks, MFIs (microfinance institutions) and other FIs (finance institutions) are quite extensive. And there appear to be multiple FI candidates with the requisite experience and interest to be partners in an initiative to support one or all of the classes of project types outlined above.

TOWARD A SCALE-UP INITIATIVE: CRITICAL ISSUES AND QUESTIONS

Many of the questions about the stages needed to move toward an initiative or initiatives (a set of activities to utilize S³IDF's SMB Approach to push the market penetration of the investments

representative South Asia biogas CDM examples are worth noting. The Biogas Support Programme of Nepal (a government-donor initiative originally supported by the Dutch Government and subsequently other donors) developed and implemented the first CDM project in Nepal and then a second CDM project supporting about 19,000 household-scale biogas plants. According to the BSP website (<http://www.bspnepal.org.np/>), these two projects will yield significant carbon revenues – about \$600,000 per year net of their development and verification costs. The second example is an early, if not the first, explicitly pro-poor CDM project, which was developed by the NGO ADATS (Agricultural Development and Training Society) in South India. It was CDM-registered in 2005 to support 5,400 plants, and another CDM project was registered in 2009 to support 18,000 biogas units. ADATS was instrumental in the formation of the Fair Climate Network, which is helping to develop CDM projects (www.fairclimate.com).

classes in an explicitly pro-poor manner) are only partially answered in this Reconnaissance-level study. The following points provide some partial answers, raise some critical issues and questions, and make some comments and recommendations.

1. The possible stages of dissemination and transfer of the SMB Approach noted in the inception report and reiterated at the workshop hold.
2. The next step after this reconnaissance study is detailed pre-investment feasibility work to develop a pipeline of specific investments in one or all of the investment classes. This would include examining (and drafting memoranda of understanding for) deal-specific partnerships (including co-financing) as well a partnership to host the facility (see point 6 below).
3. It would be preferable if this stage included funding for a pilot portfolio of commercial investments and related activities to allow for detailed “learning by doing.”
4. In principle, the pre-investment activities in point 2 might be sufficient to move to the next stages of designing and then implementing a major scale-up application of the SMB Approach. However, the success of these next stages will be much enhanced by including the pilot investments noted in point 3.

The decisions on these next stages will depend how the seed donor(s) want to proceed, but including some pilot investments for learning by doing before scaling up is strongly recommended.

5. Similarly, the institutional arrangements required (see Figure 1-2 and related text) would be applicable regardless of which next stage is selected. Obviously, much will

depend on finding a seed donor(s) and ultimately a facility donor/investor(s).

6. These institutional arrangements would include a facility providing financial support and pre-investment support, as well as know-how and capacity building support from two separate but inter-related “windows.” A revolving fund would provide “gap filling” finance to make financially viable but often non-bankable investments bankable and thus overcome the critical financing challenges the poor face.
7. Ultimately, the facility’s institutional structure could become part of a major scale-up of the SMB in Sri Lanka, but it could be “piloted” along with an initial portfolio of investments as suggested in point 3.

Depending on their resources and procedures, a seed(s) donor may make a contingent commitment to become the major donor once there are results from at least one of the activity stages.

8. For any next steps, the key issue is finding a seed or major donor(s). If a seed donor(s) cannot support pilot investments, the work should proceed while another seed donor(s) is sought.
9. For various reasons,⁵ some donors may only be willing to support next steps in one or two of the investment classes. Then, arrangements to go forward should be made while seeking possible complementary

⁵ Such reasons could, for example, be the relative GHG savings for investments in one class versus another or the possible more positive impact on women or the poor.

donor support for efforts on the other investment classes (or all three).

If the feasibility analysis, pilot investment and related learning-by-doing activities occur, it could lead to a major scale-up initiative to apply the S³IDF SMB Approach. Indicative figures suggest a scale-up leading to tens of thousands of small pro-poor clean energy investments. Such an initiative could cost between US \$30 million and \$40 million; donor funding would be required for about half that amount, or less if carbon financing is accessed.

A very important issue is whether the government must be actively involved in the initiative's implementation or is only a partner that gives its "blessing," cooperation and assistance. The following influencing factors appear pertinent:

- Whether the donor by charter (or similar constraints) only engages in private sector support programs and projects
- When the donor is only supporting specific activities (such as pre-investment studies or capacity building efforts) whose arrangements for implementation under the SMB initiative umbrella can avoid direct government involvement)

- When the donor that normally makes donor-government arrangements has and can make use of special program funds to support an initiative without channeling its support via a government entity.

In this case, can the agreement with the government entity include the requirements and flexibility to have the initiative implemented as designed? And can this agreement and the implementation requirements be clear to both parties before implementation begins?

If the government is an active or controlling partner or a host (the donor's official implementing agency), it will likely introduce a number of administrative measures that could constrain the initiative's flexibility. This could lead to unavoidable interference in the SMB priority of moving investments from pipeline to portfolio (feasibility to implementation). For example, it could introduce the necessity of competitive bidding when negotiated selection would provide the flexibility needed, especially with regard to such partners as FIs. Donors should investigate these matters before concluding any definitive donor-government agreement for an initiative.

ACKNOWLEDGEMENTS

The US Agency for International Development's South Asia Regional Initiative/Energy (SARI/Energy) Program promotes energy security in South Asia through three activity areas:

- Cross-border energy trade
- Energy markets
- Clean energy access partnerships.

Through these activities, SARI/Energy facilitates more efficient regional energy resource utilization, works toward transparent and profitable energy practices, mitigates the environmental impacts of energy production, and increases regional access to energy. The countries served by SARI/Energy are: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka.

Dr. Russell J. deLucia, president and principal founder of the Small-Scale Sustainable Infrastructure Development Fund (S³IDF) is the main author of this report. It was prepared under Contract Number 386-C-00-07-00033-00, Task Order 3.13: Transference of Social Merchant Bank Model. S³IDF shared significant portions of the cost of preparing the study.

The following individuals contributed to this document's preparation:

At S³IDF, Dr. John E.H. Ryan greatly assisted in the initial planning stages of the

reconnaissance. Michael Lesser and Allison Cunningham also assisted in writing the report.

Mahendra S. Jayalath, senior energy consultant, and Prabath Gunathilaka, energy systems engineer at EnergySolve International of Colombo, contributed to the preparatory investigations and provided significant coordination.

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At Tetra Tech, Michael Ellis helped conceive the study approach; Michael Hajny, Nandita Mongia and John Bruce Wells reviewed this report; and Wynne Cougill edited this report.

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For more information, please contact S. Padmanaban, Regional Director, SARI/Energy Program (spadmanaban@usaid.gov), +91-11 2419 8658.

ACRONYMS

ADB	Asian Development Bank
ATP	ability to pay
BAU	business as usual
BDS	business development services
CBO	community-based organization
CDM	Clean Development Mechanism
cum	cubic meter
FI	financial institution
GEF	Global Environment Fund
GHG	greenhouse gas
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation)
HNB	Hatton National Bank
LKR	Sri Lankan rupee
LPG	liquefied petroleum gas
MFI	microfinance institution
MoU	memorandum of understanding
MSMEs	micro, small, and medium enterprises
NGO	non-government organization
PV	photovoltaics
RF	revolving fund
S ³ DIF	The Small-Scale Infrastructure Development Fund, Inc.
SARI/Energy	South Asia Regional Initiative for Energy
SMB	S ³ DIF's Social Merchant Bank Approach
SMEs	small and medium size enterprises
USAID	United States Agency for International Development
WTP	willingness to pay

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1. INTRODUCTION

This study explores various issues and options associated with the applicability, dissemination, and possible transfer and application of The Small-Scale Sustainable Infrastructure Development Fund's (S³IDF) Social Merchant Bank Approach in Sri Lanka. It was prepared under Contract Number 386-C-00-07-00033-00, Task Order 3.13: Transference of Social Merchant Bank Model.

In 2008-2009, S³IDF completed reconnaissance and revolving fund studies for Nepal with SARI/Energy co-funding. Based on the success of this collaboration, SARI/Energy is supporting similar efforts that would lead to wider regional knowledge of the Small Merchant Bank (SMB) Approach in Sri Lanka, Bangladesh, and Pakistan.

S³IDF cost shared this study with the US Agency for International Development (USAID). EnergySolve International, Sri Lanka, provided substantial support in its preparation. The study builds directly on the inception report, which was delivered earlier under the same task order.⁶

⁶ deLucia, Russell, S³IDF. *Social Merchant Bank (SMB) Approach: Dissemination for Bangladesh, Pakistan, and Sri Lanka: Inception Report*. USAID SARI/Energy. September 2010.

1.1 S³IDF AND ITS SOCIAL MERCHANT BANK APPROACH

S³IDF US was formed in 2001 in response to the limitations of traditional development approaches to providing infrastructure services to poor people. These services are necessary, if not sufficient, conditions for economic growth and the reduction of poverty. S³IDF has public charity status in the United States (Section 501(c)(3) of the US tax code). Its affiliate S³IDF India, formed in 2002, has analogous status. The two S³IDFs operate in a very integrated way. They are not typical charities; they are non-profit corporations that are very investment transaction-oriented and have a very business-like style of operation.

S³IDF fosters small, explicitly pro-poor investments and their associated small enterprises by bringing the technical, financial and business organizational innovations common in large infrastructure projects to the development of a portfolio of small-scale infrastructure investments benefiting the poor. S³IDF calls this enterprise-centric way of operating the Social Merchant Bank (SMB) Approach.

Such an approach and the interventions that achieve it are rare in small infrastructure projects that are explicitly pro-poor in their impact. The investments S³IDF supports must explicitly benefit the poor in one or more ways (for example, customers, employees, asset owners), be environmentally responsible in their construct and operation, and operate in a

financially sustainable fashion, including the payment of loans, from implementation onwards. S³IDF's SMB Approach addresses the problems facing poor people by simultaneously overcoming their lack of access to financing, technology and know-how, and facilitating the creation and implementation of viable micro, small, and medium-sized enterprises (MSMEs) that provide infrastructure services (and the strengthening of existing MSMEs). S³IDF's SMB Approach of providing "gap filling" financing makes viable, but often non-bankable, small pro-poor infrastructure investments bankable, leading to co-financing by local financial institutions.

The SMB approach was designed to be very widely applicable. To achieve this, S³IDF pursues two interlinked objectives:

- To verify and utilize its innovative SMB business approach by building a portfolio of successful small-scale investments in different sectors, and employing a range of technologies operating initially in south India (Karnataka and parts of adjacent states).
- To disseminate the SMB approach by using the lessons derived from S³IDF's transparent monitoring and evaluation work to achieve a much broader impact by encouraging other organizations to adopt a similar approach.

This investment focus and S³IDF's approach reflect the realities that:

- The vast majority of the poor are working poor, who are willing and have some ability and to pay for infrastructure services, provided that the services meet their priority needs.
- Materials and technology evolutions over the last generation have made small-scale and distributed infrastructure options much more cost-effective.

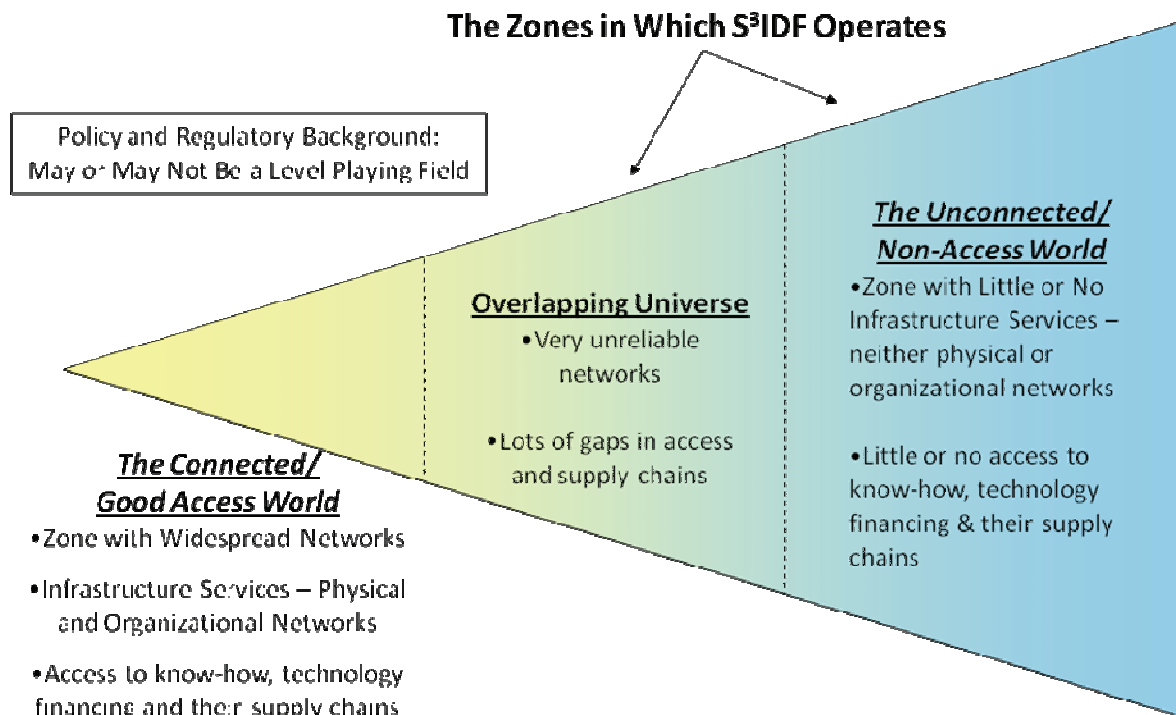
- The problem of the poor is more than the lack of access to adequate infrastructure services; they often lack access to financing, technology, and know-how (including business know-how) to organize and implement cost-effective and financially viable infrastructure solutions. This point is illustrated in Figure 1-1, which shows the universe in which S³IDF operates.

