

Private Financing for Community Infrastructure

Issues and Options

ESM256



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Assistance

Programme



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**JOINT UNDP / WORLD BANK
ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME (ESMAP)**

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ESMAP
c/o Energy and Water
The World Bank
1818 H Street, NW
Washington, DC 20433
U.S.A.

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(ESMAP)

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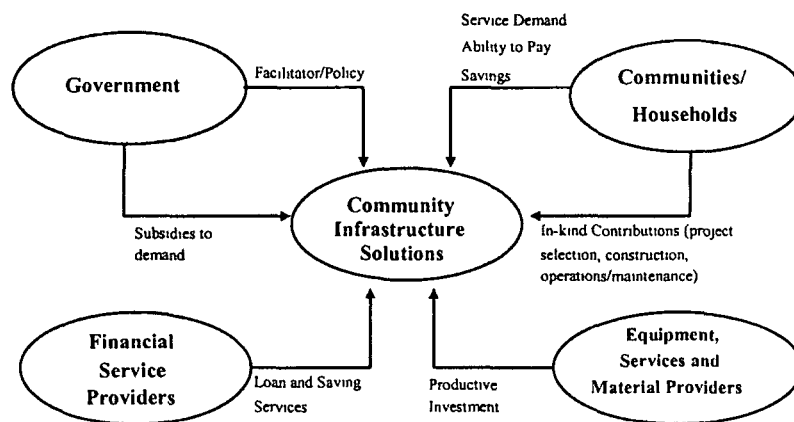
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Introduction

This document examines financing strategies to increase private investment for small-scale infrastructure development within low-income communities. It examines models of local institutions and community-based programs that can sustain financing and operation of new infrastructure once the initial donor financing has ended. The programs presented here are based on the experience of many different community programs from emerging markets around the world.

This experience has shown that in the appropriate environment, low-income communities can manage their own affairs and finances to create sustainable infrastructures for themselves. The fundamental components of this enabling environment include policies that maximize cost recovery by capturing community willingness to pay, link service levels to actual costs, and make efficient and equitable use of subsidies.

Conceptual Framework



Sustainable infrastructure financing for low-income communities can only work when policies allow the communities to say what they want to achieve. The private sector must have the incentives to act on that revealed demand. Then government begins to make the critical transition from being a “provider” of those infrastructure services to becoming a “facilitator.”

1

Issues Constraining Sustainability

Over the past ten years, private funding and provision of large-scale infrastructure in emerging markets has increased dramatically. With few exceptions however, small-scale community infrastructure services to the poor --- such as access roads, electrification, water and sanitation --- have remained largely within the *formal* domain of the public sector.¹

1.1 Failure of Public-Sector Interventions

Public-sector programs for assisting low-income communities have varied greatly in size, delivery mechanisms, targeted clientele, and autonomy. For the most part, they have fallen short of their objectives. There are several reasons for these failures: (i) Implementing agencies often resist the projects, do not have the technical capability for implementing them and are not accountable to the users; (ii) “top-down” approaches lead to technical and social solutions not relevant to the needs, priorities or capacity of the local communities, *greatly restraining consumer willingness to pay*, (iii) legal and regulatory obstacles,² (iv) poor targeting, and (v) weak focus on cost recovery.

1.2 Limited Private-Sector Involvement

Private funding for many public works has been non-existent, often because the financial sector *perceives low-income borrowers as “non-bankable.”* Even in more progressive environments, bank credit appraisal procedures are expensive and slow, especially given

¹ The term “small-scale” can mean many things within different country and sectoral contexts. For indicative purposes only, this document refers to investment that could range from \$200 household investments to community water-supply and sanitation systems of \$250,000. Though the models proposed could be applied for larger-scale financing, their usefulness would be limited

² Though beyond the scope of this document, key impediments have included restrictive technical and service standards, constraints on property rights, exclusivity provisions granted to public or private monopolies which effectively make illegal small-providers of infrastructure services, distortionary tariff, tax and subsidy regimes, non-transparent and slow processes to obtain permits and other governmental authorizations, etc

the small loan amounts, frequent repayments, and heterogeneous nature of technical solutions. Banks also want physical collateral, which borrowers often cannot provide. Or borrowers may face legal impediments to the registration and enforcement of their own rights to the collateral. Even for basic services like savings products, the costs to the poor increase as banks require minimum balances, fees and documentation.

Private funders are also wary of the *willingness and ability to pay limitations* of low-income communities. Sometimes this concern is warranted, sometimes it is merely assumed. Private providers of goods and services often *lack information* regarding community needs and payment capacity. At the same time, they face a significant increase in *transaction costs* because of the smaller-scale of community works. Time-consuming efforts are often required to identify and evaluate community development initiatives.

Language, cultural, and gender differences between the service providers/banks and low-income communities have also led to significant *social barriers* to private sector involvement.

1.3 Community Level Constraints

The lack of a community capacity for *collective organization* has been as significant a barrier to infrastructure development as the lack of access to private funding.

Many infrastructure investments represent a public benefit, which is acquired collectively by an entire community. Programs to extend infrastructure services to communities are often predicated on the assumption that a collective decision-making process has taken place in which the majority of the families have approved a project. The community has also, presumably, shown a willingness and ability to pay the resulting costs. However, this decision-making process – as well as the formal establishment of a committee, the selection of a construction firm, and the inspection and monitoring needed to ensure compliance – are all undertakings that presuppose a capacity to structure tasks and organize activities which simply do not exist in many poor villages.

Likewise, projects like water systems that are disconnected from centralized systems require that operations and maintenance be performed either by the communities themselves or by contract service providers. In addition to generating costs that must be borne by end users, the use of decentralized systems means that the communities have to perform technical maintenance, estimate and allocate costs, and ensure that each household can pay its share of these costs. They must also take measures to penalize customers who do not meet their payment obligations on time. The communities' limited technical resources and organizational capacity restricts their ability to efficiently carry out these fairly complex tasks.

A final constraint faced by low-income communities is that almost by their nature they do not have the capacity to bring group pressure to bear on local authorities. These are the same authorities that will decide whether subsidies will be granted to the communities, and if so, how large they will be.

Even in countries actively pursuing decentralization, decisions on how to apply subsidy funds are made by local governments. Although this decentralized approach to decision-making is usually a good policy, in practice it requires transparent and streamlined criteria for deciding what should be subsidized and how large individual subsidies should be.

Communities with strong political leverage and a highly developed capacity to create group pressure have an advantage over weaker communities. The lack of transparency in the application of rules by which many subsidy systems operate, and the fact that potential beneficiaries have no way of enforcing what they feel are their rightful claims, means that communities cannot depend on “the system” or “the process” to work properly.

1.4 Resulting Inefficiencies and Negative Externalities

In light of these circumstances, private financial institutions have focused on the upper-income brackets, often to the exclusion of 60% to 85% of the population. Low-income communities have been left to finance their infrastructure and shelter needs through *personal savings and informal credit sources*, including relatives, suppliers’ credits, rotating savings, credit associations, and moneylenders.

These informal sources are expensive and unreliable. Families are forced to build their communities incrementally. This condition results in *diseconomies of scale* in construction, foregone discounts on bulk purchases of building materials, and construction of *structurally unsound infrastructure solutions*. Furthermore, since families are unable to pay for up-front costs of electrical, water and sewage hook-up fees, on-site storage tanks, latrines or septic tanks, they often obtain illegal and unreliable connections, resulting in negative community-wide public health and safety impacts.

Even when funding is available, incremental improvements can add to overall costs. For example, water supply is typically the first household priority, and is the first purchased and installed. Later a community might want to add on-site sanitation, then block-level sanitation, then public water and sewer mains. But this incremental approach adds to the total project cost.

Conversely if all the project investments are planned at the beginning, the loan will be larger and repayment must be scheduled over a longer term for monthly payments or corresponding tariffs to be affordable. This situation can be even more difficult for community-wide infrastructure investments where obtaining payment from each household for its share of the investment can prove problematic due to “*free rider*” issues.

2

Strategies to Enhance Sustainability

A growing body of analytical work has demonstrated a clear, direct and positive link between the level of community involvement in the delivery of basic services to low-income populations and the impact of the project. Infrastructure initiatives are increasingly engaging communities to identify the issues, set priorities, design and implement solutions, and supervise and monitor project performance.

By involving local stakeholders throughout the cycle, the project is more likely to meet the genuine needs of the community. This increases the community's willingness to pay for it. And it ensures their long-term involvement in the operations and maintenance of the assets.

But while community participation in decision-making has proven successful, government and donor financiers often give the matter only superficial treatment during the project design. This neglect reduces the chances of the long-term success of the project – from consistent, on-time repayment by the community to operation and maintenance of the assets. Private sector and community-based resources are foregone or even crowded out.

The following section discusses the role of microfinance in community infrastructure development. Non-traditional lending methods provide important insights into private funding approaches for small-scale infrastructure works.

2.1 MicroFinance as an Instrument for Community Development

Breaking through the perception of the poor as “non-bankable” are a growing number of community finance institutions (CFIs). They include BancoSol and Caja de Los Andes, (Bolivia), K-REP (Kenya), ASA, BRAC and Grameen Bank (Bangladesh), and Bank Rakyat Indonesia (BRI). While often charging interest rates well above those of local commercial banks to cover their operating and funding costs, these CFIs feature on-time

repayment rates of 95% and higher. They have reached tens, and sometimes hundreds of thousands, of low-income clients.³ (Refer to Annex 1 and 2.)

Their lending methods focus on providing quick, convenient access to small, short-term loans. They accept non-traditional forms of collateral such as joint liability between solidarity group members. Or they may provide additional incentives for on-time repayment by promising access to larger loans. CFI credit officers have often either lived or worked in the communities they serve. They are familiar with the social and economic realities of their clients.

Encouraged by these successful examples, regular commercial banks and financing companies have entered the market for small and micro loans. The liberalization of the financial sector in many countries has compelled small- and medium-sized financial institutions to look for new market niches, resulting in some “downscaling.” This has been especially true in Paraguay, Chile, Sri Lanka, Brazil, Uganda, and Kenya.

Though these programs seek primarily to support micro-entrepreneurs through working capital financing, many recognize that due to the fungibility of money, 20% to 40% of their loans are for “consumption” purposes, including home improvement. Indeed, often the micro-entrepreneur’s business is home-based. Loan proceeds invested in paved flooring, improved spacing and ventilation, or obtaining access to water and electricity improve shelter conditions, while simultaneously enhancing the productivity of the micro-enterprise. Given this reality, some institutions – such as Indonesia’s BRI, with over 2.6 million borrowers – do not require that loan proceeds be used for any specific purpose.⁴

Some CFIs – including SEWA Bank, Grameen Bank (Bangladesh), FENACOAC (Guatemala), LPD (Indonesia), Financiera Calpia (El Salvador) and Caja Popular Mexicana (Mexico) – have developed programs specifically for home improvement. These institutions usually require borrowers to have participated in a series of shorter-term loans to qualify, or saved over a substantial period before being eligible for these larger and longer-term loans. These CFIs recognize that households want an on-going relationship with an institution that can provide a range of financial services to match their evolving needs. They also realize that home improvement lending requires individually adapted loan terms and conditions (larger amounts, longer maturities, grace periods, collateral) to conform to household needs and payment capacity. In response, they have adapted their appraisal procedures and asset-liability operations to better assess and manage the risks and opportunities associated with this product line.

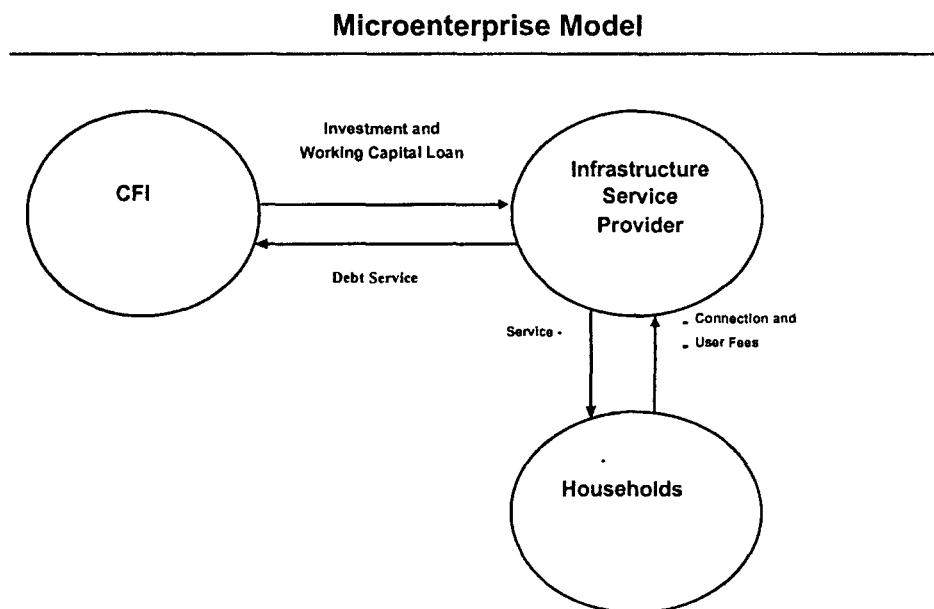
³ BancoSol, a commercial bank charges 55% for local currency loans, compared to commercial banking rates of around 22%. However, interest rates in the urban *informal* markets are as high as 800%.

⁴ It is interesting to note that despite Indonesia’s economic downturn of the last 18 months that BRI’s arrears rate has only increased marginally from 4.8% to 5.9%.

2.2 Community Infrastructure MicroFinance Programs

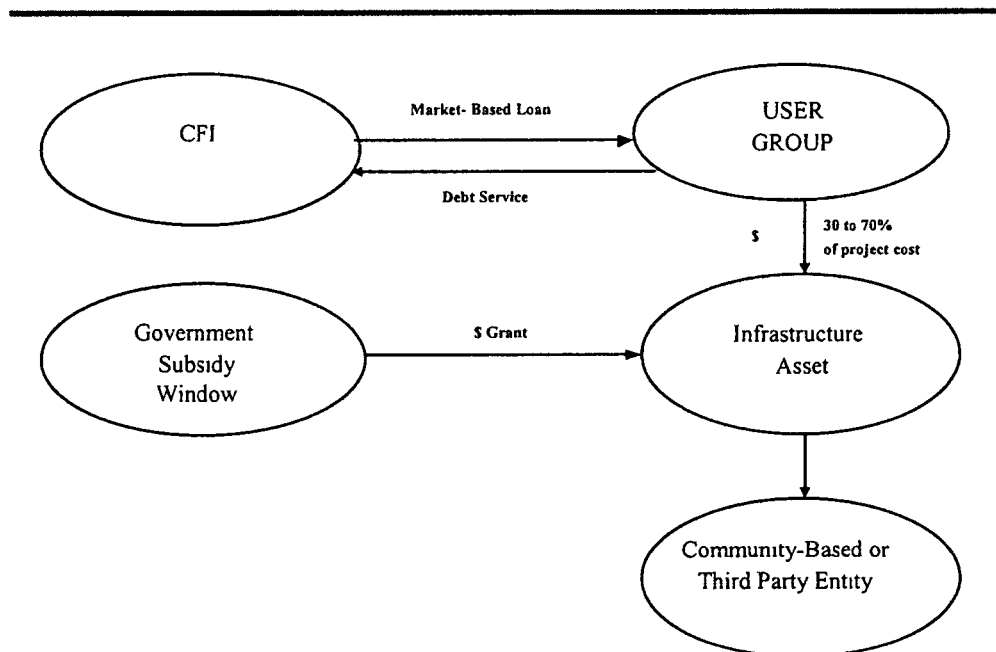
An emerging base of *commercially oriented* CFIs is supporting small-scale, community infrastructure projects, such as water, drainage, sanitation, road paving, electricity and telecommunications. These loans, which carry fees and interest rates sufficient to cover operating and funding costs, have been issued under the following three modalities:

- **Micro-enterprise Model:** The CFI issues a working capital or investment loan to a small-scale infrastructure service provider. The micro-entrepreneur then charges users for the service provided, with revenues applied to repay the CFI loan. This model has been used in Guatemala (Refer to Annex 3), Mexico, Kenya, and Paraguay for such services as water, waste collection, rural telephony, gas distribution, and road maintenance.