The characteristics of S³IDF's SMB Approach include:

- Involvement of local small private players (as opposed to large or international players)
- Use of varying financial structuring, business and organizational approaches to ensure financial sustainability
- Engagement of financial markets and other development synergies
- Environmentally responsible approaches so that environmental benefits (local and global) accompany the social and economic benefits of infrastructure investments.

In its initial market-shed in south India (Karnataka and parts of adjacent states), S³IDF implemented its SMB Approach in two distinct sets of operations. The first is grant funds to meet the high transaction costs involved in identifying and developing financially sustainable schemes that underwrite much of the pro-poor objective. The second is a revolving fund (RF) that provides the "gap-filling" finance needed to mobilize the local finance required. In most environments, it would be better if the RF were hosted by a complementary private financial institution, but that was not feasible given S³IDF's resource limitations, regulatory "rules of the game" and capital requirements.

Figure I-1. S³IDF's Operating Zone (and World View)



S³IDF generates its deal flows by collaborating with local partners, activists, non-government organizations (NGOs), academic groups, equipment suppliers, local banks and financial institutions. A similar approach should be used when the SMB Approach is applied elsewhere. S³IDF's initial hypothesis (since verified in south India) was that financing small-scale infrastructure projects is within the capability of local banks⁷ and other financial institutions (for

example, some microfinance institutions (MFIs) and leasing companies).⁸ In addition:

- Mobilizing such local financing would leverage external or local development finance.
- For local bank financing to materialize, given the business-as-usual (BAU) mindset of banks and the realities of the poor, the necessary development finance (whether S³IDF's or others) must include a menu of financing types: debt (primary and

⁷ This hypothesis now extends to Sri Lanka. Based on the investigations for this study, there are many financial institutions (FIs) with this capability in Sri Lanka. While only a subset of Sri Lankan FIs were investigated during this study, virtually all of those investigated are capable of playing some role in an application of the SMB Approach, whether it be as the co-financer of specific investments or in a greater role as host of the RF. The numerous banks S³IDF interacted with during the study are

listed in Annexes B and C.

⁸ Annex A presents some perspectives on S³IDF's SMB Approach in India and its characteristics in contrast to formal financial institutions doing small financial transactions, particularly independent MFIs and banks doing micro-finance operations.

secondary), equity, and partial guarantees or other credit conditioning instruments.

- This type of financing must be deployed in a “gap filling” manner along with investment financing and ownership and risk mitigation structuring undertaken to prepare and document the potential investment and take it to the banks such that banks will participate and previously financially viable but non-bankable projects become bankable.

S³IDF has demonstrated that financing small-scale infrastructure projects is within the capability of local financial institutions. In its efforts to facilitate local bank participation in the financing of its projects, S³IDF has successfully arranged such participation with 12 banks⁹ (a total of 34 branches). But S³IDF’s expertise, business development services, investment co-financing, ownership and risk mitigation structuring is required to enable these banks and other financial institutions to participate in what would otherwise be viable but non-bankable projects.

Since the inception of its operations in India, S³IDF has made good progress by both proving the viability of the concept, and in beginning to persuade other agencies to adopt a similar model. Its portfolio now numbers over 175 small-scale investments.¹⁰ Currently, the prospective pipeline contains over 100 funding possibilities with more than 40 in advanced stages.

⁹ Virtually all the FIs contacted for this study (see Annexes A and B) expressed an interest in participating in a potential application of the SMB Approach. This interest will need to be reexamined and possible MoU agreements negotiated in the next stages to take an SMB initiative forward.

¹⁰ The names and the details of the 175-plus investments are available from S³IDF directly.

The success and innovativeness of S³IDF’s Social Merchant Bank Approach has been recognized internationally by one of the first World Clean Energy Awards in 2007 and a Top Innovation Award in the Clean Energy Finance category by the Asia Clean Energy Forum Secretariat at the Asian Development Bank (ADB) in June 2008.

I.2 DISSEMINATION, TRANSFER, AND APPLICATION OF S³IDF’S SMB APPROACH

In addition to the financial resources (development and philanthropic) and human and organizational resources needed to build a pipeline and portfolio of small-scale investments, the SMB Approach requires, *at a minimum*:

- A legal and regulatory environment (rules of the game) allowing such private small-scale investments and their implementation with the SMB Approach and criteria, and an organizational implementation that is possible under these rules.
- Strong local core partners for SMB implementation including an FI to host the RF.
- Banks and other FIs/MFIs with term-lending experience with MSMEs, but not necessarily with infrastructure investments.
- Other potential partners: suppliers of technology and know-how are essential, while activist NGOs, community-based organizations (CBOs), and government programs supporting MSMEs can also be useful.

The efforts described in the inception report indicate that these minimum conditions hold in Sri Lanka. The only questions were and are

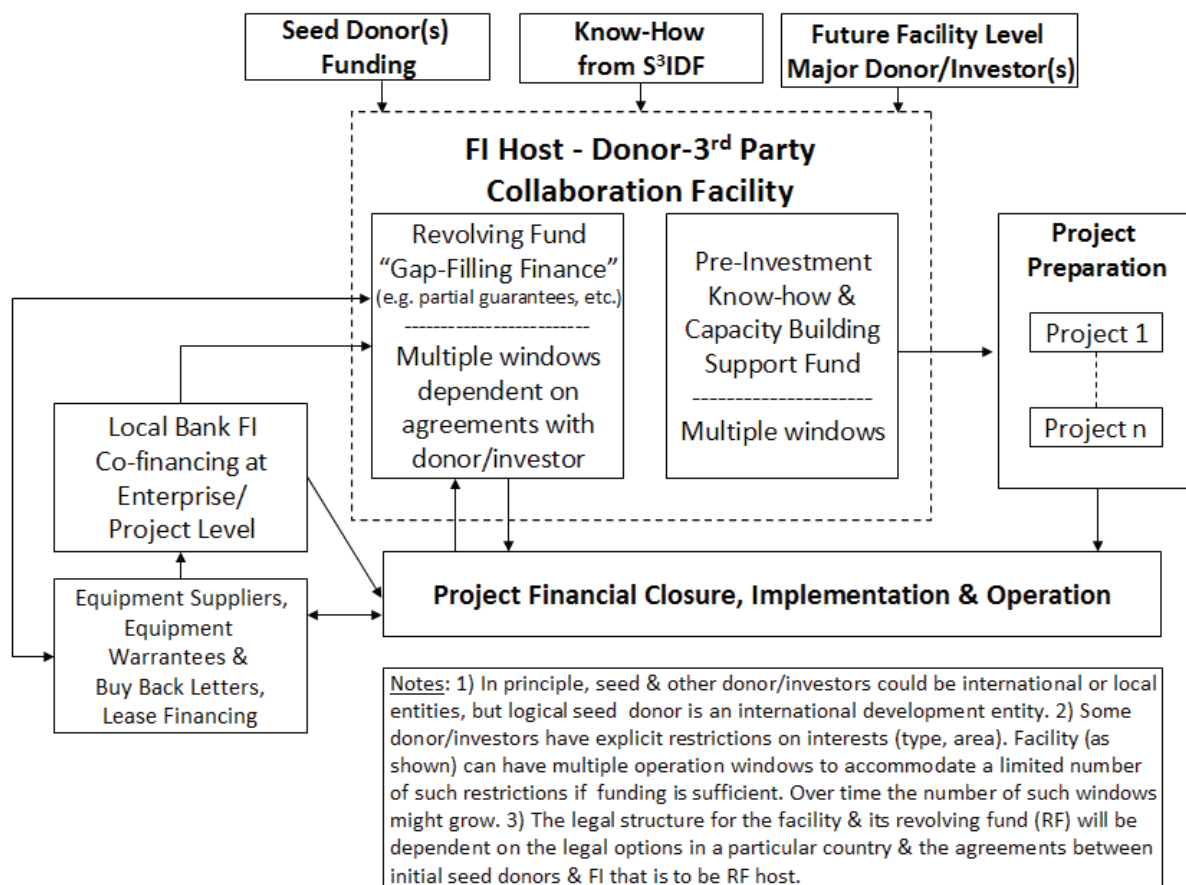
whether there will be financial resources (development and philanthropic) to undertake the necessary stages of such dissemination, transfer and application beyond this reconnaissance-level analysis. These additional stages will in general include feasibility or pilot investment activities, the design of potential scale-up applications of the S³IDF SMB Approach, and the implementation of a major scale-up application of the SMB Approach.

From the start of any reconnaissance-level analysis, it is necessary to examine the presence and experience of the local players and potential investment classes. This and examination should reflect the possible institutional organizational implementation strategy and the relationship of these players in actually implementing a

portfolio and pipeline of small-scale pro-poor investments. Figure 1-2 shows the suggested structure for such institutional organizational arrangements.

As Figure 1-2 shows, this institutional structure would have a facility that provides *both* financial support and pre-investment know-how, and capacity building support from two separate but inter-related “windows.” The financing support via a revolving fund (RF) is envisioned to provide gap filling finance (secondary debt, equity, partial guarantees, etc.) in accordance with the SMB Approach to make viable but often non-bankable investments bankable and thus overcome the critical financing challenges the poor face.

Figure 1-2. The Facility Figure



1.3 STUDY OBJECTIVES AND APPROACH

Objectives

This reconnaissance study was conducted to reinforce the hypothesis outlined in the inception report: that the minimum conditions for application of the SMB approach exist in Sri Lanka. These conditions are as follows:

- The necessary financial (development and/or philanthropic funding), organizational and human resources for building a pipeline/portfolio of small-scale investments
- A legal and regulatory environment (“rules of the game”) allowing such small-scale investments and their implementation within the SMB Approach and criteria
- Banks and other financial institutions with term-lending experience with MSMEs (micro-small-medium enterprises) but not necessarily with infrastructure investments
- Other potential partners commonly involved in the application of the SMB Approach: suppliers of technology and know-how are necessary; activist NGOs/CBOs can be very helpful; government programs supporting MSMEs can also be useful

Moreover, at the reconnaissance level, confirmation of this hypothesis should answer various questions with regards to the transfer application of the SMB Approach:

- How?
- With whom (local partners)?
- What type of initial projects?
- What would constitute a plan and steps forward for an initiative to transfer and apply the SMB Approach? This plan/steps forward would include budget estimates.

The judgments regarding the working hypothesis encompassed additional factors, including that for at least a few small-scale clean energy projects and associated enterprise investment types, the SMB Approach and its pro-poor and other criteria would be appropriate.

Approach

This study built on work conducted for the inception report. This work encompassed considerable desk research on the questions about the applicability of the SMB Approach in Sri Lanka. This was supplemented in-country information collection and interviews by EnergySolve in preparation for a workshop to be held in Colombo, including the development of a tentative list of invitees and presentation materials.

The author’s in-country work included a set of prioritized interviews prior to the workshop (see Annex C) and an extensive workshop presentation on the SMB Approach (Annex D) and associated discussions. More than 50 people from attended the workshop (Annex B), representing financial institutions; government agencies; international agencies; providers of energy supplies, know-how and technology; and others (e.g., trade associations). A series of follow-up meetings were held after the workshop (see Annex C). They focused largely on reconfirming the interest and conclusions reported here.



Above: Participants and potential partners for the implementation of the SMB Approach at the USAID SARI/Energy-hosted workshop in Colombo on 1 October 2010

I.4 OVERALL RESULTS

The overall findings of the study are positive: there is no question that the SMB Approach is applicable in Sri Lanka. Moreover, there is a clear potential for such an application and its transfer to increase the very limited market penetration of selected small-scale clean energy investments in Sri Lanka (discussed in Section 2) that could be pro-poor when fostered by the SMB Approach.

All of the investments discussed in this report have considerable market potential, and some in very great numbers (for example, for households and micro, small, and medium-size enterprises (MSMEs), liquefied petroleum gas (LPG) has a market potential of one million households or more; for biogas, one hundred thousand or more) and none has been the focus of an explicit market penetration initiative, at least not one that is explicitly pro-poor.

Also, as outlined in Section 3, the potential partners needed to implement an SMB Approach to achieve such a market penetration is present in Sri Lanka.

If the next steps discussed in Section 3 are taken, this could lead to a major scale-up project. Indicative figures suggest a scale-up initiative costing between US \$30 million and \$40 million, with required donor funding of about half that amount, even less if carbon financing is accessed.

I.5 REPORT ORGANIZATION

Section 2 presents a series of perspectives on selected small-scale technologies and associated investments relevant to the application of the SMB Approach. Selected existing experience in Sri Lanka is noted and the screening criteria for selecting the classes of investment focus are presented along with market potential, an assessment of capacity, and potential technology partners. This is followed by a discussion of the presence of possible FI partners and the reasons for applying the S³IDF SMB Approach.

Section 3 examines various issues with regard to the stages that would lead to a major pro-poor investment initiative. It also lays out the possible stages and an indicative set of targets and possible resource requirements for a scale-up application initiative. The discussion includes comments on partnership agreements and carbon financing efforts as well as the critical matter of finding donor support for the next stages required to get to a major initiative.

2. SMALL-SCALE TECHNOLOGY IN SRI LANKA AND THE ROLE OF THE SMB

This section examines selected small-scale technologies in Sri Lanka and whether the SMB Approach can play an important role in their pro-poor market penetration.

2.1 INVESTMENT EXPERIENCE IN SRI LANKA

Sri Lanka has considerable experience with at least some small-scale private clean energy infrastructure investments, primarily in liquefied petroleum gas (LPG), biogas, pico-mini-small-hydro and solar (PV), and more recently, in wind, although the wind projects are not really small-scale schemes. All such investments have required suppliers of know-how and technology. In some instances, much of the PV technology or many of its components are imported. LPG supplies are imported. Some of these clean energy options have been driven by strictly commercial forces (LPG) and others largely by donor initiatives (PV, much of the small hydro, and wind investments).

Reflecting the criteria discussed in Section 2.2, the reconnaissance study focuses on a subset of

these supply technologies. It also focuses, but to a lesser degree, on technologies that allow productive uses of these supplies and the associated supply technologies.

Other small-scale renewable and clean energy options, and energy conversion and end-use technologies have been studied in Sri Lanka, or have undergone demonstration or pilot projects, often on a less than commercial basis. They include, for example, solar drying and various biomass alternatives including small-scale gasification. These options have had support from various agencies and NGOs. Some of these options, while possibly promising, are not at the stage of development or do not have the players involved to justify further examination in the context of this reconnaissance study. But if further efforts are made, some of these technologies should be revisited.

Sri Lanka has experience with gasification but mostly at a scale beyond what is of interest in this study. However, there has been limited smaller-scale gasification experience and in further stages (see Section 3), this experience could be revisited in detail. Of particular note for both gasification and other conversion

technologies (versions of direct combustion) are the various possibilities associated with the biomass source *Gliricidia sepium* (known locally as Ginisiriya or other names). It is a fast growing leguminous tree whose leaves are a source of fodder and it can be grown in intercrop schemes. Currently Ginisiriya is widely used in “living fences” in Sri Lankan agriculture. It is often discussed as almost a “miracle” solution to Sri Lanka’s energy and other challenges. It has had sufficient intellectual and political attention as a potential energy and multi-purpose crop that in 2005 it was deemed a fourth plantation crop under the Ministry of Plantation Industries, joining the longstanding plantation crops of tea, rubber and coconut.

Research and discussions held during this study indicate there has been some development of larger commercial-scale (industrial users) projects (both for thermal loads alone and for dendro thermal electricity generation) based on Ginisiriya. These have had mixed results. The problems are reported to be largely with the aspects of the fuel’s supply – both organizational and technical. And there continues to be the aforementioned traditional use. Some studies, proposals and projects show it could be developed in a pro-poor mode with small holders as part of supply chains in a way that could benefit the poor significantly¹¹.

¹¹ As discussed below, such dendro thermal projects – whether utilizing gasification or more traditional combustion technologies – are not among the focus classes in this study. As discussed in Section 3, all of the classes of focus will require feasibility studies of representative investments in the class. However, if dendro thermal investments are considered in subsequent work, the complexities of the feasibility studies to ensure pro-poor implementation would be significantly greater (and more costly) than those for the investment classes of focus in this study.

2.2 TECHNOLOGY SCREENING AND INVESTMENT CLASSES

Early in this study, a set of criteria was developed for the potential clean energy projects and their associated enterprise investment types:

- 1 The SMB Approach is appropriate and potential partners exist
- 2 There appears to be significant pro-poor market potential
- 3 After further feasibility study, a pilot portfolio of commercially viable investments could be implemented and subsequently form the basis of a scale-up effort
- 4 Major donors have not addressed these investment types, or at least not in scale-up terms, but the potential for scale up is large enough that some donors and the government might be interested.

Applying these four criteria resulted in three classes of investment types:

Biogas	Investments related to the use of biogas technology for household, cottage-scale dairy operations, and other agricultural productive uses and value addition, particularly in pro-poor processing applications, as well as the use of system output (slurry)
LPG	Investments to allow poor households and cottage industries to benefit from LPG use (overcoming equipment technology access and financing constraints)
Productive Use	On-grid (on the customer side of the meter, e.g., sewing machines, small spice grinders, rice milling, fruit processing), allowing poor households and cottage industries to enjoy greater benefit from grid access being supported by other programs. Off-grid village hydroelectrification schemes where there is excess capacity

that could be used for various applications (e.g., sawmills, telecommunication facilities, oil seed processing)

Table I Pro-Poor Investment Types that an SMB Initiative Might Facilitate			
Technology/ Investment Type	Indicative Hard Investment Costs (US\$, 112 LKR/US\$1)	Market Size (Low Income)	Possible Implementation Partners
Biogas	\$700 Indicative number for the cost range for single household or small community systems (2-5 households). For cooking and lighting only. Other additional investments, such as electricity generation, are likely, but not included in this investment figure.	More than 100,000 households	<ul style="list-style-type: none"> ▪ Practical Action ▪ Lanka Bio Gas Association ▪ Ministry of Livestock Development ▪ HELP-O ▪ Eco Engineers & Company
LPG	\$80 Includes a two-burner stove, cylinder, etc., and assumes at least one special accessory such as a rice cooker. Other MSME investments are possible, but are not included here.	More than 1 million households	<ul style="list-style-type: none"> ▪ Former Shell Gas Lanka (Pvt) Ltd. (now Litro) ▪ Laugfs Gas (Pvt) Ltd.
Village Hydro Productive Use	\$1,000+/- Based on experience in other parts of South Asia	About 300 village electricity consumer schemes	<ul style="list-style-type: none"> ▪ Energy Forum ▪ Federation of Electricity Consumer Societies
Productive use investments on the customer side of the meter	\$150 +/- Based largely on experience in other parts of South Asia and some local costs	At least 50,000 households	<ul style="list-style-type: none"> ▪ SEEDS ▪ LOLC ▪ Stromme ▪ Microfinance Asia (Guarantee) Ltd. ▪ Other MFIs
Note: Except where noted, the indicative unit costs were drawn largely from discussions and meetings held with possible implementation partners, some of their reports, and follow-up communications.			

2.3 MARKET POTENTIAL AND POTENTIAL PARTNERS

Applying the SMB Approach to achieve pro-poor market penetration of the three investment classes will aim at the following types of small-scale energy end-users:

- households
- small-holder farm and livestock operations, micro/small/medium enterprises
- selected village schemes.

With the exception of the off-grid village hydro with excess capacity (the productive use class), the potential market size of these investment classes is estimated to be enormous. This potential is so large that even a large-scale initiative (see Section 3) may not achieve full market penetration. Yet, with the correct sequence of stages and an application of the SMB Approach, in the author's judgment, much of this market potential could be achieved.

Table 1 presents very preliminary estimates of these market potentials. The remainder of this section describes the basis of these estimates and related matters including possible technical and know-how partners that could be involved in an initiative(s) to push into these markets with focus on the poor. Many of the comments below are specific to a technology investment class, but some are common to more than one class.

2.3.1 Small-Scale Biogas and LPG

Both biogas and LPG are combustible gases that allow the delivery of modern energy services to small-scale users. The most common small-scale end-use for these gases in Asia is as a household cooking fuel that requires only limited additional investments (for example, stove and burner). These cooking gases can also be the fuel for cook-shops serving numerous poor households, especially in areas where they

are concentrated to meet employment opportunities (rural industries) or for a limited time (for example, health centers and hospitals).¹²

It is unlikely that this cook-shop alternative has much potential in Sri Lanka. However, both fuels can be used for numerous other applications, including running internal combustion engines for various mobile or stationary shaft power uses. These applications will add to the necessary investment cost. Biogas digester operations also yield a slurry that is high in nutrients and organic content, and can have great agricultural value as a fertilizer and soil conditioner.¹³ Reportedly, commercial fertilizer has become more costly.



A woman cooks on her biogas powered stove. Her family's biogas system was financed with S³IDF assistance.

Biogas. As Table 1 shows, the preliminary total potential market of poor households, cottage and micro industries for which biogas might be a viable investment is at least 100,000 households. This figure is based on the numbers of households with three to ten actively managed animals, which generally is more than adequate to provide the feedstock for a household-scale (6 cum) bio-digester.

¹² Please see Annex E, Slide 17.

¹³ Assumes the slurry is used properly; otherwise, it can be a source of pollution.

Households with this number of animals can be found in essentially all of Sri Lanka's provinces. Furthermore, viable bio-digesters can be designed to run with feedstock from fewer animals if human and kitchen wastes or other digestible organic feedstocks are included. Moreover, because of their aversion to killing animals, many poor Buddhist households may "own" more animals than this for which they practice active animal husbandry; these households will also offer market potential.



This biogas digester supplies gas for cooking to two homes in Sri Lanka from kitchen scraps. The water over the dome helps to prevent cracks in the surface. Photo courtesy of HELP-O.

Micro and small enterprises, such as restaurants, employ poor people and will generate sufficient waste to run a bio-digester. Also, it is possible to digest household wastes (kitchen wastes and sewage) and various agricultural wastes that are widespread in Sri Lanka. The general case is likely to be bio-digesters serving a single household, but those serving small communities also operate in Sri Lanka. Elsewhere in Asia are systems serving larger communities.¹⁴ And there is the potential for households with more animals. Thus the 100,000 number in Table 1 should be viewed as a lower boundary of the

¹⁴ Like many natural resource community management/use systems, experience elsewhere suggests considerable organizational challenges.

market potential.¹⁵ In contrast, estimates suggest that over the years, less than 10,000 small-scale biogas plants have been built; and because of various shortcomings in both implementation and after-service, large numbers of these are no longer working (although in some instances, problems have been rectified).

While a variety of small-scale biogas digester designs and materials are employed in South Asia and elsewhere, in Sri Lanka the fixed dome brick and masonry design is dominant.¹⁶ Consultations with various knowledgeable professionals active in the industry and members of the Lanka Bio Gas Association suggest that there are over 20 qualified providers of know-how and technology for the investments of interest. Unfortunately, according to these same sources, there is little activity in the supply chain of these small-scale technology and know-how players. Financing appears to be a significant barrier, but this is intertwined with the particular area locations of the players and the undeveloped supply chain of know-how, technology and financing. They estimate that only a handful of these players are currently active and are concentrated in a few provinces (Uva, Sabaragamuwa and Southern Province). One market player, HELP-O¹⁷ in the Galle area, employs a different design that uses a wider range of feedstocks, including small

¹⁵ Based on Sri Lankan Government national data (disaggregated by province) of animal holdings by households and other studies.

¹⁶ There exists a code of practice for the design and construction of domestic biogas systems (Sri Lanka Standards Institution. *Code of Practice for Design and Construction of Biogas Systems. Part 1 – Domestic Biogas Systems*. Sri Lanka Standard 1292: 2006).

¹⁷ HELP-O has received USAID SARI/Energy support for some of its efforts.

community systems and small-scale projects integrated with urban waste management.

Experience elsewhere suggests that household biogas projects generally lead to significant savings in greenhouse gas (GHG) emissions and hence produce global environmental benefits. This will surely be the case in Sri Lanka.

When monetized through carbon market mechanisms – such as the Clean Development Mechanism (CDM), voluntary carbon markets, or donor carbon funds/initiatives – the environmental benefits biogas projects produce can be (and have been) the source of underwriting much or even all of the costs of initiatives focused on small-scale biogas (see footnote 4 in the Executive Summary).

Sri Lankan players have made only limited efforts to tap the carbon market for projects based on any technology, and as far as S³IDF can determine, there have been no CDM projects that dealt with very small investments. This is particularly relevant for the biogas investment class as there are examples of carbon financing projects for large numbers of small and household biogas projects that have been successful. This can mean overcoming financial and other constraints to the market penetration of this technology. Any initiative that supports this class of investments should attempt to integrate carbon financing as an element.

LPG. The total potential market of poor households, cottage and micro industries for which LPG might be an attractive investment could be 1 million households or some significant fraction of this number. Industry players indicate that more than 3 million households do not have access to the supply chains and/or financing for the equipment necessary to use LPG; most of these are in more rural areas. Assuming one-third or more of these rural households are poor or near poor,

the market potential for LPG is enormous as a household fuel for cooking (and lighting). There is also market potential in micro and small enterprises in which the poor are customers, operators or owners. And as noted above, both biogas and LPG can fuel internal combustion engines.

LPG already has developed supply chains that reach almost everywhere in the country through more than 20,000 distributors and retailers affiliated with one of the two national suppliers: Litro¹⁸ (formerly Shell) and Laugfs. These supply chain players could be the building blocks of a SMB initiative to reach the poor. Both national entities are open to collaboration if such an initiative materializes.



Household cooking with an LPG stove from a project assisted by S³IDF.

Biogas vs. LPG. Both biogas and LPG are clean fuels, but biogas is generally more sustainable, assuming that the feedstocks (animal and other wastes) can be supplied sustainably. Both have possible end-uses other than cooking. Table 2 uses representative costs and compares cooking with LPG, biogas and fuelwood for situations where the fuelwood

¹⁸ The sale of Shell to a new corporation, Litro, organized by the Sri Lankan Government (previously a shareholder) was underway during this reconnaissance study.

must be purchased. This table provides a backdrop for some comments on biogas versus LPG:

- While emissions are not shown in the table, based on existing studies and analysis, both biogas and LPG are more environmentally benign than fuelwood when conventional GHGs are considered. If the greenhouse effect of black carbon (particulates from incomplete combustion) is considered, the environmental calculus shifts even further in favor of LPG and biogas.
- This simple comparison does not include any value for the fertilizer benefit produced (in the biogas slurry) or the other environment and public health benefits if one of the feedstocks included is household sewerage waste.
- LPG has both capital and operating costs (LPG supply purchase) and in the simple comparison used in Table 2, it will never compete with the two other options. But this simple comparison does not include many other factors that lead even poor households to choose LPG if it is available and the first cost barrier can be overcome (as it would be in the proposed initiative discussed in Section 3).
- Biogas, too, has a capital cost that is much higher than LPG (and its first cost barrier can also be overcome in the proposed initiative). In the general case where the household and its animals are the sources of the feedstock, there are no cash costs for the feedstock, but there are opportunity costs of the household to collect and input the feedstock (for example, dung and vegetable waste and water).
- The capital assets for using LPG are “movable,” unlike that of a biogas plant (in the general case). This means that, in

principle, households can shift from LPG to biogas without “wasting” a capital asset, but not the other way around.¹⁹

Gender and Income Class Issues

There are often very significant gender issues in these choices, intertwined with the issues of convenience and costs. And there is the overriding issue of poor households having the same options as the middle class, especially if their ability to pay (ATP) and willingness to pay (WTP) allow them to choose – providing they have access to know-how, technology and financing.

While these issues merit more detailed analysis, briefly: The convenience of cooking with a gaseous fuel is often not well enough understood or appreciated, especially by males, who often do little of the cooking in many households.