- **User Group Model:** Technical assistance providers – often the CFIs – mobilize and assist user groups in the design, implementation, operation and maintenance of the community infrastructure project. The CFI then provides a loan to cover part of the subproject investment – between 30 and 70% of the total cost. The remaining funds come from a government or donor subsidy. Annex 1 provides details of the Genesis Empresarial community infrastructure-lending program, which applies this methodology for rural electrification and water supply.

User Group Model



- **Individual Household Model:** Individual families, based on combined household income, receive a *consumer loan* from the CFI. The household then applies the loan proceeds to cover its cost-sharing of an infrastructure asset, whether for private use or shared application in the community. Home improvement loans are also provided under commercial terms to support household service connection fees, addition of on-site water and sanitation facilities, and purchases of plots with basic services. This model has been used in Indonesia, India, Bolivia and Mexico for a wide range of economic and social infrastructure services.

The following provides a brief overview of a few CFI initiatives in community infrastructure development:

- *In Guatemala*, Banco Empresarial, a commercial bank, and Genesis Empresarial, a non-governmental organization (NGO), have offered loans for community infrastructure, including water distribution, paved roads, and rural electrification. Interest rates are higher than those charged by commercial lenders. During 1995-1997, Genesis developed a loan portfolio of US \$4.2 million for potable water and small-scale energy projects in nearly 200 communities, targeting 10,500 families earning 1 to 2 times the minimum wage. It has an on-time repayment rate of 100%. Genesis plans to expand its community infrastructure portfolio to US\$ 20 million, working with an additional 320 communities, over the next 3 years.
- *In Indonesia*, LPD covers over 50% of the villages in Bali through community-owned banking units. Though not offering loans for community projects, twenty percent of LPD's annual net profits, after establishing reserves, are reinvested as grants in small-scale physical works. Projects are determined in consultation with villagers. In 1997

LPD supported 1,100 projects, including access roads, community centers, and small sports stadiums. BRI has issued over 1,000 loans to small, privately owned generators running on diesel, gasoline or liquified petroleum gas. These micro-generators sell electricity to households, small businesses, workshops, and so on.

- *In Bangladesh*, Grameen Bank, with a current micro-enterprise and self-help housing loan portfolio of over US\$400 million, has recently initiated two pilot programs. The first involves loans of approximately US\$ 325 for purchase of cellular telephones by village representatives. These borrowers pay Grameen Phone 5 cents/minute. The village wholesalers then charge individual users 10 cents/minute.⁵ Currently operating in 20 villages, Grameen expects this program to expand to over 68,000 villages by 2003. In the second initiative, Grameen offers small loans for the purchase of the components for renewable energy projects like biogas, solar and wind. A non-profit Grameen affiliate then purchases the components in bulk, installs the system, and provides follow-up service. Leveraging its client base of over 2.3 million borrowers, Grameen hopes to take advantage of economies of scale in procurement and delivery of support services.
- *In Paraguay*, more than 400 water companies known as “aguateros” serve anywhere from 10 to 5,000 low-income clients in and around the city of Asuncion. Many of these are micro-entrepreneurs who have secured loans from private commercial banks under market terms for both investment and working capital purposes. Connection charges by these small-scale entrepreneurs are \$400/household, nearly 4.5 times less than that charged by the government-owned urban utility.⁶
- *In Mexico*, three parallel, but institutionally separate, programs were brought together:
 - *100% privately funded CFI* will provide loans under commercial terms to low-income households to facilitate payment of connection fees for basic services, purchase of land title, and home improvement. For formal-sector based borrowers, employers will allow the CFI to collect and disburse its loans through the borrower’s payroll system. This automated access will significantly decrease CFI operating costs, resulting in a reduction in the interest rate the CFI must charge to cover its costs. Employers will also permit the CFI to market its financial services and provide borrower technical assistance during working hours, both increasing the demand for the financial services and reducing the borrower’s opportunity costs. In addition, employers will provide the CFI with background information on employee employment tenure, wages, and family status to facilitate identification

⁵ Grameen Phone is a joint venture between Marubeni, TeleNor and Grameen Telephone, the latter being 100% owned by Grameen Bank and having a 35% share of the Grameen Phone.

⁶ Altogether, aguateros serve an estimated one-third of the area of greater Asuncion (ref. The Other Private Participation in Water and Sanitation: Tale of Small Independent Providers in Latin American Cities, Draft Oct. 30 1998)

and screening of credit-worthy borrowers. Finally, employers will match borrower savings to expedite compliance with the CFIs lending requirements, while reducing the borrower's debt service burden.

- *Community Trust Fund (CTF)* will be managed as a public-private partnership to support services, including access routes, drainage, street lighting and day care centers. It will also provide technical assistance to communities for their efforts in project design and implementation. The CTF will be funded by a combination of federal and local authorities, property and betterment tax revenues, user fees and business community contributions. It will provide grants to communities, which in turn will pay a minimum share of costs for a set of multi-sector services, plus incremental costs for higher technical options. This approach will enable communities to express their priorities across sectors and service levels.
- *A materials cooperative* will purchase required material inputs for community infrastructure and home improvement at wholesale prices and pass part of the cost savings along to households within the targeted communities. By lowering the cost of building materials, individual borrower credit needs are reduced, allowing the CFI to serve lower-income clients.

These CFI initiatives vary significantly in lender legal status, rural-urban focus, borrower profile, and credit terms and conditions. However, all provide quick and convenient access to small and short-term loans, while relying on non-traditional forms of collateral such as joint liability among solidarity group members. They provide incentives for on-time repayment through the implicit promise of continued access to loans. This expectation of follow-up credit has proven critical in fostering high loan repayment rates for community-financed small-scale infrastructure, many of which are characterized by “free rider” issues. Since the CFI is usually the only source of financial services (for both credit and savings), borrowers are motivated to remain in good standing.

2.3 Limitations and Challenges

The methods used by these different CFIs in different countries offer important lessons in how to extend infrastructure services to the poor in socially and financially sustainable ways.

The models are characterized by small scale and relatively narrow reach, especially when compared to the tremendous demand for their services. The most important factor limiting community development initiatives has been the ability of the loan recipients to repay, especially as CFIs include poorer communities in their programs. Most successful CFIs apply underwriting standards that keep the borrowers' monthly loan payments below 25% to 30% of combined family income. These limitations often preclude full community financing of even small infrastructure assets. So some subsidy may be required. These

subsidies can be justified because many of the infrastructure investments benefit the entire community.⁷

Another important constraint limiting the scale of these initiatives has been entry barriers preventing formal sector suppliers of credit from serving this market. For example, successful lending to low-income groups presupposes the use of cash-flow credit analysis techniques, which traditional banks do not employ.

Formal banking institutions are also set up to process large-scale loans through centralized organizational structures, so they lack the bureaucratic flexibility required to serve these small borrowers. This development of new credit technologies and operating procedures for micro lending has a costly learning curve for financial institutions. This deters them from entering the market. In addition, micro lending is labor and cost-intensive. It becomes profitable only in the medium term.

This downscaling process takes a long time, unless external supporting measures are taken to accelerate it – such as the transfer of know-how, which reduces the institution’s learning costs. Intervention policies should provide extensive technical assistance to alleviate these organizational problems. Policies must support the institutions in implementing new credit technologies and underwriting procedures, so that micro lending becomes an integral part of their business.

2.4 The Need for Strategic Alliances

The remainder of this document outlines a combination of community-based and capital market approaches for increasing the flow of private capital to community infrastructure initiatives. The underlying premise is that for these programs to reach scale, maintain a focus on reaching the poor, and optimize environmental benefits, it will be necessary to create partnerships between government, the communities and the private sector.⁸

Successful partnerships should result in:

- *Improved access to market-based financial services* for community and household level infrastructure;
 - *Lower costs of technical and material inputs* via (i) “preferred buyer” or volume discounts through wholesale purchasing, (ii) self-help or mutual-help construction techniques, (iii) application of appropriate technologies, and (iv) provision of

⁷ Also, in an effort to standardize operations and reduce costs, many successful CFIs have focused on exclusively on the delivery of financial services. Hence, technical assistance and community mobilization activities, centerpieces of successful participatory programs, are excluded from their list of services.

⁸ Private sector partners may include financial institutions, leasing companies, infrastructure service providers, material, equipment and technical service providers or local business that operate or hire from the communities.

technical assistance to communities to ensure the rational design and sequencing of projects, as well as the appropriate use of materials, equipment and labor;⁹

- *Technical assistance* to community residents and participating governments and lenders, increasing the visibility of the programs and and cooperation among all parties; and
- *Improved information flows* to reduce transactions costs faced by private providers of good and services in the local communities. Private parties would also be more aware of the procedures for obtaining government or donor financial help. The communities themselves would have access to better information about qualified suppliers for such things as technical assistance, construction services, and contractors for post-construction needs like routine operation and maintenance.

These programs require a delicate balancing act to build sustainable partnerships that can be replicated on a cost-effective and socially sustainable basis, without detracting from the essence of what makes these individual initiatives tick.¹⁰

⁹ Further enhancing affordability has been technological innovation, which has increased the cost competitiveness of smaller and/or distributed systems. These include advances with cellular telecommunications, improved materials (e.g. polyethylene) and lower cost production technology (e.g. customized solid-state controls). For example polyethylene pipe is the basis of low-cost water and gas networks. In certain circumstances, it makes possible individual connections “far from the main supply.” Customized solid-state controls now make financially feasible the direct integration of electricity supplies from small-scale systems (e.g. micro-hydro).

¹⁰ For example, placing both programs within a single institution presents clear dangers of mixing a commercial-based initiative with grant-based operations, given the wrong signals the latter might send to CFI borrowers.

3

Community Level Funding and Distribution Strategies

No single institutional model is appropriate for all countries. Successful programs take local conditions, capabilities and consumer needs into account. Sustainable community level funding mechanisms must overcome the often-significant differences among communities even within the same country. These differences include: willingness and ability to pay, involvement of the local government, private sector and civil society stakeholders, and legal and regulatory constraints faced at both the national and local level.

This section outlines general principles and some examples of site-specific operational approaches to optimize donor and market-based funding in response to local demand.

3.1 Guiding Tenets

The guiding tenets for this community financing approach centers are:

- ***Encourage Development of Commercial Markets and Competition*** by separating subsidies from commercial funding, and channeling them through institutionally separate mechanisms.

Because low-income households may be unable to fully repay the relatively high-priced commercial loans, they will often need subsidies. Because of the community-wide benefits of these public infrastructure projects, these subsidies are justified. So the issue is not whether to make them available, but how to structure and allocate them.

Several factors must be considered in the design of subsidies. From the borrower's point of view, they should allow borrowers to choose among several options that will best meet their needs. Next, they must be available to lower income groups by co-funding projects, reducing household debt services, or lease and rental payments. Subsidies should be offered in some sort of matching formula to stimulate savings.

From the lender's side, subsidies should use clearly measurable resources (for example, of budgetary origin) and apply transparent application, selection and adjudication

procedures. And they should be performance based, consistent with incentives to managers to keep down operating costs, loan losses and expenses for auxiliary services like technical assistance to borrowers.

- **Increase Willingness to Pay** through participatory approaches.

To get the local people fully engaged in the project, the communities --- with support from planners, engineers and social workers --- should prepare integrated development plans (IDPs). IDPs will outline the sequence of economic and social infrastructure projects over a two- to four-year period. Among the data considered in the IDPs would be a community survey covering physical aspects, existing infrastructure and services, environment, land tenure status and the socio-economic situation.

Priorities and prospective problems should emerge from this analysis and from community meetings. The object is to determine real demand for infrastructure within the community, then outline alternatives to meet that demand. Technical support would ensure that the choice of alternatives are affordable and technically sound.

IDPs offer the following benefits:

- They spread out the costs of technical assistance, while sustaining the social capital created by mobilizing communities for design and implementation of community-based projects.
- IDPs optimize application of scarce resources with coordinated planning. They can also recognize synergies among investments. For example, small-scale electrification can power both village telecommunication links and submersible pumps for ground water supply. The same small-scale power could treat the water using ultra-violet radiation in purification plants.
- They provide technical, economic and social data to reduce transaction costs faced by private sector providers of materials, equipment, technical services and funding for community infrastructure development.
- The plans provide a clearly defined game plan for the use of donor and commercial funding within the communities. IDPs identify leverage points in community willingness and ability to pay so that government-donor investments in, say, rural electrification could result in more cost-effective development efforts. For instance, as discussed above, being planned on a scale large enough to accomplish several coordinated goals, like pumping water for drinking and irrigation, powering telecommunications equipment, and running lights, appliances, machinery and storage facilities for home-based small business.
- Finally IDPs expedite consensus building among community participants, especially in setting project priorities. This wider inclusion of initiatives should reduce individual concerns about which projects will receive initial support. The

concurrent benefits include lower mobilization costs and increased willingness to pay by more members of the community.

- **Reduce Transaction Costs** for private-sector and donor-based providers of technical assistance and investment funding by creating transparent, efficient and visible points of entry and information centers to identify community needs, priorities, and capacities.

Based on these proposed program characteristics, the following provides some examples of financial approaches to increase capital flows for community infrastructure development.

3.2 Local Development Vehicle (LDV) - Demand Subsidy Window

Function: The Local Development Vehicle (LDV) would be the community coordination mechanism for receiving subsidies from donors and allocating them to borrowers. It would help build the ability of the local community to handle the project, prepare the IDPs, and *partially* fund capital costs identified by the IDPs.¹¹

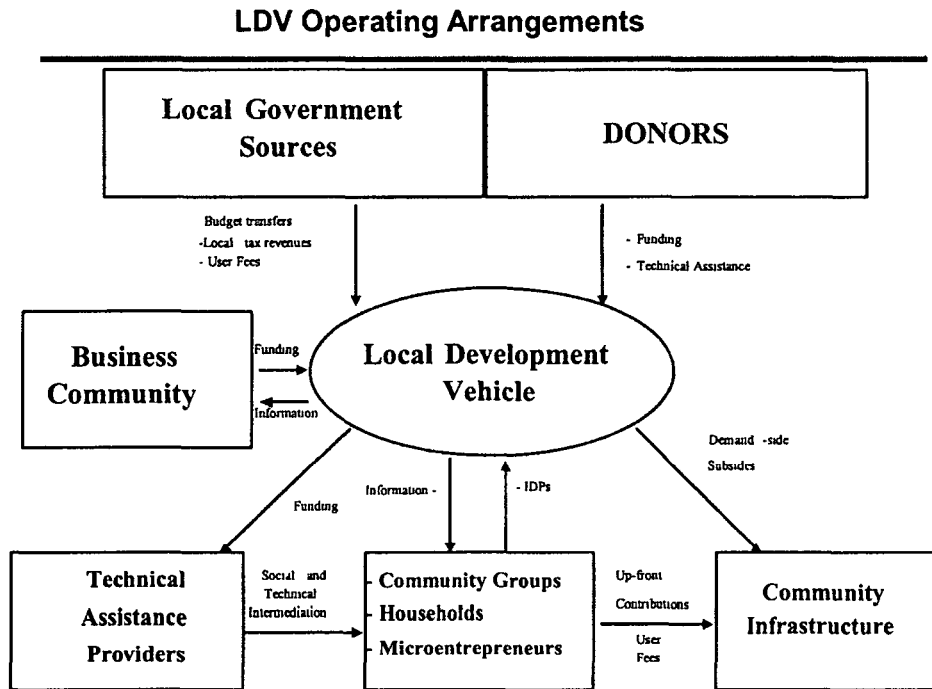
The LDV would not identify or implement projects. Instead, it would evaluate community IDP-based proposals according to social, environmental, technical and economic criteria. When existing technical or services standards were “over-designed” or did not exist, the LDV would support pilot projects that did fit within the existing standards. The LDV would encourage private providers to use technology creatively to provide the best services to meet performance standards. Once subprojects were approved, the LDV would help to fund them, supervise their implementation, and monitor their impact.