The opportunity costs associated with biogas can be considerable. If much time or effort is spent collecting the feedstock and water for the biogas plant and this work falls to the women and children of the household (as is often the case), then this can add to a woman’s already overburdened workload.

¹⁹ One exception is the case of about 100-plus Sri Lankan urban (non-poor) households that have invested in household biogas systems developed by Athula Jayamanne of Eco Engineers & Company.

Table 2 Comparison of Household Cooking Costs with Alternative Fuels (in Sri Lankan Rupees, LKR)			
Aspect	Fuelwood	Biogas (6 cum)	LPG
Capital cost	Existing	55,000	7,000
Unit	kg (20% m.c.)	cum	kg
Heating value (MJ/unit) ¹	15.5	40	45
Annual consumption (units) ²	1,825	530	210
Stove efficiency ³	15%	40%	45%
Annual useful energy use (MJ)	4,243	4,243	4,243
Fuel cost (LKR/unit) ³	4.3	n.a.	152
Annual fuel cost (LKR)	7,908	n.a.	31,866
Annual savings compared to fuelwood (LKR)		7,908	(23,978)
Annual value of excess biogas ⁴		255	
Value of biogas slurry		Not included	
Simple payback period for biogas plant cost		6.7 years	
Notes:			
1. Lower heating values are used.			
2. Local fuelwood use data used. The annual consumption of biogas and LPG is estimated based on providing the same amount of useful energy as provided by fuelwood.			
3. Representative local fuel prices and efficiencies are used.			
4. Excess biogas valued based on fuelwood substitution.			

2.3.2 Small-Scale Productive Uses of Electricity

Two subclasses of productive-use investments are examined here:

On-grid: Equipment for the Customer Side of the Meter

This includes, for example, spice grinders or sewing machines that are used by households and micro-enterprise.²⁰ In general, such

²⁰ It is important to note that “grid connection” financing investments for poor households without access to the grid are not included as an investment class because they are the focus of recent project initiatives, including one supported

investments may serve both household and market needs. For example, a small food-dryer with a blower may both preserve some peak season household garden fruit and provide this service to neighbors on some fee-for-service or in-kind product sharing.

Off-grid: Equipment for Existing Non-grid Connected Village Hydro Schemes

These schemes are used mostly for lighting and have “surplus” capacity especially during the daytime. This capacity could be useful for productive use investments (for example, a sawmill). In general, investments in off-grid

by ADB, to address this critical pro-poor requirement.

productive use will be relatively larger but still small.



A village-scale South Indian water purification enterprise that S³IDF helped open through financial business development and technological services. This is another example of an on-grid productive-use investment.

Experiences elsewhere, including S³IDF's own, suggest that the variety of on-grid productive use equipment investments (for example, sewing machines, drills and other electric power tools, chillers, clothing irons) can be quite large. Suppliers of such equipment can be found in Sri Lanka's urban areas, but much less so in rural areas. Moreover, the numbers of poor households for whom the costs of such investments pose a first-cost barrier are significant percentage of the households on-grid. In Sri Lanka, the number of on-grid households is about 3.8 million.²¹ The market estimate of 50,000 households in Table 1 is professional judgment based on +1% of the connected households. Better estimates of these numbers and the priority productive use investments could be made based on a survey organized in collaboration with Ceylon Electricity Board (CEB) and a few MFIs, or MF arms of commercial banks that have active programs in areas where the grid extends (for example, HNB, SEEDS, Strome MicroFinance).

Sri Lanka is estimated to have about 300 off-grid village pico or micro hydroelectric plants in

²¹ These figures are from the Ceylon Electricity Board, sourced by EnergySolve International.

the capacity range of 3 to 100 kW. Some 200 of these have been registered as Electricity Consumer Societies. The World Bank GEF Renewable Energy for Rural Economic Development project assisted in the development of many of these schemes. In 2002, a small number of these societies formed the Federation of Electricity Consumer Societies, which was organized as a voluntary social service organization. Membership in the federation has grown and there are reportedly about 100 active members.²²



A pico hydro system financed through S³IDF provides electricity to a rural south Indian village.

A number of these societies have excess capacity, especially during the daytime (when there is little or no lighting load). This capacity offers the possibility for productive-use investments if such investments are well developed and organized. A subset of these societies has implemented such investments, reportedly with varying success. These

²² This paragraph and its figures were drawn from the author's communications with EnergySolve International, Practical Action Sri Lanka, and the Sri Lanka Energy Forum.

possibilities warrant further examination, and experiences elsewhere suggest that the success is very much dependent on detailed pre-investment studies that consider not just the technical and financial aspects of various possibilities (for example, sawmills), but also the organizational and business models and financing matters. This pre-investment work should involve the societies, the federation, sources of know-how (such as Practical Action and others), and possible implementation partners, including local bank/FIs.

The Plantation Sector

Although Sri Lanka generally lacks technology and know-how supply chains, the plantation sector, might be a facilitator or supplier of technology, know-how, or even financing to a major segment of the rural economy.

Discussions at The Plantation Human Development Trust suggest that because of its responsibilities to improve the lives and well-being of plantation workers, the Trust could be a channel for know-how and technology to reach these communities. Moreover, its management also brings a link to another pertinent organization: the National Livestock Development Board. In the follow-up stages of activity for moving toward a large initiative (outlined in Section 3), possible partnering with the Trust should be explored.

2.4 FINANCIAL INSTITUTIONS FOR PARTNERING

The discussions above and entities mentioned in Table 1 point to potential know-how and technology partners for applying the S³IDF SMB Approach. Before discussing the major reasons for applying this approach, it is useful to underscore the presence of FIs that could be the partners needed to apply this approach.

Sri Lanka has a modestly well-developed financial sector with multiple players in all major segments: insurance, banking, micro-finance, leasing and capital markets. It also has a very active stock exchange. Many of the larger FIs operate themselves, or through affiliates or collaborations in multiple segments.

For the segments that are of primary relevance to this study, multiple potential partners with pertinent experience are present: banks, MFIs, and to a lesser extent, leasing companies. This conclusion is based on research begun during the inception report period and continued during this reconnaissance study and was reinforced by a significant number of FI representatives, both before and after the workshop. While these preliminary discussions will have to be followed up in subsequent stages of activity that could lead to a scale-up application of the SMB Approach (Section 3), some additional comments are:

- In meetings, after discussing this reconnaissance study, the SMB Approach, and the possibility of applying it to the set of investment types of focus, the potential roles of FI partners in such an initiative were explained. There was generally “in principle” interest in the SMB Approach, which was reinforced by these entities’ subsequent attendance at the workshop.
- The collective operations footprint of banks, MFIs and other FIs is quite extensive; but individual FIs, especially MFIs, have more limited footprints defined by geography, their structure or associations with other entities, such as SEEDS’ relationships with the many Sarvodaya groups (Sharanadana Societies).²³

²³ The Sarvodaya organization aims to bring about positive community change through an island-wide network of “Shramadana Societies,” which

- Several FI candidates appear to have the requisite experience (including some clean energy experience, especially PVs) and interest to be partners in an initiative to support one or all of the classes of project types outlined above.
- Some of the FIs/MFIs (for example, Stromme Microfinance) have more than financial services activities as an active part of their operation. Given the relative lack of supply chain development for the investment types of focus, services for entrepreneurship and business development will have a potentially important role to play in any scale-up initiative for the SMB Approach.
- There are major bank candidates to host the RF and serve as the institutional organizational structure for the SMB Approach and scale-up initiative (see Sections 1 and 3, and Figure 1-2). In one case, Hatton National Bank (HNB) reiterated its interest after the initial meeting and workshop in another meeting with an HNB senior manager at the bank's request.²⁴

are engaging over 11,000 village communities in local economic and social services. SEEDS is the microfinance arm of Sarvodaya.

²⁴ In the proposed next stage of activities (see Section 3), continuing dialogue and possible partnership agreements should be a high priority as HNB was a strong candidate partner early in the inception report investigation. This reconnaissance-level analysis has strongly reinforced this view. But this should not imply that such a partnership will necessarily be straightforward since: 1) there is the question of whether the initiative will be large enough to attract HNB and elicit the necessary commitment and 2) like other banks, HNB is also in the micro-

2.5 REASONS FOR APPLYING THE SMB APPROACH

In Sri Lanka, almost none of the investment types in any of the classes outlined above are being given a serious push to achieve market penetration that is specifically pro-poor. This is despite the fact that evidence from India, Nepal and elsewhere in South Asia (and other developing countries) suggests that such clean energy investments can have very positive poverty alleviation and environmental (local and global) benefits. In fact, aside from market development for LPG, which is not focused on the poor, there is little push for market penetration of any kind for these classes of investment.

This situation is not unique to Sri Lanka. And the reasons are one or more of the various factors that gave rise to S³IDF and its SMB Approach. Even if these investments have the necessary pre-investment work such that they are designed and developed to reflect the poor's ATP and WTP for such investments, the investments considered here are all beyond the poor's first-cost barriers, so financing mechanisms are needed. But also required is know-how to do this pre-investment work, know-how for which the poor are generally able to pay for only partly or not at all. Moreover, these pre-investment efforts must include appropriate financing arrangements so the poor's ATP and WTP will allow the investments to be financially viable from the time they are implemented.

Purely commercial players will not push into this market, and development players (donors, governments, philanthropists, and green social investors) are largely absent in these classes of

finance business (one of its plus points) but, under the SMB Approach it would need to proactively collaborate with other FIs and MFIs who might co-finance specific investments.

investments and need to be convinced to make this push. And the development players need to do the pushing so their financing and other support is leveraged. Development players can underwrite the “soft costs” (see discussion in Section 3.1) for such market penetration that cannot be absorbed by commercial players meeting their financial norms. But these “soft costs” must be underwritten to facilitate local financing into pro-poor investments that can be financially sustainable.

Such leveraging of development support is the essence of the S³IDF SMB Approach. An SMB

pro-poor market penetration takes a bundled approach that provides technology know-how, business and commercial strategy, capacity building, and financing. And this is generally required along the supply chain enterprises as well as the end-using customers/enterprises.

The next section of this report explores the issues related to building on this reconnaissance-level study and taking the next steps toward an initiative to apply the SMB Approach to achieve significant pro-poor market penetration of the investment classes of focus herein.

3. APPLYING THE SMB APPROACH IN SRI LANKA

Having reconfirmed that the minimum conditions for applying the SMB Approach exist in Sri Lanka, this study examined and selected classes of small-scale technology-based market segments on which to focus. Each of these classes has a large, and in some cases (LPG and biogas) enormous, potential for pro-poor investments. This study has also identified and examined the potential necessary partners – technology and know-how providers, banks and other FIs – that could implement the SMB Approach in accordance with the institutional organizational framework outlined above (see Figure 1-2 and related text).

If the process begun in this reconnaissance analysis is to end in a major scale-up application of the SMB Approach, it warrants recalling the necessary next stages introduced in Section 1 and the Colombo workshop:

- 1 Feasibility analysis of potential investment portfolio and related partnership agreements as well as carbon financing
- 2 Commercial pilot portfolio investments with related implementation of the necessary organizational and institutional structure and partnership arrangements
- 3 Building on these previous stages, the design and implementation of a major scale-up application of S³IDF's SMB Approach

These stages, along with the critical activity of seeking donor support to go forward, are discussed below. First, it is useful to comment on the issue of “soft” costs and lowering both the risk and required soft costs in a scale-up application.

3.1 SOFT VERSUS HARD COSTS

3.1.1 Soft vs. Hard Costs

One of the greatest challenges in implementing any explicitly pro-poor investment initiative is underwriting various soft costs. To discuss this challenge, it is useful to first introduce some definitions and comments:

Hard investment costs include the costs of all equipment, construction, etc. needed to implement the specific investment project and put it on an operating basis.

Soft investment costs include project- or enterprise-specific pre-investment costs, including the financial structuring and arrangements (a special challenge) and project- and enterprise-specific capacity building. In larger infrastructure investments, these costs are normally capitalized into the total investment costs, effectively becoming part of the “hard” costs of the project.

Conventional financial sustainability is reached when all hard and soft investment costs are covered. In large, ongoing pro-poor initiatives dealing with the same types of small-scale investments, these soft investment-specific costs should trend downwards, especially when the same set of know-how, technology, bank, and FI partners are involved.

Programmatic soft costs include a range of overall program activities that are often common to many investments. This could include helping to identify and then develop all the necessary player partnerships and collaborations (sometimes with government and regulatory entities), organizing community groups (sometimes this can be investment-specific), and post-investment monitoring and evaluation. A special case of programmatic soft costs is dealing with and accessing carbon financing under a mechanism such as a CDM approach, which can entail thousands of individual small investments.

When a major initiative is to take place, many of these broader, more programmatic requirements (and their costs) can and should be partially absorbed in the initiative's planning stages.

The fundamental challenge is that small pro-poor projects do not allow full capitalization of the soft investment costs into the financial cost of the investment that the poor will own. And in many instances only a small amount of the soft costs can be recovered if the investment is to be financially viable. Also, it requires considerable time and experience to learn the possible range of soft cost recovery /capitalization, which in turn depends on the particulars of the investment soft costs. Rarely can any of the programmatic costs be recovered. This challenge results from the fact that while the poor often have WTP, their ATP is limited. Hence, structuring the deal's financing to allow for the recovery of hard costs must be the first priority. But under the SMB

Approach, if the poor's WTP and ATP allow for some recovery of soft as well as all hard costs, this should be part of the approach.

As a result, the SMB Approach requires that much, if not all, of the soft costs be covered by development or philanthropic (subsidized) funding. This is the best and smartest use of such funds. Only in very special circumstances should subsidies for hard costs be used when there is WTP and ATP on the part of the poor because there simply is not enough development and philanthropic capital to meet the poor's needs. The SMB Approach is designed to leverage development and philanthropic capital to bring local commercial capital to viable pro-poor investments. However, it should be noted that subsidies exist (external to the SMB Approach), whether they are smart or not, if the poor are involved in an investment being fostered by the SMB Approach, part of the soft costs should be used to access these subsidies.

3.1.2 Soft Costs in Carbon Financing

The soft costs related to access carbon financing warrant highlighting because:

- They can be significant. For example, preparatory work leading to CDM registration can entail person-months of effort and consultations with consultants knowledgeable in the process.
- When successful, the carbon financing for some technologies can be a large and important source of financing for much of both pre-investment and programmatic soft costs in the case of a large-scale initiative and even some of the hard costs.

This potential exists when a larger scale-initiative focuses on investments that produce significant amounts of GHG

mitigation (such as biogas investments) and that in the absence of this initiative, these investments would not materialize.

The potential for carbon financing plays an important role in the case made for the large-scale initiative that could be the result of the end-game stages following this reconnaissance study. The concept of what this end game might be is outlined immediately below.

3.2 THE END GAME: TARGETS AND REQUIREMENTS FOR SCALE UP

The “end game” that should result from the next stages following this reconnaissance-level study would utilize the SMB Approach to push market penetration of the classes of investment focus discussed in Section 2 in an explicitly pro-poor manner. At this preliminary reconnaissance stage, *assuming that the subsequent stages are implemented*, Table 3 presents a set of *indicative* investment targets and resource requirements for an initiative supporting the scale-up application of the S³IDF SMB over a period of three to five years.

As noted in the footnotes to Table 3, these indicative figures draw on the discussions presented earlier in this report (see in particular Table 1) and the assumptions below about the next stages of activities leading to the end game. In particular, it reflects the previous discussion of soft costs, some of which are covered in stages following the reconnaissance analysis but prior to the actual scale-up implementation. These targets and resource requirements, in the end, reflect S³IDF’s judgments based on experience.

While underscoring that the figures in Table 3 are indicative, they are nonetheless realistic in

what could be envisioned in a scale-up initiative. A few additional comments on the numbers in Table 3, based on the findings of this reconnaissance study and experienced judgment, are:

- The soft costs in the scale-up are expressed as a function of the hard investment cost, and are based on experienced judgments of the relative complexity of these investments and what it takes to get the specific pro-poor investment implemented.
- Given the market potential of the various investment classes discussed here, if the initiative has sufficient time to “ramp up” (implying an initiative at the higher end of the three to five years mentioned earlier), more investments could be achieved and the initiative’s total hard investment costs could begin to move toward \$40 million rather than the \$33 million figure shown.
- For this indicative estimate, the percentage of hard investment costs to be covered by the RF was set at one-third, a target supported by experience through S³IDF-India. But this number could well shrink as partner FIs become familiar with the investment types and thus greater RF leverage could be achieved as the FI co-financing increases. And with longer initiative time periods, reflows to the RF can be utilized.

The current estimates suggest the need for “conventional donor” funding approaching \$20 million (\$11 for the RF and \$6.4 for the soft costs). But if a “carbon financier” is brought in, this number could decrease markedly based on some successful programmatic carbon financing that has been done.

Table 3 Indicative Scale-up Initiative					
Class of Target Investment and Market Target	Unit Investment Cost (\$) ¹	Hard Investment Cost (\$ million)	Revolving Fund Share (1/3 of Hard Cost ²) (\$ million)	Soft Pre-Investment and Programmatic Costs as a % of Hard Costs ³	Soft Costs (\$ million)
LPG – 100,000 units	80	8.0	2.6	10%	0.8
Biogas – 25,000 units	700	17.5	5.8	25%	4.4
Customer side of electric meter (productive use investments – 50,000 units)	150	7.5	2.5	15%	1.1
Village hydro productive use – 200 Cooperative Societies	1,000	0.2	0.7	30%	0.06
Notes:					
1. From Table 1.					
2. Based on S ³ IDF bank co-financing transaction experience; this share could range from 10-40%, but 33% is a reasonable target to achieve a 3-1 leveraging of RF support.					
3. These indicative numbers are based on the author's judgment based on consultation with S ³ IDF India staff as well as on extrapolating from the extensive pre-investment work by S ³ IDF in India on over 175 projects (although only some of these projects moved forward to implementation). Although these estimates may vary in the Sri Lanka situation, their relative levels are likely to hold. Higher percentages reflect the more complex pre-investment work that some classes of investment will require.					

3.3 STAGES TO THE SCALE UP

The necessary stages for the dissemination and transfer of the SMB Approach that would lead to a scale-up initiative application were noted in Annex E of the inception report, emphasized in this study’s Workshop and reiterated above. In the context of this reconnaissance study and movement toward the scale-up end-game initiative, a stage is defined as a set of activities that can be separately funded and undertaken to move toward the scale-up.

The next stage of the work should encompass at least three inter-related activities:

- 1 Pipeline feasibility
- 2 Partnership agreements
- 3 Carbon financing
- 4 Revisit technology investment type cases

3.3.1 Pipeline Feasibility

First, pre-investment work should be conducted to examine the detailed feasibility of a *pipeline* of specific investments in one or preferably all of the investment classes outlined above.²⁵

Obviously, this feasibility work should involve various local know-how and technology partners and others identified in the course of this activity. These investment-specific technical and financial feasibility studies should be of sufficient detail, including issues of financial structure and where relevant, business plans, to satisfy the information requirements of potential FI partners (see immediately below).

²⁵ The decision on which investment classes will be covered will be made by whatever donor supports this next feasibility stage of activities. But it would be preferable if work on all classes were taken forward.

For a class of investments, there likely will be a degree of repetitiveness in the feasibility studies. Part of this work should be thinking through the number of “cases” for a specific class of investments such that the feasibility stage is sufficiently representative to inform both the other two activities in this stage and the subsequent stages. For example, biogas cases should encompass representative variations in feedstock, designs, sizes, individual versus group or community ownership, and different end-uses in addition to cooking (for example, small-scale electricity generation, milk pasteurization) and their associated additional equipment and costs. During this work, the market potential for a scale-up would be revisited.

In some investment classes where there has been little or limited local experience (for example, productive use investments) it will be necessary to:

- develop a “catalogue” of pertinent technology choices and businesses models that could be applied
- conduct some survey work of potential small-scale productive-use investors.

3.3.2 Partnership Agreements

This stage would include examining and discussing deal-specific partnerships (including co-financing) as well further partnering discussions with potential FI hosts of the facility. These partnership dialogues should, if possible, be taken to the point of a draft memorandum of understanding (MoU) in the appropriate language regarding the contingency that next stage goes forward. Part of these partnership agreements would include having to address the question of whether, and if so how, to treat non-poor customers and beneficiaries. Assuming they, too, are to be served (which is likely to be the position of any donor), then the

partnership agreement should address how non-poor households are to be “charged” more of the soft costs that are being subsidized under the standard pro-poor SMB application.²⁶

3.3.3 Carbon Finance

The last activity in this stage is related to carbon financing and includes:

- estimates of the greenhouse gas (GHG) savings for the specific cases
- estimates of the GHG savings for a scale-up initiative
- beginning the process (and going as far as time and resources allow) of seeking carbon financing, either via a CDM or another carbon market process
- undertaking special analytics or investigations that might aid the dialogue with potential donors, especially donors for whom carbon benefits are an important part of their program calculus or who source some or all of their program monies from carbon-related funding.

3.3.4 Revisit Technology Cases

A possible fourth activity, depending on funding, could be to revisit some the technology investment type cases that were identified in the reconnaissance study, but that for one reason or another were not selected for focus.

It would be preferable if this feasibility stage could be integrated with (or at least very closely followed by) the next pilot stage. If such

²⁶ The donor(s) should be an active participant in defining how these matters are to be addressed.

integration does not occur, the feasibility stage should proceed as soon as donor support can be secured. The necessary resources for the feasibility stage can vary considerably depending especially on the following factors:

- The size (number of deals) of the pipeline of feasible investments studied and prepared for taking forward, including draft partnership agreements
- The characteristics (for example, geographic distribution) and in particular the composition (mix) of the investments types (for example, all types of focus or only some)
- How much capacity building of the players is undertaken so that the feasible pipeline and the players involved are truly investment ready.

Of course, the choice on all of these factors as well as the overall budget for the feasibility stage will be made by the donor. And the potential range for the appropriate budget is very large. At one end of this range would be the feasibility stage focusing *only* on the least-complex investment type: LPG investments and necessary partnerships (technology, know-how and FIs) and required capacity building, where a feasibility stage of activities could be undertaken for about \$100,000 and perhaps less. At the other end of the range, encompassing all the technology types, the required budget could easily be many hundreds of thousands of US dollars, depending on the details of the three factors noted above.

In principle, the feasibility stage activities could be taken up separately for different classes of investments, if this were within the interest and budget constraints of the donor(s). But this would mean considerable inefficiencies, particularly in developing the necessary FI partnerships and perhaps in technology and

know-how partners if they are potential partners for more than one type of investment class, as some are.

3.4 BUILDING A PILOT COMMERCIAL PORTFOLIO

This stage builds a pilot commercial portfolio of investments, and continues to build the pipeline and undertake other related activities. Here the word “commercial” is used to emphasize that the aim for pilot investments is to be commercially viable when implemented. All these efforts will allow for detailed learning by implementing a pilot portfolio. This learning will be built into the design and implementation of a scale-up application of the S³IDF SMB Approach.

Related to building this portfolio, a set of capacity building efforts will likely need to be supported, especially for some of the players in the biogas know-how and technology supply chains. The particular capacity needs should reveal themselves during the feasibility stage and when the initial deals of the pilot portfolio are built.

As part of building this portfolio in accordance with the SMB Approach, a set of specific investments will be implemented with the cooperation of a set of partners. A few of these partners should be involved in all of the deals:

- The group that the donor or funder of the stage chooses to be responsible for this stage
- The FI facility host (see Figure 1-2 and related text).

In addition, in general, each deal will also involve:

- The individual, household or group that is going to be the owner of the investment
- Another operating entity if different from the future owner
- One or more providers of know-how and/or technology
- An FI or MFI providing co-financing (this could also be the FI facility providing funds from its own resources as opposed to the RF).

At this stage, the institutional arrangements outlined above would be put in place. Also, the draft MoUs prepared during the feasibility stage would be finalized for the implementation of at least a specific deal as well as the whole pilot portfolio. Again, these MoUs would need contingency language covering whether scale-up will occur, which will be largely donor driven. Obviously, the key MoU will be that of the FI facility host. Ultimately, the institutional structure of the proposed FI facility could become part of the scale-up initiative.

If the findings of the feasibility and this pilot investment stage indicate that a subset of technical and FI or MFI co-financing partners are likely to be involved in many deals, considerable attention should be paid to the revision of MoUs with these players so that if (and hopefully when) a scale-up occurs, many of the necessary implementing relationships are in place.

Obviously the size of a pilot commercial portfolio and its relative composition priorities (between classes of investment focus) will be a decision made by the donor or donors underwriting this stage of work.

If this stage has not been explicitly integrated with the feasibility stage, the scope (and budget) of this “learning-by-doing pilot commercial

portfolio stage” should be driven by the results of the feasibility stage that generated a pipeline of feasible investment deals and their financial structuring and support arrangements for implementation. Similarly, the partnership MoUs finalized should build on those drafts prepared during the feasibility stage.

The target number of deals brought to closure in this stage, whether from the existing pipeline of feasible deals or some continuing development of the pipeline and the associated budget for this stage, will also be decided by the donor(s). If the budget decision is based on the prior feasibility stage having covered all the classes of investment types outlined above, the donor’s budget for this stage could easily be in the \$1 to \$2 million range under the assumption of a targeting a pilot commercial portfolio of at least 5% (in some mix of deal numbers and hard cost totals) of numbers shown in Table 3 for the end game initiative targets.

Further speculation on the budget for this or the previous stages – not to mention more effort on the indicative estimates in Table 3 for end game scale up – are not warranted unless and until there is donor interest in taking the results of this reconnaissance-level study further. This issue is addressed next.

3.5 SEEKING SEED AND OTHER FUTURE DONOR SUPPORT

After the reconnaissance work is completed, it is key to find a seed donor(s) or donor(s) who will support the next stages outlined above. While less attractive, if a seed donor(s) will only support the feasibility stage, work should proceed while efforts are made to find a complementary seed donor(s).

Real effort should be devoted to the process of finding seed or future major donors as soon as this report is finalized and USAID SARI/

Energy makes it public and the report provided to potential donors. To raise interest, informal contacts could begin, even while this report is being finalized with the understanding that the report would be provided as soon as SARI/Energy makes it public.

Preparatory work for seeking support should consider various donor interests and program constraints as well as some possible initiative implementation aspects that are touched on in Section 3.6. But here a few more programmatic characteristics and capabilities of donors that warrant comment:

- Donor dialogue should obviously involve those with known clean energy programs, especially those with some interest, if not experience, in supporting small-scale investments.
- Given the emphasis of the SMB Approach on the local private sector players and facilitating access to local finance for viable pro-poor investments, donor support may best be sought by dialogue with several different groups (for example, energy, private sector, financial sector) within the same donor institutions.
- Some donors may only be interested in one or two of the technology-specific investment classes and willing to support only the next stages in those areas. Then, if possible, arrangements should be made to go forward while seeking possible complementary donor support for efforts on the other investment classes (or all three).
- Of particular note should be donors who could integrate carbon financing support with other support, or if not, at least facilitate such coupling.

- Also of special interest should be donors who have special programs that very explicitly focus on poverty alleviation and have the flexibility to support projects in many or all sectors. An example of such a program is that of the ADB’s Japan Fund for Poverty Reduction.

After adding the matter of donors that have a history of supporting Sri Lanka, a list of donor dialogue priorities could be constructed and dialogues begun.

It is important to continue the process begun by this reconnaissance work by seeking seed and other donors for the next stages. While dialogue with candidate donors (once identified) can be initiated through emails and phone calls, there is no substitute for face-to-face discussion. And given the nature of the results of this study, the useful conversations are likely to be with multiple candidate donor entities: energy, agriculture and livestock, financial sector and SME development.