The LDV’s legal, governance and operating structure would be driven by local circumstances. But they would ensure autonomy, be responsive to local demand, reach targeted communities, and provide leverage to obtain resources from other sources. To ensure coordination with local government planning objectives and infrastructure investments, formal coordination mechanisms would be developed between LDV and local authorities. For instance, local governments might place representatives on the LDV board, or contractual agreements could be established with local infrastructure providers for environmental standards or other technical assistance.

Operating Strategy: The LDV could support local capacity building through (i) marketing and information campaigns, (ii) organizing communities, (iii) providing social and technical support for development of IDPs, (iv) training communities in the operations and maintenance of infrastructure assets, and (v) ongoing monitoring of program impact and technical assistance to communities. Depending on the capacity of local actors, the

¹¹ In order to bring market forces to bear regarding the application of subsidies, costs associated with project preparation might be conditioned upon IDP compliance to the pre-established social, technical, economic and legal criteria of the LDV. Similarly, partial payments of capital costs could also be contingent upon project development according to required specifications.

LDV could either provide technical assistance directly, or contract with third parties, such as NGOs, private contractors, local universities, infrastructure service providers or municipalities.



The LDV would also serve as an information dissemination vehicle to local business and third-party donors regarding community infrastructure and technical assistance requirements. It would outline the terms and conditions of funding, both from the LDV and from other potential supporters. This promotes understanding and cooperation among the community, government and private sector.

One additional benefit of the LDV would be its ability to “level the playing field” between large- and small-scale private participants. The former often enjoy advantages in the form of access to soft financing or long-term financing, subsidies for investments, advance knowledge of where trunk lines to major infrastructure works are planned, and so on. The LDV would coordinate the flow of information to allow providers of varying resources to gain access to government-donor support.

Funding Arrangements: Government-donor support of the LDV would include technical assistance and investment funding, which would be performance-based and phased out over a period of about five years. After the phase-out, the LDV would be expected to be self-financing. This financing could come, for example, from local contributions from the business sector or local government (e.g. budget transfers or dedicated tax revenues),¹² third-party donors, fees charged for its technical assistance programs, interest income, or

¹² Dedicated tax revenues could be sourced from property or betterment taxes as applied in the US and Mexico. In Zimbabwe there is a 1% levy for rural electrification,

other sources. LDV sponsors, as part of their business planning exercise, would be required to demonstrate how this self-financing would come about.¹³

3.3 Financial Services Vehicle - Commercial Funding Window

While the LDV would deal with subsidies, the Financial Services Vehicle (FSV) would act as the community investment window for *market-based* funding. The FSV might include commercial banks, microfinance institutions, leasing companies, credit unions, savings and loan cooperatives, or some combination of the above.

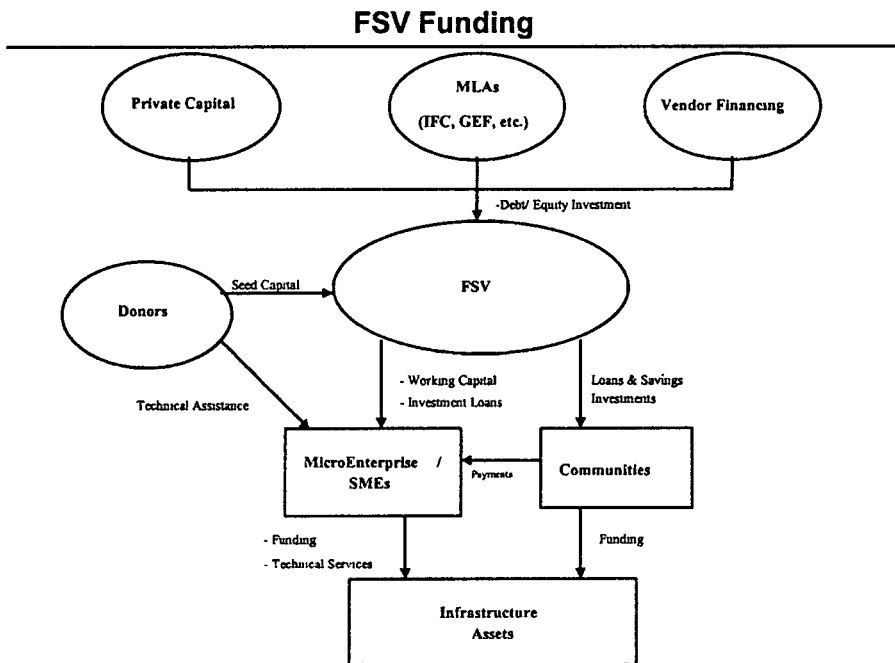
The FSV could provide loans for (i) home improvement, including for household utility connections, (ii) income generating activities, and (iii) as discussed in Section 2.3, loans to expedite community cost sharing for infrastructure works supported by the LDV.

The availability of market-based credit would play a key role in ensuring true choice by the communities. For example, "true choice" may mean that a community wants a higher level of service than the LDV is able and willing to finance, say for a photovoltaic power system. Hence, alternative-funding sources might finance the more expensive alternative. This would satisfy the desires of the community and enhance their willingness to pay.

Depending on its legal status, capital base, and underwriting parameters, the FSV could provide working capital loans to small- and medium-sized enterprises (SME) that provide services, equipment and materials for community infrastructure development. To the extent that the SME provides the full gamut of marketing, engineering, installation, operations and maintenance, and arrangement of financing (e.g. an energy service company (ESCO) model), this approach could serve to lower transaction and opportunity costs for end-users.

In certain instances, partnerships between formal financial institutions and informal community institutions (NGOs, self-help groups, savings and credit groups, etc.) may be required. These grass roots institutions can serve several purposes: lowering borrower opportunity costs; increasing on-time repayment; stimulating demand for credit; accepting non-traditional collateral like joint liability among group members; and setting appropriate loan amounts and repayment terms. Since the credit officers will often have lived and worked in the communities they serve, they will be familiar with the social and economic realities of their clients.

¹³ Another funding source could be top-up premiums paid by non-community based purchasers of infrastructure services. Should providers of community infrastructure have sufficient capacity to serve third-party users (e.g. industrial parks, residential developments, independent operators with concessions for small towns from provincial companies, etc.) these premiums could represent an "equity kicker" for project developers and/or could represent additional cash flow for the LDV. Developers could also bundle certain private goods to facilitate non-community members' participation. These private goods could include price stability on utility service costs fees, discounts on environmentally friendly products, or public recognition by the LDV of business/individual contributions.



3.4 Role of the Public Sector

Strategic alliances with public-sector agencies --- including municipal governments, government infrastructure providers, and social development funds --- would serve to increase the sustainability and impact of community infrastructure programs. Government participation could center on the following financial, technical, logistical and legal support:

- Provision of demand-side subsidies to communities approved by the FSV to defray some of the technical assistance and investment costs. In practice, the amounts covered have ranged from 30% to 70%, with the remainder provided by FSV loans and community or household in-kind contributions;
- Development of secondary and tertiary infrastructure assets, as well as granting of usufruct rights of land required to build, own and operate the assets;
- Provision of operations and maintenance services for the assets;
- Logistical support in assisting low-income communities in securing, transporting, and warehousing construction materials;
- Promotion and training in the application of technologies; and
- Legal recognition of community-based groups to own, implement and operate the assets.

3.5 Private Sector Linkages

In order to lower the costs of material, equipment and technical service inputs required for community infrastructure programs, private sector strategic alliances could be sought with the following entities:

- Material and equipment providers which pass on “bulk discounts” to approved FSV borrowers;
- Private land-owners via land swaps;
- Commercial banks through establishment of commercial lines of credit with the FSV, cash management and trustee services, access to branch offices and automated teller machines, and application of smart-card technology; and
- Private infrastructure providers for: subcontracting subproject operations and maintenance to community-based providers; provision of training and technical assistance in design, implementation and operation; and full or partial funding of up-front investment costs in secondary or tertiary infrastructure assets.

Additional linkages with businesses that operate within or hire from the communities may provide additional support for community infrastructure initiatives through the following mechanisms:

- *Funding:* Business can provide a full range of support, from grants and “social certificates of deposit” to commercial funding. Exporters could fund community financial institution operations through dual-indexed loans. These loans tie the interest rate paid by the borrower to increases in the minimum wage, with the loan balance accruing to some spread over inflation. Should wage increases not keep pace with inflation, the exporter would agree to absorb the outstanding balance of any loan that was current. Often the exporter can absorb this risk because devaluation can result in windfall profits. The exporter’s income is in dollars while his operating costs are calculated in local currency.
- *Administrative:* Businesses that hire from targeted communities can offer a number of administrative efficiencies. They can reduce loan servicing costs and raise repayment rates by allowing CFIs to disburse and collect their loans through the businesses’ payroll system. Businesses can expedite loan appraisal by providing information on borrowers – job tenure, income or family status. They can provide matching savings to facilitate household cost-sharing obligations. If businesses permit program marketing and technical assistance to take place on-site during working hours, they can reduce opportunity costs. Finally, businesses can facilitate banking sector contracts for participating CFIs.
- *Logistical:* Costs can be reduced to both lenders and borrowers by installing automated teller machines or cashier windows at supermarkets, convenience stores, video outlets

or consumer appliance stores. Businesses may also be able to recycle items such as wooden shipping pallets, sand, tubing, iron works, etc.

3.6 Strategies to Facilitate Coordination Among the Actors

In order to facilitate FSV financial services to communities, the LDV could fund technical assistance in the preparation of IDPs. When appropriate, the LDV could also train community or contracted parties in the operations and maintenance of the assets financed. *Though this support would effectively serve to “pre-qualify” group or individual borrowers, the FSV would reserve final credit approval rights of any LDV-referred customer.*

There are numerous other examples of potential cooperation between an LDV and an FSV. For instance:

- The FSV could pay a “success fee” to the LDV for a client referred by the LDV that is eventually approved for credit. This fee would be reimbursement for the technical assistance and initial credit screening done by the LDV.
- In their eligibility requirements, both the LDV and the FSV could require that participating households and communities be in good standing with both institutions. This would ensure that community borrowers would repay both their FSV-infrastructure and LDV-required cost sharing.
- The FSV could offer services like receiving utility bill payments, offering reduced-fee or no-fee savings accounts, and providing cash management and trustee services required by the LDV and community groups for disbursements and contractor payments.
- Finally, the LDV and FSV could negotiate preferred-client or volume discount arrangements with material, service and equipment providers.

3.7 The Vital Role of Technical Assistance

Credit and financing support is necessary, but almost never sufficient. Achieving a strong synergy between financing support and complementary technical assistance is critical. Though technical and social mediation provided to communities may increase overall government-donor costs by up to 15%, it can serve to increase the affordability of services rendered by:

- Reducing overall credit requirements of low-income borrowers (i.e., a \$1,000 loan instead of a \$1,500 loan) through more rational planning;
- Negotiating group discounts for utility connection fees or construction and operation and maintenance;

- Expediting project implementation, reducing opportunity costs of participating households;
- Lowering *borrower opportunity costs* by helping with loan applications. This also reduces *bank transaction costs* by referring “pre-qualified” borrowers;¹⁴ and
- Certifying contractors, ensuring good value for the money because that contractor’s future business will depend not only on client satisfaction, but also upon that of the facilitator.

Experience with subsidies in other markets has shown that the quality control mechanisms designed to separate efficient technical assistance providers from inefficient ones do not simply function on their own. Often the target group is not sufficiently well informed to recognize poor services. This raises the question of how to ensure that subsidized services are of a sufficiently high standard.

One way to tackle the problem is to increase the market power of the target group by instituting a demand-driven subsidy system. For example, the LDV could issue vouchers to the target group, which the residents of the village could then use to purchase advisory services from specialized and qualified institutions. Technical assistance providers would then have to compete for the patronage of the target group through the price and quality of their services.

However, communities may not have enough information to select the best supplier. And they would have little power to penalize a firm that provides substandard service. The LDV would be critical to addressing these problems by maintaining a list of qualified suppliers.

¹⁴ Borrower opportunity costs include monetary costs associated with compiling information, transportation costs, and time spent and foregone wages going through the loan approval process. Often these costs can exceed 60 to 80% of the loan interest rate.

4

A Capital Markets Approach to Community Infrastructure

Once local institutions and strategic alliances can act as reliable distribution channels for donor, community and market-based funding, the next step is to create systematic linkages with the formal financial sector to bring them to scale.¹⁵

This section examines approaches to link the financial sector with community development initiatives, and to streamline donor support to enhance the terms of private funding.

4.1 Guiding Tenets:

Commercial funding may be secured at the national, local or community level. Factors affecting the amounts, timing and related terms and conditions will vary depending on local needs, existing market conditions, and relevant policy framework. The following proposed arrangements seek to:

- Provide a flexible approach for dealing with changes in these key variables;
- Minimize and leverage public-sector funding;
- Allocate risks to those parties best able to manage them (e.g., distance the Government from commercial risks). This gives the borrowers incentive to effectively manage risk; and

¹⁵ Even in situations of smaller, less developed capital markets, donors can support innovative private funding approaches including (i) establishment of investment funds that would target commercially viable small-scale infrastructure projects, (ii) creation of local private placement markets for equity or quasi-equity in such investment projects and/or enterprises, and (iii) assistance in the creation of equipment-leasing instruments and mechanisms to provide financing of components.

- Improve access to, and obtaining the best terms and condition of, private financing (tenor, pricing, timing).

4.2 Infrastructure Development Facility (IDF)

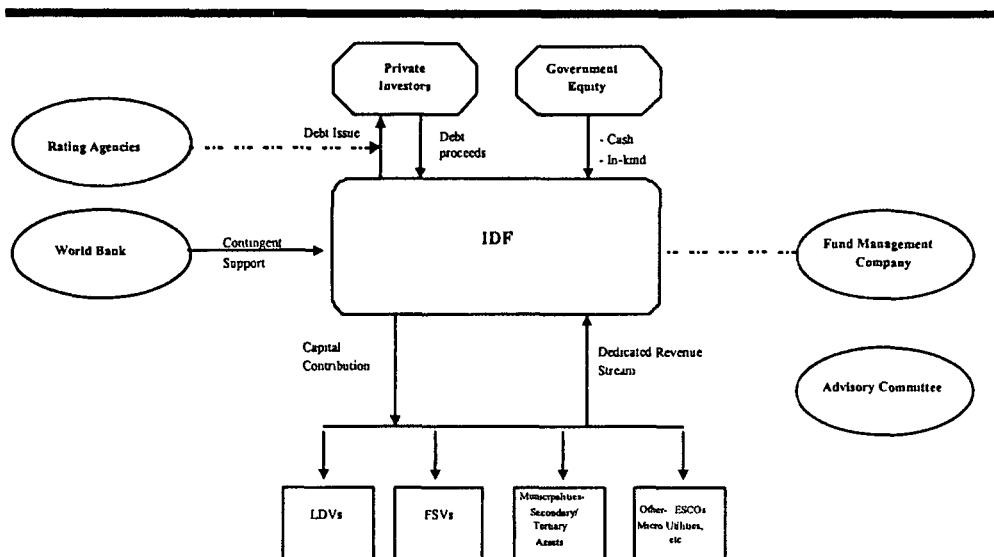
The Infrastructure Development Facility (IDF) would be an infrastructure bank linking the LDVs and FSVs with national and international providers of private capital. The IDF would access to the private markets through: (i) subproject cash flows of individual or a pool of projects; (ii) full or partial credit enhancement by the municipality or corresponding governmental authority, for instance by budget intercept mechanisms or dedication of specified taxes or fees; (iii) seed capital from governments and donors; and/or (iv) the credit enhancement instruments described in Section 4.4 (below).