3.6 GETTING TO THE END GAME

Implicit in the discussion above is the assumption that the outlined stages following this reconnaissance-level study would lead to the design and implementation of the scale-up initiative. But even as early as the pilot commercial portfolio investment stage, if not earlier, it is very important to consider whether the Sri Lankan Government (one or more of its entities) has to be actively involved in the implementation of the proposed initiative or is a non-controlling partner that gives its “blessing,” cooperation and assistance. While it is beyond this study’s limitations to define all the factors involved, based on the study and the author’s experience, the following influencing factors appear pertinent:

- Whether the donor by charter (or similar constraints) only engages in private sector support programs and projects
- When the donor is only supporting activities (such as pre-investment studies or capacity building efforts) whose arrangements for implementation under the SMB initiative umbrella can avoid the Sri Lankan Government’s direct involvement
- When the donor that normally manages donor-government arrangements, has and can make use of special program funds that will allow it to support an initiative without channeling its support via a government entity
- Whether the donor that normally manages donor-government arrangements, can have an agreement with a Sri Lankan Government entity that includes the needed flexibility to have the initiative implemented as designed. And whether this agreement and its implementation requirements will be clear to both parties before the initiative’s implementation begins.

If the Sri Lankan Government is involved as an active or controlling partner or host (as in the case of being a donor’s official implementing agency), it will likely tend to introduce a number of administrative constraints that could limit the proposed initiative’s flexibility. This could lead to unavoidable interference in the SMB Approach, such as prioritizing the movement of investments from the pipeline to the portfolio. And, it could introduce the necessity of competitive bidding when negotiated selection would provide the flexibility needed, especially with regard to the partners, including FIs. These matters must be given detailed donor attention prior to any definitive donor-government agreement is concluded.

ANNEX A

THE DIFFERENCES BETWEEN THE SMB APPROACH AND MICROFINANCE

From early in its portfolio building operations, but especially since Professor Yunus of Grameen Bank was awarded the Nobel Prize, many people outside the development community have become increasingly conscious of the field of micro-finance. And now with the current controversy regarding micro-finance in India (especially in the state of Andhra Pradesh), this consciousness has been raised to new heights. As a consequence, some individuals who only focus on the size of many of S³IDF's India financing transactions incorrectly think it is a microfinance institution (MFI). *S³IDF's India affiliate is not an MFI.*

Despite sharing *some* characteristics with MFIs, especially the subset of MFIs that also provide livelihood services, S³IDF's operating characteristics are distinctly different from most FIs operating in the space associated with MFIs.

In order to better understand this distinction, it is useful to outline some of the major differences as well as some similarities among

S³IDF, MFIs and other financial institutions (FIs).

A.1 OPERATING RULES

S³IDF India is a non-profit company (Section 25 of the Indian Companies Act) and it also has charity status in the United States. It operates under the “rules of the game” covering such non-profit entities. Most major Indian MFIs and some smaller ones are non-bank financial corporations with considerable capitalization and are regulated under the banking sector regulations.²⁷ Moreover, under the recent changes in these “rules of the game,” no MFI could sustainably operate as a Section 25 company and these changes are now quite problematic for S³IDF India.

²⁷ Many banks – particularly the regional rural banks – have microfinance operations, but they are licensed and regulated as banks, not MFIs.

A.2 INFRASTRUCTURE FOCUS

S³IDF specializes in financing (or enabling financing) and bundling business development services (BDS) and/or technology know-how assistance for *infrastructure* and related investments. Although there are some entities that bundle BDS with financing, S³IDF knows of no such infrastructure specialization in the existing MFI community.

A.3 TRANSACTION SIZE

S³IDF India's transactions are on a different scale. In India and to a large extent elsewhere, MFI transactions typically are in the \$200 to \$300 range with some smaller; the target clients are households and micro-enterprises. Some MFIs loan for considerably higher transactions (for example, \$2,000 for repeat borrowers), but at this figure MFI transactions are edging into the space generally associated with FIs (banks and non-banks) financing small and medium sized enterprises (SMEs). While some of S³IDF's transactions are within the higher end of the range associated with MFIs, its transactions are typically thousands of dollars and some are many tens of thousands of dollars. The larger projects extend into the size range typically associated with banks and leasing companies supporting medium-sized enterprises.

A.4 FINANCING MENUS

The S³IDF Social Merchant Bank Approach entails offering a menu of financing support that is used to leverage its financing and other enterprise-centric support via co-financing from local FIs. The menu includes loans, equity and credit conditioning (e.g., loan guarantees). The loan terms can be short- to long-term depending on the financing engineering needed for a financially viable project and for

facilitating local co-financing. In the case of infrastructure, the financing takes into account the life of equipment and the cost structure needed to address the ability/willing to pay of the poor, our target beneficiaries.

Almost all MFIs offer a very limited menu of financing, generally short-term (less than one year) loans and sometimes savings. Other financial services such as insurance (in collaboration with insurance entities) are increasingly common, but very few MFIs offer the longer-term loans or debt required by infrastructure investments. While in India and elsewhere, many (probably most) FIs serving SMEs offer loans for financing fixed assets (for example, equipment), the term or repayment periods are often not long enough for typical infrastructure investments. Nor do FIs (non-banks) catering to SMEs commonly offer a diversified menu of financing typically employed in the financial structuring of large infrastructure transactions. As noted, this structuring optimizes the cost of financing and facilitates the participation of other (often lower cost) FIs, especially co-financing from local banks.

A.5 ENTREPRENEURIAL DEVELOPMENT

Last, S³IDF is strictly in the infrastructure space, where few existing MSMEs operate. Hence, when S³IDF supports such investments, it is often in effect creating new businesses, and in some cases even bringing a new business idea to an entrepreneur. MFIs do not typically do either of these – that is, creating and financing *new* businesses or bringing *new business ideas*. This work requires significant engagement with the “entrepreneur” the usual arguments of scaling, unit economics and recovery rates (the three pillars of the MF model) simply do not hold for this type of infrastructure-related work.

Table A-1 summarizes the differences and similarities between S³IDF's India affiliate and microfinance institutions.

Table A-1		
The Difference Between S³IDF's SMB Approach and Microfinance		
	Microfinance Institutions	S³IDF-India
Activities Funded	<ul style="list-style-type: none"> ▪ Support a wide range of economic activities covering consumptive and productive activities, generally existing business ideas/models ▪ Support usually does not extend beyond financing 	<ul style="list-style-type: none"> ▪ Specialization in sustainable infrastructure (e.g., energy, water, communications, transport, sanitation) and related productive end uses to address high initial capital costs of infrastructure ▪ Development of new business ideas and models paired with appropriate technology for pro-poor infrastructure services ▪ At the project level, bundled support covers financing as well as business development services and/or technology know-how ▪ Business support to help entrepreneur structure financing and become financially viable ▪ Partnering with local financial institutions to leverage S³IDF financing ▪ Partnering with local technology suppliers
Scale of Funding and Projects	<ul style="list-style-type: none"> ▪ Funding usually US \$200-\$300; sometimes smaller, but rarely larger ▪ Larger loans may be offered to repeating borrowers with good repayment history 	<ul style="list-style-type: none"> ▪ Project hard investment costs can vary widely, generally US \$1,000- \$20,000, some higher ▪ Scale of financial support reflects capital cost of developing viable infrastructure services, and criteria to leverage and achieve local co-financing
Financing Offered	<ul style="list-style-type: none"> ▪ Short-term loans ▪ Some branching into insurance and some into other financial services 	<ul style="list-style-type: none"> ▪ Full menu of financing options: short- and long-term loans, equity, and loan guarantees and other credit conditioning ▪ S³IDF supplies gap-filling finance needed so that local banks will then directly co-finance entrepreneurs
Engagement with Borrower	<ul style="list-style-type: none"> ▪ Can lack interaction with borrower aside from assessing, giving loan and collecting payments ▪ Often does not require pre-investment planning with borrower to discuss how funds will be used and repaid 	<ul style="list-style-type: none"> ▪ Entrepreneurs are engaged in business development and planning prior to loans ▪ S³IDF works with the borrowers to determine the best type of financing for the project and to develop a repayment plan

	Microfinance Institutions	S³IDF-India
Effects on the Poor and Poverty	<ul style="list-style-type: none"> ▪ Consumptive microfinance loans can benefit the borrower and borrower’s family ▪ Entrepreneurial loans can benefit the borrower and community by providing services to community members 	<ul style="list-style-type: none"> ▪ S³IDF requires that projects in its portfolio have significant benefits for the poor as business owners, employees and/or consumers ▪ S³IDF’s projects therefore bring some degree of poverty alleviating benefits to an entire community, including the initial borrower

ANNEX B

WORKSHOP ATTENDEES

COLOMBO, 1 OCTOBER 2010

No.	Name	Organization	Title
1	Priyanka Dissanayake*	USAID	Project Management Specialist
2	Paola van Houten-Castillo*	Asian Development Bank	Social Development Specialist (Safeguards), Energy Division, South Asia Regional Dept.
3	Chandana Dharmawardana	DFCC Development Finance Corp. of Ceylon	Vice President (Corporate Banking) and consultant of DFCC
4	Rohantha Senaviratne	DFCC Consulting (Pvt) Ltd.	Operations Manager, DFCC, and Project Executive
5	Prashani Silva		Project Executive
6	K M D B Rekogama *	Hatton National Bank	Project Relationship Manager
7	M V P Gunawardena*		Senior Manager, Development Banking
8	M T N Shiwanthi	Peoples Bank	Development Micro Finance Division
9	A Jayawardena*	SEEDS (MFI)	Assistant Director - Banking
10	Emil Anthony		Deputy Director
11	Somasiri Udapola*		Manager M I S Coordinating - Alternative Energy Division
12	Ravindra Ranasinghe	Commercial Bank	Manager - Development Credit
13	W T C Lasantha		Executive Officer - Development Credit
14	Susnathan Wanasinghe		Executive Officer - Development Credit
15	Sharon De Silva *	NDB Bank	Senior Manager - SME and CSR
16	Rohana Kumara *	LOLC Lanka	Assistant General Manager
17	Anura Athapaththu	Lanka Microfinance Practitioners' Association	Treasurer and Micro Finance Consultant
18	Yasitha Munasinghe		Coordinator
19	Carmel Goonathilaka		Coordinator
No.	Name	Organization	Designation

20	W S Hewawasam	Regional Development Bank	AGM Credit
21	M M F Thathwathri		Officer Credit
22	R N D Jayasuriya	Central Bank of Sri Lanka	Assistant Director - Regional Development
23	M N R Padmasiri	Sustainable Energy Authority	Director (Energy Management)
24	Mr Harsha Wickramasinghe		Deputy Director (Renewable Energy)
25	Mrs Sumanarathna	Department of Animal Production & Health	Director (Western Province)
26	Dr Shanmugarathne	Department of Animal Production & Health (Western Province)	
27	Mr P G Joseph	Ministry of Science and Technology	Director - Alternative Energy Division
28	Mr A A Kulathunga	Ministry of Environmental and Natural Resources	Director (Natural Resources)
29	Shyamali Priyanthi		Environment Management Officer
30	Ranjith Rajapaksha		Environment Management Officer
31	Bandula Chandrasekara*	Energy Forum	Programs Coordinator
32	Ananda Piyathilaka	Sri Lanka Energy Managers Association	President
33	Nimal Perea		Vice President
34	Prof Ajith De Alwis *	Lanka Biogas Association	President
35	Dr Jayaweera	Department of Development Finance, Ministry of Finance	Director General
36	Ms Dilrukshi Kotinkaduwa		Assistant Director
Lenders			
37	Dr Priyantha Serasinghe	JICA	Senior Project Specialist
38	Pavol Vajda *	World Bank - International Finance Corporation	PADGO Program Manager, Advisory Services in South Asia
39	Hasitha Wijayasundara	GTZ	Senior Microfinance Officer
40	Dr Wasantha Piyadasa*		
41	Athula Jayamanne*	Eco Engineer's & Company	Chairman /Chief Consultant Engineer
No.	Name	Organization	Designation

42	Nilmini Ferdinando *	Shell	Manager Marketing Planning
43	Prabath Vidanagamage		Regional Sales Manager
44	Anurudda Alwis*	Laugfs Gas (pvt) Ltd	Brand Executive
45	Eranga Amarakoon*		Sales and Marketing Manager
46	Mrs. Indrani Vitanage	Ministry of Power and Energy	Director Development and Planning
47	Mr Gunathilaka		Director – Technical
48	Ananda Namal	NERD Centre	Director General
49	Ajith De Jayasooriya		Head of Energy and Environment Management Department
50	Mr. D R Pulleperuma		Chairman
51	Mr Jayantha Kudahetti *	Plantation Human Development Trust	Consultant Marketing
52	R C Dasanayake		Senior Civil Engineer
53	Mr Parackrama Jayasinghe	Bio Energy Association of Sri Lanka	President
54	Dr Gamini Kulathunga		Secretary
* Individuals who attended the workshop and met with S ³ IDF before or after the workshop.			

ANNEX C

MEETINGS HELD OUTSIDE THE WORKSHOP

This annex lists the names of officials who met with S³IDF before or after the workshop, but who did not participate in the workshop.