Private investment secured at the IDF level would be channeled to secondary and tertiary infrastructure investments or community-level investments via the LDV or FSVs. Potential investors include commercial banks, insurance companies, pension funds, mutual funds, high net worth individuals, strategic investors, and donors. The IDF could also channel funding for the development of micro utilities, ESCOs or other entities to deliver infrastructure services, including bundles of such investments, thus overcoming some risk management and financing constraints.¹⁶ In effect, the IDF would become the financial link between community-based providers of services and funding and the formal financial sector.

The IDF could be established at the city, state or national level, depending on program scope and objectives, development of the regulatory environment, technical and economic characteristics of the project pipeline, and the type of government-donor support. Larger jurisdictions may justify the establishment of a dedicated IDF. However, for smaller cities and rural areas, which may not be able to justify a stand-alone IDF, a state, provincial or even a national level approach may prove more appropriate.

¹⁶ As a variation, the IDF could also take debt and equity positions in such entities, especially ones in which there is an international/local collaboration, which facilitates transfer of investment-related technology and know-how and brings additional capital to the venture.

Diagram 1. IDF Operating Structure



4.3. DF Benefits

The IDF's ability to aggregate demand would allow it to obtain more favorable financing terms than those available to individual consumers. In addition, the transaction costs associated with one large loan are lower than for a large number of household or community loans.

Additional benefits derived from the IDF approach would include:

Access to Capital Markets: Many financial institutions are interested in larger issues because of their wider secondary market. Smaller issues are unknown and the detailed information needed by buyers is often unavailable. But a large issue by a pool of borrowers can achieve economies of scale. It can also enhance access to the bond market by providing a debt instrument, which is more recognizable. These are more likely to be accepted by investors than a small, lower-rated or unrated bond of a relatively unknown borrower.

Portfolio Diversification: The IDF would have a portfolio of investments in an array of limited-recourse financing. This diversification of risk would enhance the overall credit quality of the IDF, as opposed to project-by-project financing. Additionally, certain investments may have a longer payback period than others. Hence, two quick-paying investments could be combined with a longer payback projects, thereby mitigating investor concerns regarding short-term returns on investment. Portfolio diversification would also enhance the IDF's credit rating. This would give it a broader potential investor base especially, especially among the international institutional investors, reducing its overall cost of borrowing.

Reduced Transaction Costs: Transaction costs can be reduced by: (i) accumulating market-specific expertise about the project structure and implementation; (ii) strict adherence to transparent and well-structured tendering practices; (iii) standardization of products; and (iv) the elimination of duplicate fixed costs such as legal, financial advisory, and underwriting.

Tailored Products: IDFs can provide tailor-made loans under terms and conditions, which are not available from publicly offered bonds or private-placement loans. This would be especially advantageous for projects, which may require extended grace periods. Larger, more credit worthy issuers like the IDF can also capitalize on specialized techniques to reduce interest costs, such as derivative products, zero coupon bonds and variable rate bonds. These techniques are not usually available to small borrowers.

Broader Financial Scope: IDF construction funds, as previously described, provide a continuous availability of funds for future lending, with or without ongoing appropriations. This is due to their revolving nature as funds return to the program from loan repayments of existing borrowers, principal allocations and interest earnings on reserve funds.

Enhanced Market Liquidity: Over time, lenders' confidence in funding projects through the IDF will increase. This may also result in some lenders feeling more comfortable participating as co-investors with the IDF, which may in turn lead to an overall increase in the volume of lending. Defaults on IDF loans may be perceived as equivalent to defaults on multilateral agency financing, given the role of these institutions in providing credit enhancement for the IDF.

4.4 IDF Credit Enhancement Mechanisms

Below are some examples of credit enhancement mechanisms to support IDF access to private funding. The guiding principles of these mechanisms are to: (i) define and systematize parameters for the evaluation, selection and prioritization of community investment and the provision of Government guarantees; (ii) develop operating procedures, including methods of fiscal appropriation, pricing, and contingent liability management; and (iii) develop model guarantee documents that are consistent with the principles outlined and that can be used as a basis for negotiating individual contracts – although these will have many project-specific features.

With these parameters in mind, the following outlines some credit enhancement instruments to support IDF access to private funding:

- *Refinancing commitments* to cover financial market interruption risk provoked by general macroeconomic shocks or sector-specific events faced by private lenders. This instrument would encourage extension of maturities for both foreign and local currency denominated loans and securities, while also seeking to lower pricing on the risk premium of the projects.

Rationale: Both international and domestic debt providers are limited in the average life or final maturity that they are willing to provide. In the absence of some assurance that their debt will be refinanced at maturity, lenders are unwilling to offer long maturities. So they may include a risk premium in their lending costs. In many cases they are reluctant to lend at all. The IDF would have to amortize their debt obligations over very short periods of time, with project investments featuring very high tariffs or prices, significantly constraining access to low-income communities.

To the extent the IDF provided longer-term financing in an effort to increase project affordability, this would expose it to a mismatch in its asset-liability position. This mismatch would jeopardize its financial sustainability and reduce its creditworthiness based on third-party investor commercial underwriting criteria.

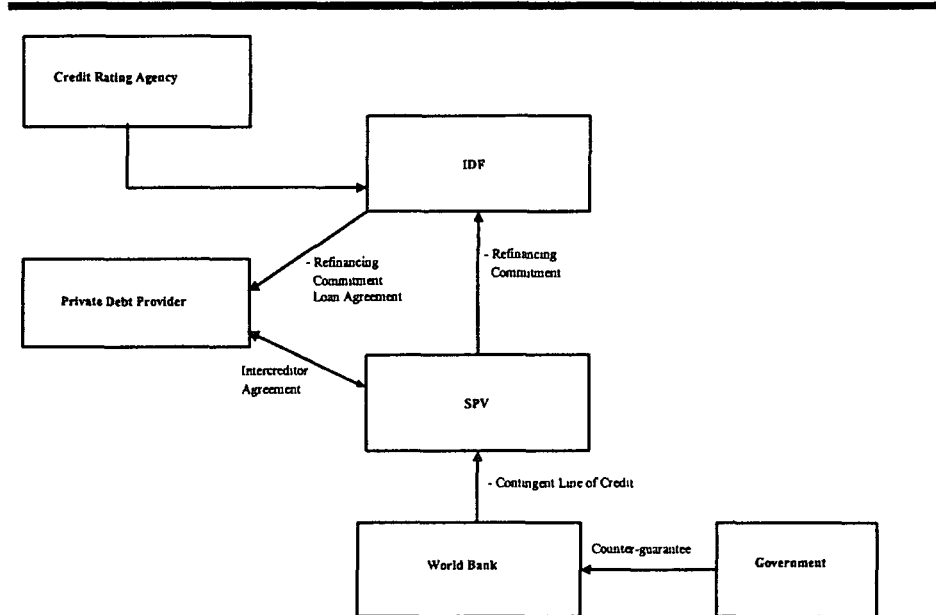
Instrument Structure: Refinancing Commitments would be offered to better match the IDF's cash flow profile with the terms and conditions of its funding arrangements. They would also cover financial market interruption risk. It encourages extension of maturities for loans and securities and lower prices on the risk premium of the IDF debt issuance.

Exercise of these commitments would occur only in cases where refinancing was made impossible or prohibitively expensive by factors beyond the control of the IDF. The Refinancing Commitment would effectively act as a backstop mechanism to provide liquidity should market disruptions occur at the time of a scheduled bond redemption or loan repayment. These disruptions could be limited to events affecting all market participants, rather than those affecting only a single issuer. These events could stem from political, economic, or international causes.

Operative Arrangements: A special purpose vehicle (SPV), for example, could provide the standby Refinancing Commitments directly to IDF investors. The SPV would be responsible for: (i) evaluating, structuring, and negotiating the terms and conditions of the instruments provided to project participants; (ii) servicing existing instruments, including collection of payments and monitoring of compliance by borrowers; (iii) liability management (e.g. resale of debt in the case of an exercised Refinancing Commitment); and (iv) education of bidders regarding availability and general terms and conditions of the instruments.

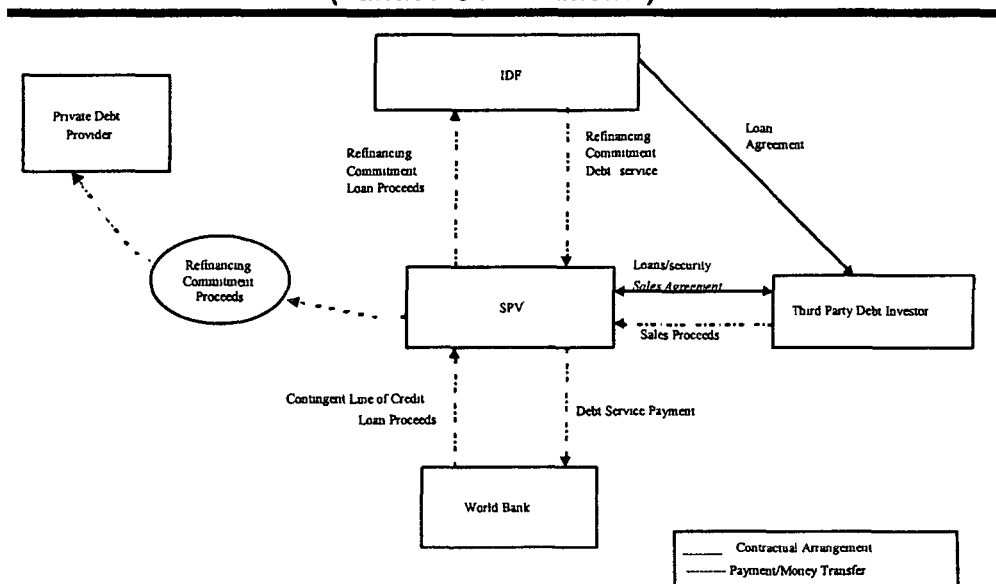
The World Bank would provide a contingent line of credit to enhance IDF's refinancing of its debt obligations. Assuming the IDF was in compliance with the call provisions of the RC, upon exercise of this instrument the SPV would extend financing directly to the investors, which would apply the proceeds to pay down its outstanding debt to the IDF. The term of the refinancing proceeds would be determined in relationship to the IDF's cash flow generation and debt servicing capacity.

Refinancing Commitment (Standby Commitment)



The SPV in turn would actively manage its inventory of project securities (including, for example, the lending of such bonds) and would be free to syndicate, sell or assign at any time the Refinancing Notes. When the financial markets stabilize, it could then seek to secure its portfolio or sell individual loan participation or assignments to domestic and international investors, creating additional liquidity in secondary markets. While holding the securities, SPV would enjoy equal access to the same security/intercreditor arrangements as provided to the original group of IDF investors.

Refinancing Commitment- (Funded Commitments)



Allocation Mechanism: The Refinancing Commitments would be made available to debt providers at the time of issuance. At such time, the SPV/IDF would define without limitation (i) the minimum period during which the Refinancing Commitment would not be callable, (ii) commitment and front-end fees, (iii) maximum loan amounts (defined on a net present value basis) that could be covered, (iv) call provisions to allow lenders to exercise the Refinancing Commitment, (v) Refinancing Note interest rates and repayment schedule and (vi) SPV security/intercreditor rights should the instrument be exercised (i.e., ability to sell assignments or participations in the Refinancing Notes).

Government Indemnity: Any amounts of the Refinancing Commitment disbursed and supported by the World Bank would be counter-guaranteed by the Government.

Expected Benefits: The Refinancing Commitments enhance the financing terms and conditions of IDF debt issues by extending maturities. For example, the Refinancing Commitments could be used to structure balloon payments (lenders could agree, for instance, to 20-year amortization schedules with a 7- to 10-year final maturity) or simply extend the average life/final maturity of the loans. This would enhance the IDF's financial viability given the concurrent reduction in its periodic debt service obligations. This would improve its debt service coverage ratios. This would also increase the commercial viability of supported subprojects by reducing tariff requirements. By enhancing the project's viability, the IDF's credit rating would be improved as well, lowering funding costs and offering greater primary and secondary market liquidity for the project's debt.

- ***Liquidity Support (LSF):***

Rationale: Initially all IDFs and most borrowers will be unknown to private investors. So some type of liquidity support (e.g. bond insurance) may be required.

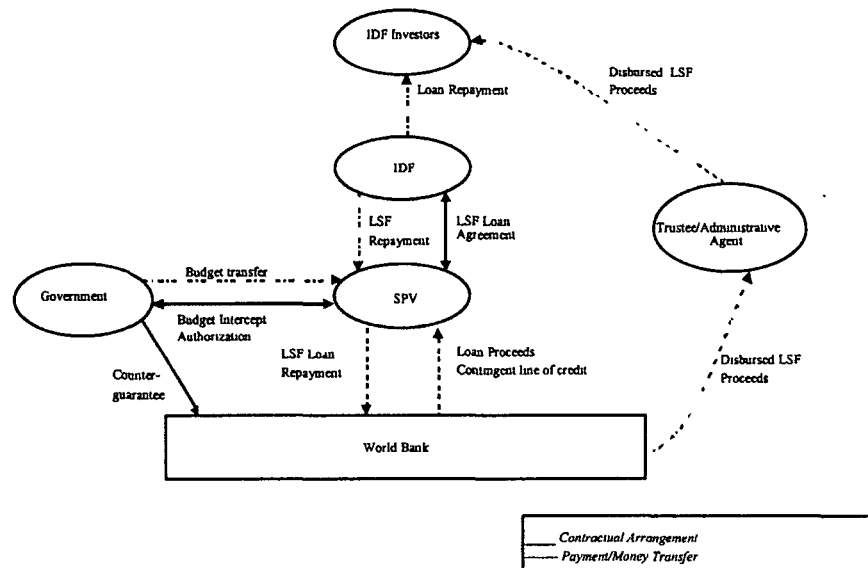
Instrument Design: The LSF would cover debt service delays by the IDF and would be callable only if the IDF failed to meet its debt service obligations, with that failure resulting in a default with its lenders. The LSF could cover all principal payments owed by the IDF, which still remain outstanding. Or it could cover scheduled principal plus interest payments, in which case the guarantee would not be accelerable, except in the event of project termination. This latter option would continue to make lenders whole and provide the Government, the IDF, and the lenders time to take corrective action in the event of a default.

One other product design option could entail LSFs that cover, for example, only the upcoming 24 to 36 months of debt service (versus the full outstanding amount of the loan). To the extent not utilized, the guarantee would be automatically extended. This structure would be a rolling debt service reserve fund to cover debt service shortfalls resulting from very specific risks (e.g. currency inconvertibility). The expectation would be that during the period covered by the guarantee the problem at hand would be

resolved. Full debt service payments would continue during this period and as such an “IDF meltdown” could be avoided.¹⁷

Operative Arrangements: The LSF could be established as a contingent and revolving line of credit between the World Bank and the SPV. If the LSF were utilized, it would be drawn down as a loan between the SPV and the World Bank. All disbursed monies would be transferred to an account in favor of the project investors. Subsequent to the loan agreement with the World Bank, the SPV would be required to include a specific budgetary line item sufficient to liquidate the outstanding loan. Once the loan was fully repaid, available amounts under the LSF would return to the originally agreed-to standby commitment. Thus, from an operations perspective, the instrument would act as a revolving line of credit. The LSF would provide temporary bridge financing to the IDF, allowing it to meet contingent payment obligations as defined in the concession agreements with private investors.

Diagram 2. Liquidity Support Facility



Allocation Mechanism: The terms and conditions, including risks covered and related fees, of the LSF will be defined at the time of the IDF debt issuance, through separate documentation. The IDF, seeking to reduce its funding costs, could always choose not to seek recourse to the LSF, thereby eliminating the cost of the LSF commitment fees. The cost-benefit analysis from the IDF’s standpoint would be to ensure that the savings

¹⁷ The leveraging and limited evergreen structures would perhaps be most appropriately applied once the legal and regulatory framework has been more fully developed and tested and thus would represent a longer-term transitional mechanism for gradually reducing the Government’s participation.

from the elimination of the LSF commitment fee would offset any increases in the lender's all-in interest rates given their now uncovered risk exposure to the IDF.

Government Indemnity: Any amounts of the LSF supported by the World Bank would be counter-guaranteed by the Government.

Annex 1

Solar Finance Implementation Manual for Africa

Based on experience in Kenya, this project identified and developed sustainable finance approaches to support the dissemination of photovoltaic solar home lighting systems (SHSs). It avoided traditional donor-driven approaches, concentrating on sustainable financing mechanisms for SHS.

SHSs can provide a cost-effective alternative for small household and business power requirements in areas where there is no rural electrification. This implementation manual provides a step-by-step guide for the planning and execution of solar electric system investment and credit packages in African countries. It is based on more than two years of field experience in Kenya. It outlines two different finance approaches to address lighting and power needs of (a) rural households with regular cash income and (b) small businesses with the potential to increase productivity with PV electricity. For the finance system to work, the borrower must be sufficiently creditworthy to take on a small PV electricity system loan to be paid off in 18 to 24 months.

This approach is based on cooperation among a finance partner, a technical partner and communities that want solar electric systems. The finance company makes loans available to qualifying households and small businesses. The technical partner insures that all the systems are well designed, installed, inspected and maintained. Loan agreements stipulate that the borrower follow guidelines set up by the technical partner to insure maximum system life. Rural service companies install and service the systems, while local artisans fabricate battery boxes and module mounts.

This manual has been developed based on ‘on-the-ground’ field experience. Some of the issues and their solutions may need to be adjusted to suit the local conditions on a case-by-case basis. Users of the manual should modify their approach for different types of finance and loan groups and different market structures in other locations.

This project involved two different types of finance institutions already active in rural areas. Both are recognized as leaders in their field. One gives business loans to small, well-organized rural groups or small businesses. Members of these groups guarantee each other, reducing default risks (i.e. peer pressure as collateral). The second finance group is an organized co-operative bank with experience lending to individuals through rural-based Savings and Co-operative Credit Organizations (SACCOs).

Identifying and Organizing the Rural Loan Groups

Several ways exist to identify target groups and co-operating technical and financing partners. If the initiative begins in the community, then interested groups must organize themselves and identify finance organizations. These groups must be legally recognized. If the initiative is starting from the financing institution, then target communities should be identified through outreach and promotional meetings.

The target group is informed of the capabilities of solar electricity during awareness meetings. Data is collected to establish the group's energy requirements in the target region. In areas where people do not understand photovoltaics, demonstrations should be held to show how solar electricity works, and what the costs and benefits are. Groups or co-operative societies discuss the particulars of the loan program with the financing institution, and ensure that there are no lingering questions. By the end of this process, the complete chain of players involved is identified, and clear guidelines of their roles and responsibilities should be in place.

Identification and Formation of Loan Groups in Kenya

A good solar finance program needs efficient, organized, honest loan groups. The finance partner must organize the loan groups or fund recovery method.

In this project, two types of rural loan group were used:

1. K-Rep Informal Loan Groups. These groups were formed specifically to obtain solar power loans. K-Rep guided the organization of the groups through its field offices.
2. Coop Bank Rural SACCOs. These are established tea societies, which handle the payment of rural tea farmers. They gave farmers loans based on their tea income. The electric grid is not likely to be extended as far as their village, but many of the households want solar-powered lighting and television.

Working with existing rural credit groups was, in this initiative's experience, the most effective way to develop SHS loan packages. Established credit groups have a history that the finance partner can review, and have screening methodologies that are more impersonal and objective than informal groups.

The Loan Package

Group members apply collectively for loans from the finance partner. Loan application procedures should be those already established and tested by the financing institution and the credit group. With advice from a technical partner or selected local technicians,

applicants choose a system size that best fit their needs. A small number of standardized system packages are preferred for logistical reasons¹⁸.

For each applicant, the credit group approves a loan amount equivalent to the desired systems, in line with the technical partner's standard designs and the applicant's credit rating. Vetting and approval procedures should be those established by the individual groups. The group submits a single request to the finance partner once it has established its total loan requirements.

Each group collects deposits and payments from individual members and makes regular payments to the finance partner. If repayment for the group as a whole is sound, the finance partner could recommend a further installation wave. Individuals with good credit history can apply for follow-up loans if they so desire --- for instance, if they want a non-standard solar system, they can build it up over time with follow-up loans. Or new applicants can join the group. The cycle of installations and repayment continues. When individuals complete repayment on a system they become eligible for system expansion.

Keys for a Successful Loan Package

For the finance approach to work, loan recipients must be capable of taking on PV electricity system loans to be paid in 12 to 24 months. Loans for solar electric systems should be provided using the existing methods of finance institutions or loan groups.

This manual outlines two finance approaches for PV systems, which address the lighting and power needs of:

Rural households with regular cash income; and

Small businesses, whose productivity could be increased by PV electricity.

One financing method involved a participatory self-organized loan group guided by a successful micro-credit NGO whose approach has been successful in poverty alleviation on a wide scale.

The other method used established Savings and Credit Co-operatives (SACCOs), that provide loans to their members based on income from cash crop earnings. A national cooperative bank organized the effort.

In both cases, the project approached the central finance group and allowed them to lend to the rural loan groups. As described below, each approach has merits and disadvantages.

¹⁸ In this project 3 sizes of systems were offered, ranging from 20 – 60 Watt.

It is imperative that both rural loan group and finance institutions be fully involved in the activity from conception. Often, as was the case in the Kenya examples, both finance institutions had no previous experience funding PV technology.

This inexperience with PV technology among management and field staff was a hurdle the project had to overcome. It led to a relatively long “gearing up” process while the finance groups familiarized themselves with the technology, developing the confidence to commit their resources to the project.

The Technical Package

The financial partner or the loan group tenders the equipment, with support from the technical partner. The finance partner should decide on the organization of the tender process. Quality control is easier when the finance partner keeps this in-house, although the process may be more sustainable if done by the credit group.

After evaluation of the bids, the successful supplier delivers equipment directly to the group. The finance partner in turn pays the supplier. The installer procures minor components or accessories according to a budget recommended by the technical partner and agreed to by the finance partner.

Technicians install the solar electric systems selected by the credit groups and approved by the technical partner. If the group cannot nominate a technician, the technical partner identifies and trains technicians from the project area. During the installation, technicians are further trained on minimum installation code and standards¹⁹. Inspections are held on completion to confirm system compliance with those standards. The group should be fully involved. Where possible, a nominee from the group should be trained as inspector. Monitoring, repairs and maintenance should be built into the technical packages, and provided for at least the duration of the loan repayment period. After this, clients can buy additional coverage.

Keys to a Successful Technical Package

Solar electricity systems need to be designed to meet the needs of the end-users --- for radio, TV, lighting or other applications.

Several ‘standard’ packages should be prepared to cover a range of would be user’s needs and to simplify procurement. The focus is on quality and functionality.

Systems should not be user serviceable, and the battery and control should be enclosed and locked to prevent by-pass of the charge regulator (a common occurrence).

¹⁹ Minimum installation code and standards cover issues from installation practice to user training.

A selected group of suppliers and installers should be identified through a tender to introduce and implement the equipment that will be financed.

Lastly, several standard packages should be offered, based on user demand. System upgrade and expansion packages should also be available.

Conclusions

Although it was difficult to organize, once the right partners were identified and procedures established, financing mechanisms for household solar electric systems were achievable. The financing was successful despite the fact that solar systems are consumer goods that do not generate income in the short term. The demand for some electricity is so strong that households that can qualify a loan for solar electric system will obtain one.

Annex 2

Cameroon Decentralized Energy Finance

Purpose of the study

The purpose of this study was to define a sustainable financial mechanism that would meet the financing needs of private operators providing Decentralized Electrification (DE). The results of this study are based on several missions, principally in Douala, where work has been carried out on development of a decentralized energy project over the past two years.

Two financing perspectives were examined:

- A thorough study of different aspects of a typical DE project, including economic forecasts drawn up by the project; and
- Working sessions with BICEC management and the local commercial bank, to develop an intervention plan.

Principles of the Financial Mechanism

Selected principles of the DE financial mechanism are presented below:

1. Avoid creating a specialized financing fund. International experience indicates that this system is difficult to sustain and does not work.
2. Utilize the national banking system and choose a single commercial bank --- if possible the one placed best in terms of rural lending coverage. By doing so, lending efficiency is maximized and transaction cost minimized. Once operations have been established, other banks may be consulted.
3. Recognize the constraints of the commercial bank:
 - Availability of assets;
 - Security of operations; and
 - Loan profitability.
4. Leave the decision of loan allocation to the bank, which makes them on the basis of its own criteria of financial analysis and creditworthiness.
5. Provide the bank with financial resources at a reduced cost to limit the borrowers' outstanding loans.
6. Define a subsidy policy and avoid loans at preferential rates because of the adverse effects on credit demand.

7. Check that the proposal is economically and culturally adapted to the local Cameroonian context. Involve users by creating Common Initiative Groups (CIG).
8. Provide a profit incentive for investments made by private operators.
9. Make credit operations secure upstream (credit decision and allocation) and downstream (monitoring operations).
10. Look for agreements between the bank and micro-finance institutions to strengthen the security of operations.

Description of the Financial Mechanism

The financial mechanism that has been selected focuses on the following aspects:

Financing resources. In order to take the liquidity problems faced by the BICEC and the entire Cameroonian banking system into account, the World Bank would provide the Cameroonian government with a credit limit that will then be lent to the BICEC according to procedures in force at the World Bank. Characteristics of the funds would include:

- A credit fund and a subsidy fund;
- Remuneration of BICEC funds at the current official savings rate (5%).

Operations financing plan: Operations would be financed from three types of resources with a financing plan investment cost as follows:

- 30% through internal financing apportioned as follows:
 - 1) 10% capital provided by users, and
 - 2) 20% capital provided by the professional operator.

In the event of insufficient initial capital, additional investment will be required.

Providing a subsidy of 35% on equipment, to be paid back over five years without interest after the 8th year, with the aim of replenishing subsidy funds. This subsidy is deposited in the BICEC's books and managed by the bank according to the Project instructions.

- 35% credit apportioned as follows
 - 1) 25% on IDA credit fund resources, monthly payments, 7 years at the IDA resource rate increased by 5% (i.e. 11% excluding turnover tax);
 - 2) 10% on the BICEC's own resources, monthly repayments, over 5 years at the prime rate (i.e. approximately 11% excluding turnover tax).
- In all, 60% (35% subsidies, 25% credit) of financing resources are being provided by the World Bank, 30% by the beneficiaries and 10% by the BICEC
- *Amount of financing:* FCFA 400,000 per user, ranging from FCFA 20 to 50 million depending on operations.

- *The operators:* Two types of potential DE operators have been identified:
 - Private professional entrepreneurs who are interested in investing in this new sector, willing to take the investment risk, and to purchase the necessary equipment. They would provide all the electricity and related services (servicing, repairs, maintenance, etc.) with representation in the rural area by the CIG of users who act as intermediaries and guarantors;
 - The CIGs of DE users who invest in all the equipment. With the consent and backing of the project, they choose a professional service provider or a village agent who is paid to operate the equipment.

Making operations secure: Because of the lasting nature of the financing mechanism, it is necessary to ensure that the operations are secure. This objective will be pursued both upstream and downstream in the following way:

- With support of the DE project's technical bureau and the service providers it has chosen, it will be possible to select operators, train them, and monitor their performance both on the technical and management levels. This support is provided cooperatively with the bank, especially in matters relating to follow-up after the project has been launched;
- Special attention must be paid to operation start-up – choice of equipment and suppliers, orders, imports and delivery, transportation and starting on-site. The technical bureau or an appointed service provider shall present the bank with a technical certificate to confirm that all these operations are running smoothly;
- Guarantees are in keeping with the bank's usual practice while taking the context of intervention in a rural zone into consideration. There are guarantees relating to the investment and guarantees relating to the applicant (collateral, securities, collateral securities of the CIG, insurance delegation, etc.). An interest-bearing savings account at the current savings rate of 5%, blocked over a fixed period, would be opened in the operator's name. This account is intended for the renewal of equipment and replenished with money taken from operating revenue. It is pledged to the bank over a fixed period of time;
- These agreements were made with micro-financing institutions (MFI) with which the BICEC already deals (PPCRD), or with considerable national influence (CAMCULL). The MFIs established in the villages get payments from the users and direct the money to the bank (opening users' accounts, monthly direct debit systems and payments and drafts to beneficiaries' accounts). The regulation and control of the MFIs by the COBAC facilitate these agreements;
- Agreements and procedure briefs regulate relations among the different actors: World Bank, Cameroonian Government, BICEC, Project and Technical Bureau (BED), Operators, village users within the CIG, FMI, other service providers, etc.

Implementation of the Project

The roles of the different parties are set out below:

- The Cameroonian government must:
 - Define and decide on the reduction of customs duties and taxes on DE operations;
 - Define the role of the Regulatory Authority (Ministry of Energy) concerning the approval and supervision of DE operators (possible creation of a National Agency).

- The DE Project must:
 - Finalize the overall project,
 - Define the different agreements and procedures.

- The BICEC must:
 - Contact MFIs such as the PPCRD to define a structure that will make operations secure.
 - Define those procedures that concern it (management of funds, processing of files concerning the Project).

Annex 3

Genesis Empresarial Community Infrastructure Lending Program

The following document provides an overview of the Genesis Empresarial Community Infrastructure Lending Program (CILP). Working in over 200 low-income, rural communities in Guatemala, the CILP applies micro-finance techniques to support commercial lending for infrastructure services such as rural electrification and water distribution.