No.	Name	Organization	Title
1	Ashoka Abeygunawardana	Energy Forum	Executive Director
2	Michael Hajny	Tetra Tech	Chief of Party, SARI/Energy
3	V R Sena Peris	National Cleaner Production Centre, Sri Lanka	Director
4	Geehanthie Weerasinghe		Assistant Director
5	Mr Delakshan Hettiarachchi	Commercial Bank of Ceylon PLC	Chief Manager - Development Credit
6	Nalin Abewardena	Laugfs Gas (pvt) Ltd	Manager - Bulk Sales/Special Events
7	Namiz Musafer	Practical Action Consulting	Country Manager
8	Dr M A Mohamed Saleem	Mahathma Ghandi Centre	President
9	Mr. A.H. Gamage	Ministry of Livestock and Rural Community Development	Secretary
10	Mrs Ajantha Hewakopara		Additional Secretary – Livestock
11	Mahinda Gunasekera	Stromme Microfinance Asia (Gurantee) Ltd	Managing Director
12	Chandula. Abeywickrema	Hatton National Bank	Deputy General Manager (Personal Banking)

No.	Name	Organization	Title
13	Rajith Thillawela	Plantation Human Development Trust	Director General
14	Thushari Hewapathirana	World Bank - International Finance Corporation	Consultant Advisory Services in South Asia
15	Dr Thusitha Sugathapala	University of Moratuwa	Lecturer
16	S Johnny Edward	Price Water house Coopers	
17	Charith Jagoda	LOLC	Assistant Manager - Micro Finance
18	Hiran Senawiratne	Shell	Manager Business Excellence and Marketing Implementation

ANNEX D

WORKSHOP PRESENTATION

COLOMBO, OCTOBER 2010

Innovation in Providing Modern Energy & Other Infrastructure Services to the Poor:

Perspectives from S³IDF's Application, Dissemination & Transfer of its "Social Merchant Bank" (SMB) Model



Presentation/Talking Points:

SMB Dissemination Workshop - Colombo, Sri Lanka

1 October 2010

**The Small-Scale Sustainable Infrastructure Development Fund, Inc.
(S³IDF)**

S³IDF-US – Cambridge, MA, USA – a public charity under Section 501(c)(3) of U.S. tax code
S³IDF-India – Bangalore, India – a Section 25 not-for-profit company with Section 80G tax exemption

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Presentation Organization

- I. Some background History
- II. The Needs, Problems, and Challenges
- III. S³IDF SMB Approach
- IV. S³IDF Portfolio Summary and Example Projects of Varying Complexities
- V. Dissemination
- VI. More on S³IDF, SMB Approach and Related Issues
- VII. Awards and Donor Success Story

S³IDF

2

Some Background History

Why and how founders came to proselytize for pro-poor small-scale private infrastructure provision and an alternative paradigm.

- Widespread Experience: 70+ countries
- Understand most poor are working poor with some ATP/WTP for infrastructure services and the widespread needs
- Development paradigm shortcomings (more below)
- Couldn't convince "Big Boys" except for studies
- Influenced by diverse US experience especially early New England Merchant Bank approaches
- Saw technical and material evolutions enabling smaller scale projects
- Knowledge of small scale players, most in informal sector
- Understand accessing local financial markets for the deals is critical
- Professional writing to "make the case"



A boy does his homework by light from an LED lantern supplied by and entrepreneur S³IDF assisted.

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The Global Needs

More than one billion people worldwide lack access to infrastructure services necessary for poverty alleviation and improved well-being:

- Modern energy services
- Potable water
- Sanitation
- Transport
- Information and communication
- Other infrastructure services

Tens of millions of these people are in S3IDF's current market shed in southern India – dissemination and transfer to Nepal



Image Source: <http://www.kamat.com/kalranga/deccan/map.htm>

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The Needs, Problems and Challenges S3IDF Seeks to Address (I)

•Poverty alleviation is not possible without access to a minimum bundle of physical infrastructure services – potable water, transportation...

- Modern energy services is a critical component of this bundle.

•Shortcomings (relative) in the “Big Boys” development paradigms

- With some exceptions (e.g. IWMP in Nepal), too little focus (intellectual and programmatic) and support for small projects and small, local private players
- Limited menu of institutional arrangements and ownership models.
- Often ignore capital market linkages and local synergies, especially project co-financing by local banks to leverage development/philanthropic capital
- Inadequate focus on diverse financial sustainability, especially the poor’s definition of sustainability – and need to understand their ATP and WTP
- Corollary: “Rules of the Game” that are implicitly or explicitly anti-poor
- Don’t consider/include bundling services, even critical pro-poor elements (e.g. connection financing) or even where obvious strong synergies (water and electricity)
- Disproportionate focus and support for selected needs and technological options (e.g. PVs) and ignore heat (except stoves) and implication of other technology/material evolutions.
- Inadequate attention to public good aspects of interventions in support of infrastructure projects
- Carbon calculus and policy ignores black carbon and is implicitly anti-poor

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The Needs, Problems and Challenges S³IDF Seeks to Address (II)

- **Shortcomings (relative) in the paradigms of new/evolving philanthropic players active in the MSME, MFI and/or related space**
 - Insufficient “beyond” microfinance focus and support for complementary services for MSME development
 - Almost no focus on infrastructure MSME development despite the critical needs and opportunities
 - Only emerging considerations of local capital market linkage importance
 - Unclear/varied positions on social/economic versus financial returns



With S³IDF and its partners’ assistance, poor families living in remote villages of Karnataka now have access to electricity using pico-hydro systems.

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The Needs, Problems and Challenges S³IDF Seeks to Address (III)

- **Access to Finance and Scarcity of Development and Philanthropic Capital**
 - There is simply not enough development and/or philanthropic capital to meet the poor’s infrastructure needs; these must be leveraged to bring local bank/FI capital to pro-poor deals.
 - Development/philanthropic capital must be used to overcome barriers in manner leveraging private capital
 - Poor do NOT have collateral to access bank finance and bankers conceive poor as non-bankable
- **Enterprise-centric approaches that leverage private capital** are a way forward, but entrepreneurs developing small-scale infrastructure options **often lack some combination of knowledge, know-how and/or capital that allows them to sustainably service the poor.** End users do not have necessary knowledge/know-how to select and implement choices.
- **Menu of financial options** at local level are often **unduly restrictive** due to “rules of the game” (regulations) and nonprofits/for-profits **rarely focus on how best** to offer enterprise-centric approaches to the small-scale provision of infrastructure services to the poor.



LED lighting for poor households living off the grid.

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Through Two Mission Objectives S³IDF is Addressing the Needs, Problems & Challenges

S³IDF's Two Mission Objectives

1. To employ its enterprise-centric Social Merchant Bank approach in southern India to build its portfolio of explicitly pro-poor, pro-environment small-scale infrastructure and related productive-use investments (e.g. grain mills)
2. To achieve greater and broader impact, based on its lessons and experience, to proselytize, disseminate and transfer its approach. Thus others in the developing world may leverage philanthropic and development capital to facilitate local commercial capital co-financing for small, explicitly pro-poor investments and use development capital (local and international) more effectively.



Single-phase flour mills help women generate income and supply flour to neighbors.



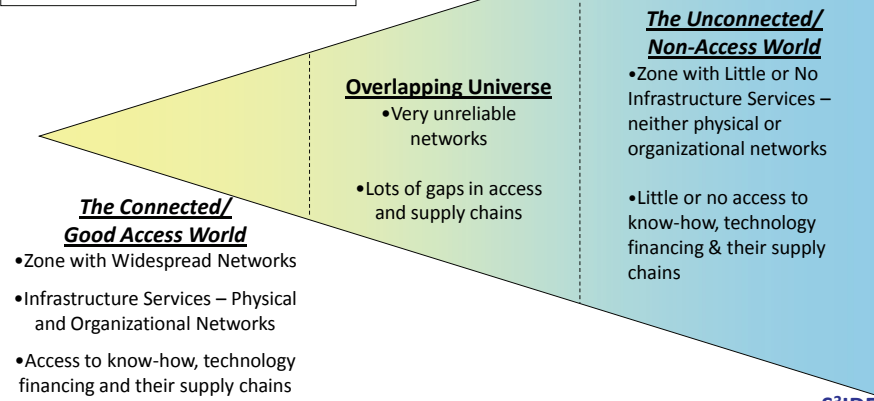
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8

S³IDF's Operating Zone (and World View)

The Zones in Which S³IDF Operates

Policy and Regulatory Background:
May or May Not Be a Level Playing Field



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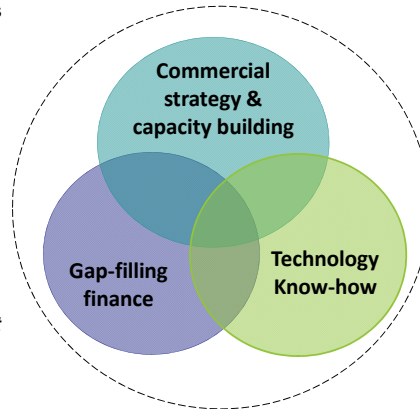
S³IDF's SMB Approach Designed to Be Widely Applicable

Bundled Support: Working with partners, a *merchant banking* approach provides integrated & ongoing business development, technical and financial support to portfolio enterprises. This helps these businesses evolve to a point where sustainable & independent.

Leverage Local Financing: Drawing on a Revolving Fund (RF) *local financial institutions* are engaged in portfolio projects with a '*gap-filling*' menu of debt, equity, partial guarantees, etc. Our target leverage is 2:1 or better.

Financial Engineering: Brings design and structuring elements typical of large infrastructure projects to small-scale, explicitly pro-poor deals.

Technology Innovations: Works with entrepreneurs to develop and/or integrate technology *options that are appropriate for low income end-users*, often adapting off the shelf technology and identifying new evolutions in technology to meet the needs of poor people.

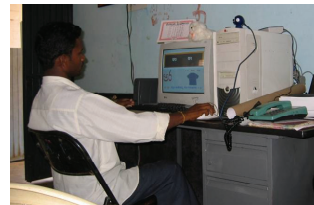


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Characteristics of Portfolio Projects

- Small-scale sustainable infrastructure and associated productive use investments
- Explicitly 'pro-poor'
The poor benefit as: clients, customers, enterprise employees, and/or investment asset owners.
- Financial viability
Enterprises' cash flow must cover capital and operating costs from implementation onwards.
- Highly replicable
- Micro-meso-small finance
Debt, equity, guarantees ranging from US\$500 to US\$40,000.
- 'Skin in the Game'
Entrepreneur has capital (cash and/or sweat equity) at risk.



A solar powered ICT enterprise run by a local entrepreneur in a rural village.



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Importance of Formal FI linkage and Leverage: Some Issues in Employing the SMB Approach

- Micro-Meso-Small Finance must access commercial/quasi-commercial capital mobilized locally
- Local commercial finance leverage a must
- Sometimes lack of formal FI footprint (Nepal's hills requires an "agent")
- Local National/Regional FI may serve as RF "Host/Operator"
- Development and philanthropic capital for risk mitigation, pre-investment, capacity building, other soft costs and very smart pro-poor subsidies



One of the watermills in the IWM Program in the hills of Nepal. Courtesy Center for Rural Technology/Nepal.

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S³IDF's Portfolio Today

- **Young:** in operation since **2001** (US); **2002** (India)
- Over **175 projects** in the India portfolio
- Investments all **along the supply chain & productive use applications**
- 100+ projects in the pipeline
- Instruments:
 - Debt 55%
 - Partial Guarantees 30%
 - Equity 15%
- Revolving Fund leverage **≥ 2:1**
- Partnership with **12 banks**
- Partnership with **29 technology suppliers**
- Impacting **~50,000** direct and indirect beneficiaries
- Over **US\$300,000** in capital deployed



S³IDF has enabled installation of household biogas units, providing clean and safe cooking facilities for rural farming families.

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A Straight Forward Project Example: Solar Lighting for Silk Cocoon Rearing Centre



Solar panels atop the cocoon rearing centre.



Solar lights being used to assist in feeding the worms.

S³IDF provides technology and financial linkages
(partial guarantee with the local bank for loans taken by the farmers)



Silkworms placed in the 'Chandrika' where they form cocoons.

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Hawker's Light Points in Hassan: Modest Complexity



Entrepreneurs with solar charging station and batteries for lanterns.



Transportation of batteries



Lighting for hawkers



In light point projects such as this one in Hassan, S³IDF arranged the business development, technology and financial assistance to help the entrepreneurs increase their income, generate employment and provide cost savings and improved lighting for street hawkers.

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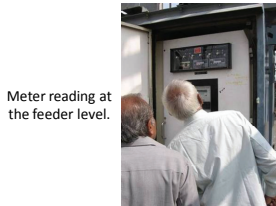
Last Mile Electricity Distribution Franchising Project: Quite Complex



Discussions with Cherlapatelguda Panchayat.



The Ibrahimpatnam Substation – 33/11 KV



Meter reading at the feeder level.



Franchisee/Entrepreneur Mr Reddy addressing attendees at the inauguration ceremony.



Interactions with the community about the franchisee operations.

In partnership with ASCI, S3IDF is implementing a unique business model using franchisees for providing better electricity services to the villagers in Cherlapatelguda feeder. Over time, the franchisee will provide other value-added services to the community such as access to finance, potable drinking water, & information services.

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Osmania General Hospital RasoI Ghar (kitchen) A Modern Fuels Partnership: A Different Type of Complexity



LPG (liquid petroleum gas) is a cleaner burning fuel which makes HPCL a strategic partner as S3IDF works to provide safe technologies and clean fuels for the poor.



The kitchen provides a clean, safe environment for poor families visiting patients to prepare meals. Previously, food was either cooked on open fires or purchased at prohibitive costs.

S³IDF worked with our strategic partners, HPCL, hospital administrators and other key players to implement this rasoI ghar in the 2000-bed Osmania General Hospital. Families pay an hourly fee for use of the LPG connections and cooking utensils.