Genesis Empresarial – Fact Sheet

I. Basic Institutional Data	
<i>Established:</i>	<i>1988</i>
<i>Legal status:</i>	<i>Foundation (since June 1997)</i>
<i>Mission:</i>	<i>Improve the living conditions of low-income groups in Guatemala</i>
<i>Product Line:</i>	<i>Loans for micro-enterprises and community infrastructure; Technical Assistance and training for micro-entrepreneurs and community based borrowers under the CILP</i>
<i>Technical assistance by:</i>	<i>USAID, Accin Internacional, Fundacin Solar, Plan Internacional</i>
<i>Funding by:</i>	<i>Banco Centroamericano de Integracin Econmica (BCIE), BANEX, Banco Industrial, Banco Granai & Tomson, Banco de Occidente and other commercial financial institutions in Guatemala</i>
<i>Geographic Scope:</i>	<i>Guatemala City and 16 departamentos</i>
<i>No. branch offices:</i>	<i>38</i>
<i>No. employees (total):</i>	<i>153</i>
II. Product Line	
Micro-enterprise loans:	
- <i>Loan amount:</i>	<i>Q. 100 - Q. 25.000 (US\$ 15 - US\$ 3.970)</i>
- <i>Maturities:</i>	<i>1 week - 12 months</i>
- <i>Interest rate:</i>	<i>2.5% (monthly)</i>
- <i>Installments:</i>	<i>weekly, bi-weekly, monthly</i>
- <i>Guarantees:</i>	<i><u>group loans: liability of the group members;</u> <u>individual loans: guarantor (must be a full-time employee of a public or private enterprise)</u></i>

Infrastructure loans:	
- <i>Loan amount:</i>	<i>Q. 800 - Q. 3.000 (US\$ 120 - US\$ 450)</i>
- <i>Maturities:</i>	<i>1 - 4 years</i>
- <i>Interest rate:</i>	<i>21% - 30% p.a.</i>
- <i>Installments:</i>	<i>Monthly</i>
- <i>Guarantees:</i>	<i>group loans; escritura de propiedad</i>
III. Operating Results (June 1998)	
<i>Equity capital:</i>	<i>US\$ 3.78 million</i>
<i>Outstanding overall portfolio:</i>	<i>US\$ 11.2 million</i>
<i>No. total clients:</i>	<i>23.500</i>
<i>Arrears rate (> 30 days):</i>	<i>11.11%</i>
Community Infrastructure Lending Program (CILP):	
<i>Outstanding portfolio:</i>	<i>US\$ 2.1 million</i>
<i>No. outstanding group loans:</i>	<i>854</i>
<i>No. clients (group members):</i>	<i>10.500</i>
<i>Arrears rate (> 30 days):</i>	<i>7.74%</i>

General Background

Fundación Tecnológica (FUNTEC) founded Genesis Empresarial in 1988. Until 1996, Genesis Empresarial formed part of the activities of FUNTEC and had no independent legal status. In June 1997, Genesis Empresarial was restructured as a legally independent foundation under the name Fundación Genesis Empresarial.

The mission of Genesis is to improve the living conditions of low-income groups in Guatemala. The Foundation's specific activities in pursuit of this overall objective divide into two main categories: 1) the promotion and development of the micro-enterprise sector, and; 2) the provision of support to low-income communities in rural areas.

In connection with micro-enterprise development, Genesis offers credit along with basic and advanced training courses. These traditional micro-enterprise support products are complemented by the foundation's other area of specialization --- financial services and technical assistance (TA) to rural communities for both supplying electricity and providing water to low-income families in rural areas. Fundación Genesis carries out these infrastructure-related activities under the Community Infrastructure Lending Program (CILP).

Genesis has received support from local and international institutions via funding and technical assistance. The main providers of technical assistance include USAID, Acción

Internacional, the Guatemalan Fundación Solar and Plan Internacional. Genesis' financial cooperation partners include the Banco Centroamericano de Integración Económica (BCIE) and local private commercial banks, such as BANEX, Banco Industrial, Banco Granai & Townson, and Banco de Occidente, as well as other commercial financial institutions.

As of June 1998 the institution had an outstanding loan portfolio of more than US\$ 11.2 million. Its micro and small enterprise finance operation had a current clientele of over 13,000 borrowers, while 10,500 customers were using its infrastructure investment finance services. Another indication of the significance of the institution – apart from the size of the portfolio balance and the number of outstanding loans – is the volume of equity capital, which stood at US\$ 3.78 million. Thus, Fundación Genesis is currently the largest provider of micro loans in Guatemala.

Institutional Structure:

Fundación Genesis has 38 branch offices in 16 *departamentos* of Guatemala. Its services are available virtually throughout the country. Of the 38 branches, 13 are fully fledged units run by a branch manager. The other 25 are “mini-branches.” In order to achieve its nationwide presence, Genesis set up a large number of these mini-branches, which are not equipped with computers, security devices and other types of equipment normally required by financial institutions.

The institution's main administrative functions are performed at its head office. These functions include bookkeeping, electronic data processing and personnel management, as well as marketing and planning. In addition to the 38 employees at the main office, the branches employ a combined total of 115 staff, the majority of whom serve as one of the 53 *asesores de crédito* (loan officers), who are responsible for issuing micro-enterprise loans, or one of the 13 *asesores de desarrollo* (development officers), who implement the financial services and TA provided under the CILP.

Non-CILP Services:

In addition to the CILP, Genesis offers the following products

Micro-enterprise Loans: Genesis offers loans to small and micro entrepreneurs in both urban and rural regions. The size of the loans, which are offered through all branches of the institution, ranges from Q 100 to Q 25,000 (US\$ 15 to US\$ 3,970). The loans are paid back in weekly, bi-weekly or monthly installments, with terms of between one week and 12 months. The interest rate on the loans is 2.5% per month, which is higher than the average interest rate for most commercial loans (approx. 1-1.5% per month). Loans to micro entrepreneurs are more labor intensive and produce higher costs than loans to formal entrepreneurs with higher loan amounts.

Loans are collateralized differently depending on whether they are individual or group loans. Group loans are secured through the joint and several liabilities assumed by the members. Individual borrowers, on the other hand, must have a guarantor who is a full-time employee of a public or private enterprise. This requirement, coupled with the

requirement that the guarantor's monthly income must be at least twice the minimum wage, causes most micro-entrepreneurs to choose the group loan modality.

Genesis requires both individual and group borrowers to participate in two preparatory sessions (*sesión de información* and *sesión de plan de inversión*) once they have applied for a loan. After the applicants have developed a preliminary investment plan in these sessions, their ability to repay a loan is assessed on site by a visiting loan officer. Credit committees of the individual branches meet once a week. After each meeting, the loan files are forwarded to Genesis' head office, where the institution's Comité Central makes the final credit decision.

After loans have been disbursed, the loan officers regularly visit the borrowers. They ensure that the loans are being put to the intended use. Their visits also encourage the borrowers to maintain their good payment record, or to improve their payment record if their loans are in arrears.

Training: Originally, training courses were compulsory for all borrowers. However, when it was found that customers were deterred from applying for loans because of this requirement, Genesis severed the link between training and loans and redesigned the training program as a product in its own right. Genesis is currently designing a range of courses. An unresolved issue is whether it would be feasible to charge the participants fees high enough to cover the cost of the courses. At the time of our investigation, micro-entrepreneurs were showing little interest in the training program. Consequently only one Genesis employee was assigned to this area.

Energy Conservation: The institution also provides advice and support to micro-entrepreneurs on the efficient use of resources, specifically energy consumption. Through the program Productive Use of Electricity (UPE), micro entrepreneurs are advised on the selection, purchase and use of machines and equipment. The UPE also offers financial services for any investments that may be required.

Social Services: In addition to the services described above, Genesis offers access to medical care for low-income groups. It is participating in the project "Clínica Médica – Plan Médico Familiar." The clinic offers basic medical care and consultation, available to Genesis' customers.

Traditional Process and Constraints

Rural Electrification:

There are two electric utilities in Guatemala, the Empresa Electrica de Guatemala S.A. (EEGSA), a private-sector entity, and the state-owned Instituto de Energía de Guatemala (INEG). While EEGSA is responsible for the country's urban areas, INEG is in charge of supplying power to rural regions. Thus, INEG is the relevant provider for the CILP target group. The following description is limited to the parameters, which govern access to INEG's service and the procedures it employs when dealing with applications for connection to the grid.

To connect to the existing power grid, a community must first establish and register a *comité de electricidad*, which serves as its official legal representative in all future dealings with public and private enterprises in matters relating to electric power.

This committee must then submit an application to the state electric utility for preparation of a cost estimate. On the basis of this estimate, the community can learn how high the total costs per connected household would be if it were to be linked to the grid. The costs of providing electricity service to a given community --- usually consisting of extending the grid, and of connecting the individual dwellings --- are financed from two sources: a certain portion is subsidized by state or municipal institutions (e.g. by the *Fondo Nacional de Desarrollo*, *Fondo para Indegenas*), with the remainder financed by the families themselves.

If a community wants a subsidy from the local municipal authorities, it must be able to demonstrate that it is able to pay a portion of their total costs as users. In most cases, this is accomplished by depositing the corresponding amount in a bank account established specifically for this purpose. Only after this payment has been made does the *comité de desarrollo* of the municipal government make a decision on whether to offer a subsidy.

Once it is clear that full funding is available, the community contracts with a private firm to carry out the construction and installation work. This covers everything from the extension of the grid to the connection of the individual households. The construction firms are paid for their services in installments after completion of each phase of the work. All installation work is inspected and approved by INEG personnel.

Rural Water Sector:

The procedures for installing a community water supply system are similar to those used for connection to the power grid. A *comité de agua* must be established. Provision of a subsidy is also contingent upon the community being able to pay a certain portion of the costs.

However, there are additional requirements growing out of the specific technical solutions that are implemented in this area. In contrast to the centralized approach of rural electrification, water supply in rural areas usually entails the creation of decentralized systems. This means that communities wanting a water supply system must take additional steps not required for electrification.

More research and preparatory work is required to assess the feasibility of utilizing the local water resources. So the first additional step is to commission studies on the quality of the local water and the appropriate technical option for its use. These studies are considerably more complex and expensive than needed to assess the feasibility of an electrical grid connection. They must receive community funding. Communities are not reimbursed for the costs of such studies even if it turns out that the local water is unsuitable for human consumption, or that the technical solutions that would be required would simply be too expensive.

In contrast with the grid connection option --- where the only “feasibility study” required is a simple cost estimate to be prepared by the electric utility --- the communities must foot the bill for expensive investigations which may in the end show that it is not practicable to establish a local water supply system.

The subsequent water supply steps are similar to those entailed in electrification. The municipalities require the communities to contribute a share of the costs. Once they have done so, a decision about the amount of a subsidy is made. After this, the communities hire a private construction firm to build the project.

The second additional aspect in the installation of a water supply system is that of ensuring that the completed system is properly maintained. Since village-level, “stand-alone” solutions based on cisterns, local groundwater reservoirs or the direct utilization of small local springs are used, maintenance is not handled by a centralized service provider. It must be done by the communities themselves. So the responsibilities of the local community are not ended simply because the water system is up and running.

Typical Constraints Faced by Communities:

Although the procedures described above appear to be straightforward, communities that wish to connect to the power grid or develop a water supply must fulfill a complex set of requirements relating on the one hand to the organizational tasks to be carried out, and on the other to the mobilization of the funds they need.

Key problems often faced by communities include:

Insufficient payment capacity and lack of access to sources of external finance

Only in very rare cases can households able save enough to pay their share of the community’s contribution to the costs of electrification in a single lump sum. Most families have neither the requisite savings nor a sufficiently high payment capacity to make the required payments in a short period. Given that the community’s own contribution must be deposited in its entirety before a decision can be made by the *municipio* as to whether a subsidy will be provided --- and if so, how large an amount should be furnished --- most families will have to borrow in order to pay their share. In Guatemala, as in other Latin American countries, low-income families in rural regions usually do not have access to external sources of finance.

Limited Capacity for Collective Organization

Investments in infrastructure represent investments in a public good acquired collectively by an entire community or a portion thereof. Implementation of the measures outlined above assumes that a collective decision-making process takes place in which most families have approved the project. They must also have also shown that they are willing and able to bear the costs. But many communities simply do not have the level of knowledge and expertise to carry out these complex organizational tasks – forming a *comité*, selecting a construction firm, and inspecting and monitoring the work. This

rudimentary capacity for collective organization represents a further constraint to the implementation of infrastructure projects in low-income rural areas.

Insufficient ability to pressure local authorities to ensure that subsidies are provided

The decision about whether subsidies will be granted to the communities, and if so, how large they will be, is made by those in charge of the *municipios*. While national law requires that funding totaling 5% of the annual government budget be allocated to the *municipios* each year to finance social expenditures, the specific decisions on how these funds are to be applied are taken by the *municipios* themselves. Although this decentralized approach to decision-making is basically a good idea, in practice it means that at the level of the individual *municipios* there are no unambiguous, fixed criteria for deciding precisely what should be subsidized and how large individual subsidies should be. So persons or groups who believe they have been wrongly denied subsidies do not have any enforceable claim to what they feel they are entitled to. In some cases, according to Genesis, municipal authorities have either not decided on subsidies at all, or have “postponed” the decision for long periods, sometimes for over two years.

Lack of technical resources

When water supply systems are involved, communities face an additional problem. A decentralized approach is usually taken when implementing village water supply projects. This means maintenance must be performed either by the communities themselves or by service providers contracted by them. In addition to generating costs borne by end users, the families in the communities must perform these ongoing technical functions. They must also estimate and allocate costs and make the arrangements necessary to ensure that each household can pay its share. And they must take measures to penalize customers who do not meet their payment obligations on time. The experience of Genesis has been that the communities’ limited technical resources and organizational capacity makes it difficult for them to carry out these fairly complex tasks.

Cilp Product Design and Methodolgy

In the framework of the CILP, Genesis provides two types of services which are offered together in an integrated package: financial services and technical assistance. So far the focus of its infrastructure-related activities has been on energy supply projects in rural communities (Crédito para la Introducción de Energía Electrica en el Area Rural - CIDER), while projects geared to improving access to potable water (Crédito para la Introducción de Agua Potable en el Area Rural - CIAR) have played only a secondary role. The services described in the following are offered through 12 of the institution’s existing branches, which are scattered throughout Guatemala.

Product Design

The target groups of Genesis Foundation’s CILP activities are low-income rural communities in which the overwhelming majority of the families (at least 90%) have

decided to carry out collective investments in infrastructure measures. The average monthly family income of CILP clients is approximately \$150 to \$250 USD.

Genesis offers the members of the community loans whose size per family ranges from Q. 800 to Q. 3.000 and whose maturities vary between 1 and 4 years. The interest rate charged on loans differs depending on the source of funds, which Genesis has used, with credits funded. Resources obtained from the Banco Centroamericano de Integración Económica (BCIE) carry a rate of 21% p.a. while a rate of 30% p.a. is charged on loans funded through borrowing from commercial banks.

The CILP's borrowers repay the loans either in monthly installments or – if agricultural activities represent the household's main source of income – after the harvest following the sale of their produce. Apart from the longer maturities and the stipulation that a collective decision (regarding the common investment into "public good") must have been taken by the majority of the families in the community, the terms and conditions of the CILP loans do not differ in any significant way from those which apply to the institution's micro enterprise loans.

Genesis disburses the credits in the form of group loans, with the borrower groups consisting of between four and twelve families of similar income levels living in the same community. Since all of the families must pay the same contribution toward the total costs of the infrastructure measure, all borrowers in a given community receive the same loan amount. Genesis makes allowance for the fact that the individual members of the community do not all have the same payment capacity by offering varying maturities. While the members of one group may be required to repay their loans in, say, two years, another group whose average income level is lower might be granted a longer maturity – say, four years.

Genesis lends to groups, rather than to individuals, in order to make use of joint and several liability to secure the loans. The individual group members are liable for any and all payments missed by other persons in the group. In addition to the guarantee given by the group as a whole, one member is required to deliver to Genesis an *escritura de propiedad* or some other document which is evidence of ownership of a piece of land. Retention by Genesis of this document does not mean that the property is "officially" mortgaged in a legally binding sense. However, the foundation uses this arrangement as a means of bringing pressure to bear on its borrowers. has proven to be an effective instrument because there is invariably at least one family in each borrower group which has documents proving ownership of land.

Design of the technical assistance services

Along with the provision of loans, Genesis furnishes the communities with a variety of technical assistance services. These include information on all aspects of infrastructure projects it helps to finance, especially the credit facilities it offers and the procedures that govern the allocation of subsidies. Genesis also advises communities to help them decide about the proposed investment, establish the requisite organizational structure, select a construction firm, and monitor its performance. The foundation's technical assistance

services also include help in negotiating with the *municipios* on the provision of subsidies and, if necessary, in handling disputes with construction firms.

Technical assistance services cover the needs that arise in the communities from the constraints outlined above. The foundation charges a token fee of Q 50 (US\$ 8) per year for these services, paid by each family in the community. So far the issue of pricing --- the question of whether it is adequately compensated for its TA services --- has been irrelevant. The technical assistance and the financial services have invariably been offered as part of a combined package. The foundation has never considered how much it would need to charge for its non-financial services in order to cover costs.

Underwriting Methodology and Process

Step 1: Identification of suitable communities

The first step in the process of delivering the services outlined above consists of identifying communities located near existing infrastructure facilities. To this end, the “development officer,” the branch manager and the responsible regional director visit selected *departamentos* in which Genesis is already providing CILP services. They select an initial group of potentially suitable communities. In this preliminary screening process, Genesis staff makes use of information published by the *Instituto Nacional de Estadísticas* and the private and state-owned electric utilities, data from the respective municipal authorities, and information on the individual *municipios* drawn from other sources.

Next, more specific information is compiled on the “shortlisted” communities, with close attention paid to parameters bearing on the implementation of the project — for example, records on a community’s past credit history. One factor considered here is the extent to which formal organizational structures have evolved in the communities. To ensure that the scope of its advisory assistance and support in organizational matters can be kept within reasonable limits, Genesis prefers to deal with communities that have already developed a fairly sophisticated organizational structure. For instance, perhaps there are *comités* to handle other tasks for which the village as a whole is responsible. But communities without experience in the collective organization of tasks are not excluded from consideration for CILP participation.

Step 2 - CILP Marketing and Consensus Building

The second step is for the development officer and branch manager to visit the shortlisted communities and conduct initial talks with their representatives. This first visit is intended to enable Genesis staff to assess the interest of the community in, say, obtaining access to electric power through a grid connection. At the same time, it permits them to furnish initial information to the communities on how the project would be carried out. In this first conversation, Genesis staff explains the application and implementation procedures, possible credit terms and conditions, and the procedures for allocating subsidies. In many cases, Genesis will have prepared preliminary estimates of the project costs. This helps the community do a rough calculation of their share of the total costs, which would have to be financed locally.

If the representatives of the communities want to pursue the project, the Genesis staff conducts a second meeting to provide information on the infrastructure development measure. This time, the entire village is invited. At this meeting the local families decide whether they wish to carry out the project. As a rule, Genesis does not offer its services to a community unless at least 90% of the households favor the project. If the community decides to go ahead, Genesis explains the rules to be followed when selecting persons to serve on the *comité* and advises the community on the procedures to be employed when electing its members. However, these last two tasks aren't necessary if the community has decided, on its own, to apply for a grid connection and has already done the organizational work needed to initiate the application process.

Step 3. Project Preparation

After the *comité* has been formally constituted – which requires only a simple government office registration – it obtains cost estimates and submit an application to the electric utility to have their village connected to the grid. Genesis usually advises the community throughout the entire process, drawing on its experience with the utility. This enables the *comité* to judge whether estimates are reasonable and to anticipate unexpected costs. Once a definitive estimate of the overall cost has been provided, the *comité* decides, in consultation with Genesis staff, how much the community would be able to pay on its own --- including the size of each family's contribution --- and how large a subsidy it would require. After this has been done, a formal application for a subsidy is submitted to the *consejo de desarrollo* of the municipality.

Step 4. Loan Preparation

The activities outlined under Steps 1-3 fall under the heading of "technical assistance." The following steps encompass the preparatory work for the issuance of loans and the actual lending process.

First, the development officer once again organizes a meeting of all of the families who are participating in the project. He explains the rules governing the formation of groups, the tasks of the people who head the groups, and the principles of "solidarity liability," i.e. the assumption of joint liability by all members for the entire amount lent to the group. Once this has been done, those present at the meeting are assigned to borrower groups and each group registers with a Genesis loan officer.

After the groups have been constituted, the loan officer assesses the payment capacity of participating families in conjunction with a visit to each household. This assessment is conducted on the basis of a cash-flow analysis, which takes into account all sources of income available to the family and its expenses. The difference between income and expenses is the basis for the payment capacity of the family. In very large communities, a group consisting of several loan officers may perform such tasks. In most cases, though, a single loan officer should be able to assess all of the families' ability to pay. A single credit staff member can usually complete up to 50 evaluations in one or two days.

One reason such a large number of evaluations must be carried out is that the amount of the loan installments, which are identical for all group members, is a function of the payment capacity of the member with the lowest income. But since this means that, by definition, the other members of the group will be making lower payments than they would in fact be capable of doing based on their cash-flow analyses, the evaluation of the households' ability to pay can be completed quickly.

Step 5. Loan Approval Process

Following the visits to the households to assess their payment capacity, the loan officer completes the credit documents at the branch and submits the applications of all of the groups to the credit committee. The branch-level credit committees consist of the loan officer and the branch manager, both of which are entitled to vote. However, the decisions taken by the committees at the branches are not final. All applications are forwarded to a second credit committee at the institution's head office, which consists of the executive director and the regional director. This second committee is responsible for making the final lending decision.

The complete credit documents are sent to the head office, and if it approves a given application, all documents needed for disbursement of the loan (loan agreements, disbursement slips, repayment plans, etc.) are prepared and forwarded to the responsible branch. Because of the centralized organizational and decision-making structures of the foundation, it may take seven or eight weeks between the selection of the borrowers and receipt by the local branch of the complete set of documents needed to disburse the loan.

Step 6. Loan Disbursement and Repayment

The loans are disbursed as checks. But because the funds are made available to finance a project being undertaken by the entire community, Genesis does not pay out individual loans to the various borrower groups. Rather, a single check for the entire amount is given to the representatives of the local *comité*. This prevents individual borrower groups from using their loans for other than the intended purpose. When the check is delivered to the *comité*, each borrower group merely signs its loan agreement and the disbursement slip. The loan itself is disbursed in a lump sum to the *comité*.

The borrower groups begin repaying their loans on the date specified in the loan agreement regardless of how far work has progressed on the project. One member of the group collects installments from the individual families one day before they are due. Payments are made to Genesis the following day. Since Genesis does not permit installments to be paid at its branches, all transactions are handled at the nearest bank with which the foundation maintains an account. Since this usually requires travel to a distant town, payment of the installment frequently takes an entire day. Group members perform this task on a rotating basis.

In order to ensure that borrowers maintain an adequate level of repayment discipline, the Genesis loan officer visits the communities once a month following disbursement of the loans. During these visits the loan officer meets with the *comité* and with the leaders of the

various borrower groups. If individual groups have fallen behind in their payments, the officer organizes further meetings at which he or she emphasizes the necessity of paying all installments when they come due and of complying with the foundation's rules governing the loans that the borrowers have agreed to. Genesis loan officers believe that this time-consuming regular supervision is necessary to avoid losses and to ensure that installments are paid on time, especially since the loans are secured only by solidarity liability.

Step 7. Technical Assistance to Secure Subsidy Component

After getting the loan from Genesis, the community deposits it in a special account set up for this purpose, thus becoming eligible for a subsidy. Genesis also furnishes advisory support to the communities in preparing their applications and conducting meetings with the officials of the municipalities that are part of the application process. Specifically, the loan officer meets with the representatives of the local *comité* to explain precisely how the subsidy application must be prepared and submitted. In some cases the loan officer will accompany the representatives of the *comité* when they conduct their negotiations with the municipalities.

The tasks performed by a loan officer vary depending on the resources available within the community. They may range from the simple acquisition of information to the provision of active support to the *comité* in its dealings with government authorities. In individual cases, Genesis also tries to tap additional or alternative sources of subsidies outside the system of *consejos de desarrollo*. Some water supply projects have been partially funded by foreign embassies or international organizations with which Genesis maintains contacts.

Step 8. Project Contracting and Supervision

When a subsidy application has been approved, the community can then award a contract for construction. Normally, the communities select firms with which Genesis is already familiar. Genesis also intervenes to support the *comités* in disputes between the communities and the construction firms.

The loan officers make regular visits to the communities, monitoring progress of the work, checking on problems and assuring schedule compliance. Because Genesis has worked with many different communities, it is in a position to recommend individual construction firms and to advise against using companies that may not have done satisfactory work in the past. The foundation's leverage in disputes that arise with construction firms is much greater than that which an individual community can bring to bear.

It is fair to say that, to a certain extent, Genesis plays a supervisory role, monitoring the activities of construction firms. This helps to offset the almost complete lack of other kinds of regulation or supervision in the construction market. It is very difficult for individual customers of construction firms to bring pressure to bear on contractors to ensure that work is done properly and on time.

The loan officer's regular visits also give him or her an opportunity to advise the community about dealing with other problems it may encounter during the course of the project, or after its completion. This includes assisting the *comité* in deciding how to deal with "latecomers," i.e. families who were not originally involved in the project but who decide after it's completed that they want to be connected to the electricity supply system.

Because the costs of linking the community to the grid have already been paid, the power company would only charge these families the cost of installing a household connection, thus enabling them to obtain electricity service more cheaply than those users who have paid a share of the complete costs of the electrification project. This problem has come up in various communities visited by the mission. In many cases the families in question may have made a conscious decision to wait to have their dwellings connected until after the system was completely installed. The only way of alleviating this free-rider problem is to charge latecomers the same amount as was paid by families who have taken part in the project from the very beginning. However, the *comité* must officially resolve to introduce any arrangements of this type. They can only be carried out in consultation with the electric utility.

The Genesis loan officer supports the representatives of the community in the design and implementation of these measures.

Chart 2: Flow chart of CILP Activities – Electricity Projects

Pre-identification of departamentos and communities located near existing infrastructure facilities	<i>Development officer, branch manager or regional director</i>	<i>Several days</i>
Collection of additional data and information (by municipal authorities, Instituto Nacional de Estadsticas, Genesis Crdit Department etc.)	<i>Branch manager or development officer</i>	<i>Several days</i>
Preparation of a shortlist of pre-selected communities	<i>Branch manager or development officer</i>	<i>1 day</i>
Initial talks with the representatives of the community (explanation of application and implementation procedures)	<i>Branch manager or development officer</i>	<i>1 day</i>
Next visit: explanation of the rules of the game to the whole community (requires plenary meeting)	<i>Branch manager or development officer</i>	<i>1 day</i>
Decision of the community members whether they wish to carry out the project (90% majority required)	<i>Community members</i>	
Advise on the procedures to be employed when electing the members of the comit; election of the comit	<i>Branch manager, development officer or community members</i>	
Formal registration of the comit at a government office	<i>Comit of the community</i>	<i>1 day</i>
Submission of the application to the electricity utility	<i>Comit of the community, support by the development officer</i>	<i>1 day</i>
Budget Estimate	<i>INEC</i>	<i>14 days</i>
Definition of subsidy amount and amount to be paid by community	<i>Comit of the Community, development officer</i>	
Formal application for the subsidy (submitted to the consejo de desarrollo)	<i>Comit of the Community, support by the development officer</i>	<i>1 day</i>
Plenary meeting of the community: explanation of the group loan technology, constitution of groups	<i>Development officer</i>	<i>1 day</i>
Assessment of the payment capacity of the	<i>One or several development</i>	<i>1 day</i>

families: cash flow analysis of every family in the community	<i>officers</i>		
Decision of the branch-level credit committee (all loan applications of the community)	<i>Branch manager or development officer</i>		<i>1 day</i>
Submission of complete credit documents and loan applications to headquarters.			<i>Once a week</i>
Decision of headquarters credit committee (all loan applications of the community)	<i>Executive Director Regional Director</i>		<i>Once a week</i>
Preparation of all documents needed for disbursement of the loan (loan agreements, repayment plans etc.)	<i>Computer Department in Genesis Headquarter</i>		<i>1 day</i>
Submission of all credit documents to the branch			
Disbursement of the loan (one single check to the comit) in the community	<i>Development officer</i>		<i>1 day</i>
Visits of the communities (to maintain repayment discipline)	<i>Development officer</i>		<i>At least monthly, in some cases more frequently</i>
Advisory services regarding the subsidy applications; meetings with the officials of the municipalities	<i>Development officer</i>		<i>Several weeks, in some cases up to several months</i>
Disbursement of the subsidy (to a special account)	<i>Municipality</i>		
Selection of construction firm; signing of the contract	<i>Comit; support by development officer</i>		
Execution of the construction	<i>Construction firm; supervisory services by Genesis</i>		<i>4-6 weeks; in some cases several months</i>
Connection of every single household	<i>To be approved by INEC</i>		

Chart 3: Flow chart of CILP Activities – Water Projects

Pre-identification of departamentos and communities located near existing infrastructure facilities	<i>Development officer, branch manager, regional director</i>	<i>Several days</i>
Collection of additional data and information (by municipal authorities, Instituto Nacional de Estadísticas, Genesis Credit Department etc.)	<i>Branch manager or development officer</i>	<i>Several days</i>
Preparation of a shortlist of pre-selected communities	<i>Branch manager or development officer</i>	<i>1 day</i>
Initial talks with the representatives of the community (explanation of application and implementation procedures)	<i>Branch manager or development officer</i>	<i>1 day</i>
Next visit: explanation of the rules of the game to the whole community (requires plenary meeting)	<i>Branch manager or development officer</i>	<i>1 day</i>
Decision of the community members whether they wish to carry out the project (90% majority required)	<i>Community members</i>	
Technical analysis of the ground and water quality etc.	<i>Specialized firm, support in selection of the firm by development officer</i>	
Formal registration of the comit at a government office	<i>Comit of the community</i>	<i>1 day</i>
Budget Estimate	<i>Private suppliers</i>	<i>14 days</i>
Definition of amount of subsidy and amount to be paid by community	<i>Comit of the Community, development officer</i>	
Formal application for a subsidy (submitted to the consejo de desarrollo)	<i>Comit of the Community, support by the development officer</i>	<i>1 day</i>
Plenary meeting of the community: explanation of the group loan technology, constitution of groups	<i>Development officer</i>	<i>1 day</i>
Assesment of the payment capacity of the families: cash flow analysis of every family in the community	<i>One or several development officer</i>	<i>1 day</i>
Decision of the branch-level credit committee	<i>Branch manager,</i>	<i>1 day</i>

(all loan applications of the community)	<i>development officer</i>		
Submission of complete credit documents and loan applications to the headquarter (in Guatemala City)			<i>Once a week</i>
Decision of the headquarter credit committee (all loan applications of the community)	<i>Executive Director, Regional Director</i>		<i>Once a week</i>
Preparation of all documents needed for disbursement (loan agreements, repayment plans etc.)	<i>Computer Department in the Genesis Headquarter</i>		<i>1 day</i>
Submission of credit documents to the branch			
Disbursement of the loan (one single check to the comit) in the community	<i>Development officer</i>		<i>1 day</i>
Visits of the communities (to maintain repayment discipline)	<i>Development officer</i>		<i>At least monthly; in some cases more frequently</i>
Advisory services regarding the subsidy applications; meetings with the officials of the municipios	<i>Development officer</i>		<i>Several weeks; in some cases up to several months</i>
Disbursement of the subsidy (to a special account)	<i>Municipio</i>		
Selection of construction firm; signing of the contract	<i>Comit with support by development officer</i>		
Execution of the construction	<i>Construction firm; supervisory services by Genesis</i>		<i>4-6 weeks; in some cases several months</i>
Connection of every single household			
Advisory services on technical maintenance (varies from project to project)	<i>Support by constructing firm and development officer</i>		

Annex 4

CILP Portfolio Performance

Genesis launched the CIDER, its program of credit and technical assistance to communities wishing to connect to the electric power grid, in 1993. In 1995, applying the experience it had gained, it extended its range of services to include projects aimed at supplying drinking water through its CIAR program. In 1997, the institution introduced financing for other public institutions serving the communities (e.g. schools). However, as of June 1998, only one project of this type had been financed. Therefore, the following evaluation of results focuses on the CIDER and CIAR programs.