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Dissemination/Transfer of S³IDF's SMB Approach to Bangladesh, Pakistan or Sri Lanka

- **Are the Minimum Conditions Present?**
 - Legality of the approach and an organizational implementation possible under the “rules of the game”
 - Strong local core partners for SMB implementation **including FI to host RF**
 - Banks/FIs/MFIs with MSME term lending experience
 - Other potential partners: know-how and technology suppliers, activist/business-like NGOs, development entities
 - Sources of philanthropic or development funding
[preliminary research suggests minimum conditions present]
- **Reconnaissance Level Study and Analysis**
 - Preparatory desk review of available material and communications, then rapid field work of interviews and documentation review to confirm minimum conditions, and
 - Identification of potential local partners (all categories) to implement S³IDF's SMB approach
 - Preliminary design of organizational structure for implementation, including FI RF host role(s)
 - Identification of priority energy/infrastructure needs
 - Indicative pipeline of select deals, including partners (requires additional study budget or in next step)
- **Feasibility/Pilot Investment Activities**
 - Pre-investment analysis of select deals
 - Testing of partnerships including FI RF host via:
 - Implementation of pilot portfolio of deals
- **Design of potential scale-up application of S³IDF's SMB approach**
[all of the above can be done in stages, all contingent on program funding]
- **Implementation of Major Scale-up Application of S³IDF's SMB Approach**

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Dissemination

2007

S³IDF serves as Advisor to **Global Village Energy Partnership** on an East Africa initiative.

2008

USAID SARI/Energy (SARI/E) commissions S³IDF to examine the potential for applying the S³IDF SMB approach in Nepal in the context of the Improved Water Mill Program (IWMP).

2009

- S³IDF completes a second study for **SARI/E** on implementing enterprise strengthening activities & a revolving fund to provide ‘gap filling’ finance that facilitates commercial banks & others to finance targeted pro-poor investments associated with IWMP.
- S³IDF conducts dissemination activities under **SARI/E** in Sri Lanka.



A delegation from the Alternative Energy Promotion Center in Nepal visits with S³IDF staff in India.

2010

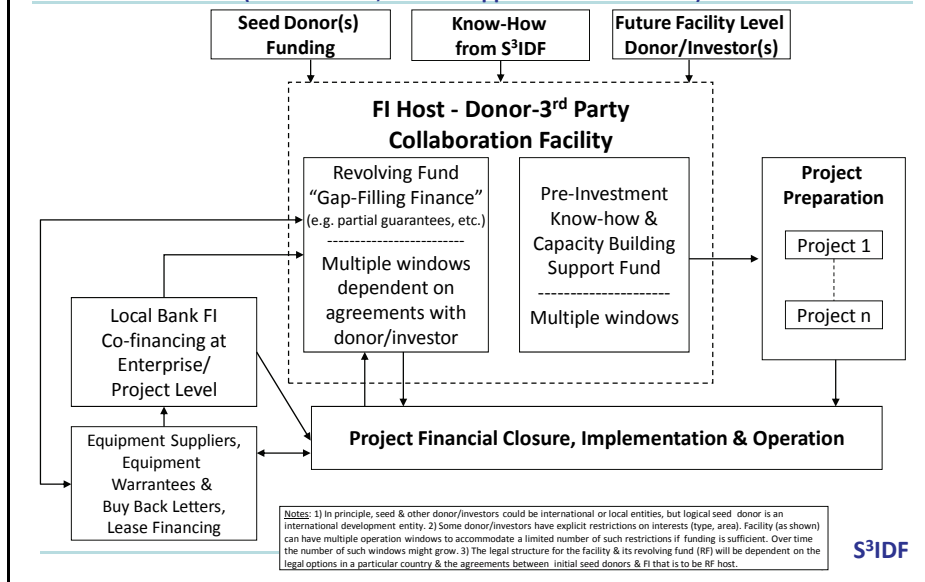
- **USAID SARI/E** engages S³IDF to explore applications of SMB approach in Bangladesh, Pakistan, & Sri Lanka.
- **Asian Development Bank** retains S³IDF to lead the integration of the SMB approach into the IWMP.

In addition to numerous presentations, discussions, & consultations

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Schematic of Possible Multi-Party Collaboration Facility to Transfer/Apply S³IDF's SMB Approach (flow of funds, in-kind support and information)



More on S³IDF, SMB Approach & Related Issues

For Q & A and/or if Time and Interest:

1. The Two S³IDFs
2. Levels of Financial Sustainability & Subsidy Needs
3. Innovative Financing and Structuring Mechanisms
4. Technology Counts
5. Perspectives on New Technology
6. Schematic on S³IDF's SMB Investment Development Process

The Two S³IDFs

- **S³IDF is a partnership between two institutions:** S³IDF-US and S³IDF-India. Both institutions are members of the S³IDF family, share a common vision and pursue a common mission.
 - Both are registered charities in their respective countries, however both are atypical charities operating in a very business-like fashion.
- **S³IDF-US** operates from a base in Cambridge, MA, USA.
- **S³IDF-India** assists entrepreneurs from offices in Bangalore and Hyderabad in southern India.



Russell deLucia and T.L. Sankar at an opening ceremony for a rasoi ghar (common kitchen) using clean energy in rural India.

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A Most Critical Issue – Levels of Financial Sustainability and Subsidy Needs at Project Level

A. Infrastructure Service Provider Types have Different Financial Criteria

- WB Survey a few years back suggest multinationals Return on Equity (RoE) targets low 8-12%, high 25% (some above), most in middle; Regional corporates' targets likely high end except if for self supply
- NGOs, CBOs, GP municipalities may accept very low RoE targets

B. Sustainability, Problems and Levels of Cost Recovery

Hard Investment Costs: includes costs of all equipment, construction, etc to "put project into implementation" and on an operating basis, all the capital financing costs (e.g. debt and equity charges) and OM&R.

Soft Investment Costs: includes investment or enterprise-specific pre-investment costs (a special challenge). In larger infrastructure projects these costs are normally capitalized into the investment costs, effectively becoming part of the "hard" costs in the financial structure of the project.

Other Soft Costs: More programmatic – helping develop players including upstream players, government/regulators, organizing community groups, etc.

The Challenge: Small pro-poor projects don't allow full capitalization of soft costs into the financial cost of the project. Also, it requires considerable time and experience to learn the range of possible soft cost recover/capitalization (next slide)

- Maximum sustainability – covers all hard and soft cost
- Conventional sustainability – all hard and soft investment costs
- Partial sustainability – All OM & R and some capital costs (financing and RoE)
- OM & R sustainability – no capital costs covered
- Non-sustainable

Meeting the Challenge: S³IDF aims for conventional sustainability less soft investment costs (sometimes partial coverage) and raises grant monies to cover other costs. We address trade-off of increasing efforts (and therefore soft costs) for certain partner collaborations and for accessing government/other support programs that may lessen revolving fund requirements. We are innovating with fees and deal structuring to capture some producer surplus while keeping deal viable and pro-poor.

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Innovative Financing and Structuring Mechanisms



The new-improved stove in use (above), and the value-added product (right)



Improved energy-efficient stove used for boiling arecanuts and the value-added product.



Night soil biogas in residential school

New/Innovative Financing:

- Approach is common and mainstream in large investments but new to small infrastructure transactions.

Mechanisms for Investment Structuring of Pro-poor investment and their Risk Management:

- Guarantees or other credit mechanisms to overcome collateral constraints;
- One or more financing support types – debt (primary and/or secondary position) and/or equity- that is “gap filling” and “deal enabling”. *This menu is also employed to help small equipment players who are critical to these investment deals;*
- Equipment supplier financing;
- Budget Intercept;
- New ownership and/or operations structures which lower costs and make infrastructure services viable.

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Technology Counts

Technology and materials evolutions along with know-how require commercial supply chains. Some examples:

- Polyethylene pipe
- Submersible lower cost pumps
- Water, energy end-use equipment (e.g., low cost carbon filters, compact fluorescent)
- Micro-turbines (hydro e.g. Peltrics)
- PV's
- Low cost "customized" solid state controls, Smart & pre-paid meter (manage demand, lower commercial costs)
- Condominial Sewer Systems
- Packaged co-generation
- Micro-turbines (gas)
- Gas system “hot” taps
- Small-scale ultraviolet & other water treatment
- High performance biogas plants
- Various on site waste water treatment
- LED Based Lighting

Complementary institutional and regulatory developments

- Easing of licensing and sub-franchise constraints; tolerance of illegal/unlicensed providers
- Creation and active work by trade associations
- Organizational: Leasing, management contracts, sales or other “off-loading” of small/rural systems to local players
- Various creative collaborations between the big boys (local or international) and local small players

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Perspectives on “New” Technology

Incremental vs. Transformational Technology

- **Incremental:** improved efficiency lighting, ovens, pumps, etc
- **Transformational:** submersible electric pumps



Efficient ovens used in silk reeling.

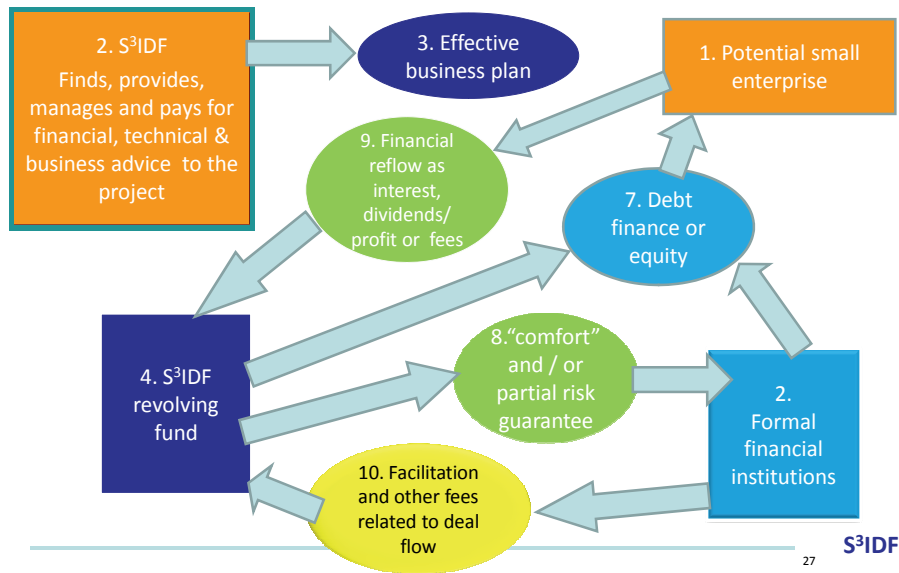
Supply Chain Issues – How “know-how” intensive from choice through operations

- What are the sales, service and continuing input requirements (e.g. diesel, lubricants)?
- How easily can/will existing supply chains work?
- Or will new chains be required?

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Schematic of S³IDF’s SMB Investment Development Process



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Awards and Donor Success Story

2010

USAID SARI/Energy recognized S3IDF's SMB model as a "Success Story" after collaborative work on implementing the model in Nepal.

2009

USAID GDA includes S3IDF as a case study in its Energy sector guide (Building Alliances Series).

2008

ACEF Top Innovation Award for "Clean Energy Finance Solutions"

2007

World Clean Energy Award in the "NGO and Initiatives" category for S3IDF's lighting projects in South India



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Contact Us

S³IDF – US

The Small-Scale Sustainable Infrastructure Development Fund,
Inc.

5 Hastings Square, The Carriage House
Cambridge, MA 02139 USA

Tel: +1-617-576-0652

delucia@s3idf.org

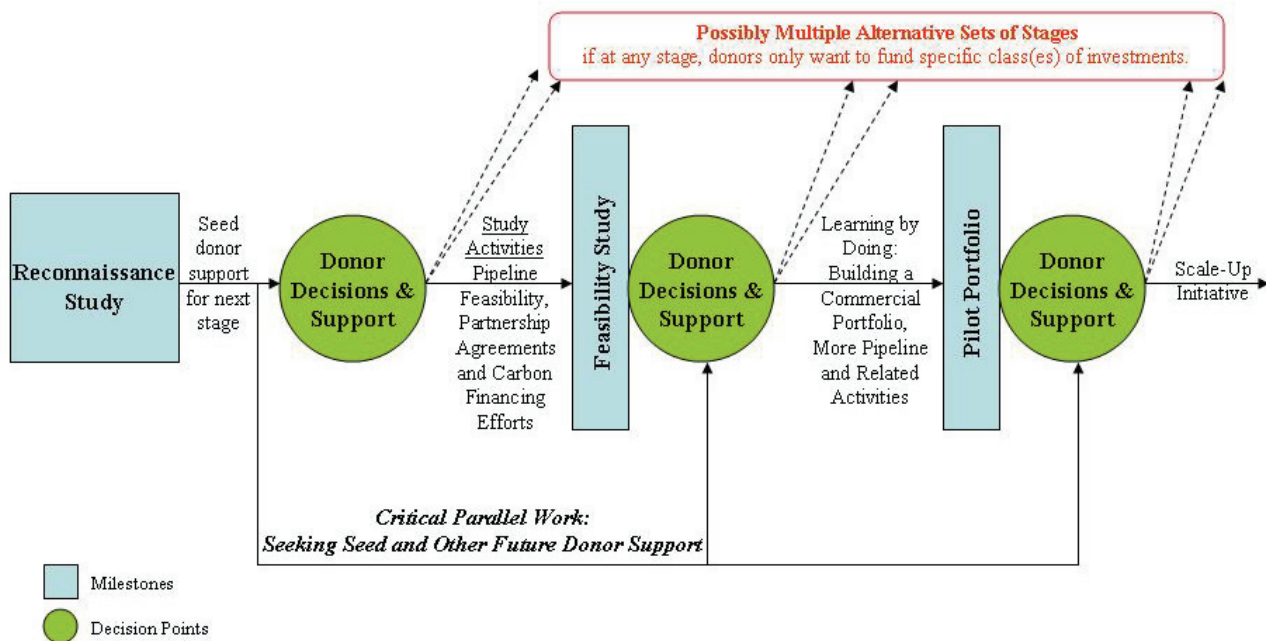
For more information about S³IDF visit www.s3idf.org

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ANNEX E

SCHEMATIC OF STAGES TOWARD A SCALE-UP INITIATIVE



Note: Feasibility Study and Pilot Portfolio work can be combined if donor interest and funding permits.

ANNEX F

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Tetra Tech
DLF Cyber City
Building No. 9B, 11th Floor
Gurgaon, Haryana 122 002 India.
Tel: + 91 (0)124 473 7400
Fax: + 91 (0)124 473 7444
www.tetrattech.com