Program outreach and portfolio growth:

The priority for Genesis in lending through the CILP has been to supply electric power to rural communities. As Table 2 below shows, Genesis issued 973 loans through CIDER between 1993 and June 1998, totaling Q 22,223,441. The groups comprised 8,702 different families in 189 rural communities.

Table 2: Loans disbursed and communities reached through the CIDER program

Year	Loan Disbursed (in Q.)	Number of loans disbursed**	Number of families participating	Number of communities reached
1993	401,493	46	398	8
1994	913,432	58	753	20
1995	4,715,769	196	1,974	31
1996	4,542,163	228	2,226	50
1997	9,289,833	313	2,658	61
1998*)	2,360,751	132	693	19
Total	22,223,441	973	8,702	189

*) Through June;

***) number of group loans disbursed

Source: Genesis

There has been a continuous increase in the number of loans disbursed and communities reached per year. In the first year, for example, Genesis made only 46 group loans in 8 communities, when it was still in a phase of learning and experimentation. But by 1997, the figures had risen to 313 group loans in 61 communities. Although Genesis has

disbursed loans for connection to the power grid to 8,702 families so far, this figure represents “only” 189 communities out of over 20,000 in Guatemala.

Since Genesis did not begin financing projects aimed at installing water supply systems until 1995, the number of communities reached and families served to date is lower for these projects. Nonetheless, the institution has managed to issue a total of 199 group loans with a total volume of Q 13,563,721 in the past 3 years, serving 1,820 families in 21 different communities.

Table 3: Loans disbursed and communities reached through the CIAR Program

Year	Loans Disbursed (in Q.)	Number of loans disbursed**	Number of families participating	Number of communities reached
1995	669,747	2	15	1
1996	3,030,278	22	81	3
1997	9,560,196	152	1,534	16
1998*)	303,500	23	190	1
Total	13,563,721	199	1,820	21

*) Through June;

***) number of group loans disbursed

Source: Genesis

The development of lending activities under the CIAR also reflects the institution’s learning curve and the application of experience gained through the CIDER to the area of drinking water supply. In the first and second years, only one and three communities, respectively, were served. Twenty-four loans were issued from 1995 to 1996. In 1997, CIAR activities were stepped up considerably, with a total of 152 loans issued to 16 more communities. The decline in CIAR activities in the following year, 1998, was due to the fact that after negative experiences with a large-scale project in the northern part of the country, the institution went back to operating the CIAR program on a smaller scale. However, this experience should not be interpreted as indicating that the technology and methods applied by Genesis are fundamentally flawed.²⁰

²⁰ The project in question was the project “Pozo Maya”, where Genesis had issued a large loan (Q. 13 Mio.) to three owners of water rights who wanted to apply the funds to the construction of a local water works. This project failed in its original form; Genesis then took over the majority of shares in the joint stock corporation that had been founded for the purpose, and thus de facto a major part of the costs. This project is therefore not typical of the projects normally promoted and financed using the Genesis methodology. After having learned that this project was not appropriate for its lending methodologies the institution temporarily reduced the scope of its CIAR activities.

Table 4: Total loans disbursed and communities reached through the CILP (CIDER and CIAR combined)

	Loans issued* (in Q)	Number of loans issued**	Number of families participating	Number of communities reached
CIDER	22,223,441	973	8,702	189
CIAR	13,563,721	199	1,820	21
Total	35,787,162	1,172	10,522	210

*) Through June 1998;

**) number of group loans disbursed

Source: Genesis

Table 4 above shows the cumulative data for the CIDER and CIAR programs. Through the two programs, the institution has reached a total of 10,522 families in 210 communities, issuing 1,172 group loans with a total volume of over Q 35 million.

Table 5: Outstanding portfolio of the CILP (CIDER and CIAR)

Year	Number of group loans outstanding	Outstanding volume of the portfolio (in Q. million)
12/1996	508	6.87
12/1997	895	12.74
06/1998	854	12.54

Source: Genesis

Portfolio quality

The arrears rate was based on information provided by Genesis on the portfolio of all of the institution's credit products. Genesis defines the arrears rate as the volume of overdue installments relative to the total outstanding portfolio. In this context, the arrears rate would be 5.14% for loans over 30 days overdue.

However, this method of arrears computation is not normally used, as it systematically tends to underestimate the level of loan default risk. The method generally used by banks to calculate arrears rates is much more informative. Here the total outstanding principal of a delinquent loan is taken into account, regardless of how many installments the borrower has failed to pay on time or how many installment deadlines lay in the future and have therefore not yet been missed. On this basis, the arrears rate is 7.74% for loans over 30 days past due.

The arrears rate for the CILP for loans over 30 days past due is 7.74%. Although the arrears rate of loans with installments more than 30 days overdue, at 7.74%, is slightly higher than at some of the large microfinance institutions in Latin America, it is nonetheless considerably lower than the figures reported by many of the NGOs that offer

loans to microenterprises. It also should be remembered that the target group for loans disbursed under the CILP consists for the most part of first-time borrowers, and also that whereas urban microenterprises are motivated to repay their loans on time by the prospect of receiving follow-up loans. The rural communities borrowing from the CILP do not have this incentive because financing infrastructure installations is usually a one-off investment. Taking these factors into consideration, however, the quality of the CILP portfolio can be regarded as satisfactory.

Joint UNDP/World Bank
ENERGY SECTOR MANAGEMENT ASSISTANCE PROGRAMME (ESMAP)

LIST OF REPORTS ON COMPLETED ACTIVITIES

<i>Region/Country</i>	<i>Activity/Report Title</i>	<i>Date</i>	<i>Number</i>
SUB-SAHARAN AFRICA (AFR)			
Africa Regional	Anglophone Africa Household Energy Workshop (English)	07/88	085/88
	Regional Power Seminar on Reducing Electric Power System Losses in Africa (English)	08/88	087/88
	Institutional Evaluation of EGL (English)	02/89	098/89
	Biomass Mapping Regional Workshops (English)	05/89	--
	Francophone Household Energy Workshop (French)	08/89	--
	Interafrican Electrical Engineering College: Proposals for Short- and Long-Term Development (English)	03/90	112/90
	Biomass Assessment and Mapping (English)	03/90	--
	Symposium on Power Sector Reform and Efficiency Improvement in Sub-Saharan Africa (English)	06/96	182/96
	Commercialization of Marginal Gas Fields (English)	12/97	201/97
	Commercializing Natural Gas: Lessons from the Seminar in Nairobi for Sub-Saharan Africa and Beyond	01/00	225/00
	Africa Gas Initiative – Main Report: Volume I	02/01	240/01
	First World Bank Workshop on the Petroleum Products Sector in Sub-Saharan Africa	09/01	245/01
	Ministerial Workshop on Women in Energy	10/01	250/01
Angola	Energy Assessment (English and Portuguese)	05/89	4708-ANG
	Power Rehabilitation and Technical Assistance (English)	10/91	142/91
	Africa Gas Initiative – Angola: Volume II	02/01	240/01
Benin	Energy Assessment (English and French)	06/85	5222-BEN
Botswana	Energy Assessment (English)	09/84	4998-BT
	Pump Electrification Prefeasibility Study (English)	01/86	047/86
	Review of Electricity Service Connection Policy (English)	07/87	071/87
	Tuli Block Farms Electrification Study (English)	07/87	072/87
	Household Energy Issues Study (English)	02/88	--
	Urban Household Energy Strategy Study (English)	05/91	132/91
Burkina Faso	Energy Assessment (English and French)	01/86	5730-BUR
	Technical Assistance Program (English)	03/86	052/86
	Urban Household Energy Strategy Study (English and French)	06/91	134/91
Burundi	Energy Assessment (English)	06/82	3778-BU
	Petroleum Supply Management (English)	01/84	012/84
	Status Report (English and French)	02/84	011/84
	Presentation of Energy Projects for the Fourth Five-Year Plan (1983-1987) (English and French)	05/85	036/85
	Improved Charcoal Cookstove Strategy (English and French)	09/85	042/85
	Peat Utilization Project (English)	11/85	046/85
	Energy Assessment (English and French)	01/92	9215-BU
Cameroon	Africa Gas Initiative – Cameroon: Volume III	02/01	240/01
Cape Verde	Energy Assessment (English and Portuguese)	08/84	5073-CV
	Household Energy Strategy Study (English)	02/90	110/90
Central African Republic	Energy Assessement (French)	08/92	9898-CAR
Chad	Elements of Strategy for Urban Household Energy The Case of N'djamena (French)	12/93	160/94

<i>Region/Country</i>	<i>Activity/Report Title</i>	<i>Date</i>	<i>Number</i>	
Comoros	Energy Assessment (English and French)	01/88	7104-COM	
	In Search of Better Ways to Develop Solar Markets: The Case of Comoros	05/00	230/00	
Congo	Energy Assessment (English)	01/88	6420-COB	
	Power Development Plan (English and French)	03/90	106/90	
Côte d'Ivoire	Africa Gas Initiative – Congo: Volume IV	02/01	240/01	
	Energy Assessment (English and French)	04/85	5250-IVC	
	Improved Biomass Utilization (English and French)	04/87	069/87	
	Power System Efficiency Study (English)	12/87	--	
	Power Sector Efficiency Study (French)	02/92	140/91	
	Project of Energy Efficiency in Buildings (English)	09/95	175/95	
	Africa Gas Initiative – Côte d'Ivoire: Volume V	02/01	240/01	
Ethiopia	Energy Assessment (English)	07/84	4741-ET	
	Power System Efficiency Study (English)	10/85	045/85	
	Agricultural Residue Briquetting Pilot Project (English)	12/86	062/86	
	Bagasse Study (English)	12/86	063/86	
	Cooking Efficiency Project (English)	12/87	--	
Gabon	Energy Assessment (English)	02/96	179/96	
	Energy Assessment (English)	07/88	6915-GA	
The Gambia	Africa Gas Initiative – Gabon: Volume VI	02/01	240/01	
	Energy Assessment (English)	11/83	4743-GM	
	Solar Water Heating Retrofit Project (English)	02/85	030/85	
Ghana	Solar Photovoltaic Applications (English)	03/85	032/85	
	Petroleum Supply Management Assistance (English)	04/85	035/85	
	Energy Assessment (English)	11/86	6234-GH	
	Energy Rationalization in the Industrial Sector (English)	06/88	084/88	
Guinea	Sawmill Residues Utilization Study (English)	11/88	074/87	
	Industrial Energy Efficiency (English)	11/92	148/92	
	Energy Assessment (English)	11/86	6137-GUI	
Guinea-Bissau	Household Energy Strategy (English and French)	01/94	163/94	
	Energy Assessment (English and Portuguese)	08/84	5083-GUB	
Kenya	Recommended Technical Assistance Projects (English & Portuguese)	04/85	033/85	
	Management Options for the Electric Power and Water Supply Subsectors (English)	02/90	100/90	
	Power and Water Institutional Restructuring (French)	04/91	118/91	
	Energy Assessment (English)	05/82	3800-KE	
	Power System Efficiency Study (English)	03/84	014/84	
	Status Report (English)	05/84	016/84	
	Coal Conversion Action Plan (English)	02/87	--	
Solar Water Heating Study (English)	02/87	066/87		
Lesotho	Peri-Urban Woodfuel Development (English)	10/87	076/87	
	Power Master Plan (English)	11/87	--	
	Power Loss Reduction Study (English)	09/96	186/96	
	Implementation Manual: Financing Mechanisms for Solar Electric Equipment	07/00	231/00	
	Energy Assessment (English)	01/84	4676-LSO	
	Liberia	Energy Assessment (English)	12/84	5279-LBR
	Madagascar	Recommended Technical Assistance Projects (English)	06/85	038/85
Power System Efficiency Study (English)		12/87	081/87	
Energy Assessment (English)		01/87	5700-MAG	
	Power System Efficiency Study (English and French)	12/87	075/87	

<i>Region/Country</i>	<i>Activity/Report Title</i>	<i>Date</i>	<i>Number</i>
Madagascar	Environmental Impact of Woodfuels (French)	10/95	176/95
Malawi	Energy Assessment (English)	08/82	3903-MAL
	Technical Assistance to Improve the Efficiency of Fuelwood Use in the Tobacco Industry (English)	11/83	009/83
	Status Report (English)	01/84	013/84
Mali	Energy Assessment (English and French)	11/91	8423-MLI
	Household Energy Strategy (English and French)	03/92	147/92
Islamic Republic of Mauritania	Energy Assessment (English and French)	04/85	5224-MAU
	Household Energy Strategy Study (English and French)	07/90	123/90
Mauritius	Energy Assessment (English)	12/81	3510-MAS
	Status Report (English)	10/83	008/83
	Power System Efficiency Audit (English)	05/87	070/87
	Bagasse Power Potential (English)	10/87	077/87
	Energy Sector Review (English)	12/94	3643-MAS
Mozambique	Energy Assessment (English)	01/87	6128-MOZ
	Household Electricity Utilization Study (English)	03/90	113/90
	Electricity Tariffs Study (English)	06/96	181/96
	Sample Survey of Low Voltage Electricity Customers	06/97	195/97
Namibia	Energy Assessment (English)	03/93	11320-NAM
Niger	Energy Assessment (French)	05/84	4642-NIR
	Status Report (English and French)	02/86	051/86
	Improved Stoves Project (English and French)	12/87	080/87
	Household Energy Conservation and Substitution (English and French)	01/88	082/88
Nigeria	Energy Assessment (English)	08/83	4440-UNI
	Energy Assessment (English)	07/93	11672-UNI
Rwanda	Energy Assessment (English)	06/82	3779-RW
	Status Report (English and French)	05/84	017/84
	Improved Charcoal Cookstove Strategy (English and French)	08/86	059/86
	Improved Charcoal Production Techniques (English and French)	02/87	065/87
	Energy Assessment (English and French)	07/91	8017-RW
	Commercialization of Improved Charcoal Stoves and Carbonization Techniques Mid-Term Progress Report (English and French)	12/91	141/91
SADC	SADC Regional Power Interconnection Study, Vols. I-IV (English)	12/93	-
SADCC	SADCC Regional Sector: Regional Capacity-Building Program for Energy Surveys and Policy Analysis (English)	11/91	-
Sao Tome and Principe	Energy Assessment (English)	10/85	5803-STP
Senegal	Energy Assessment (English)	07/83	4182-SE
	Status Report (English and French)	10/84	025/84
	Industrial Energy Conservation Study (English)	05/85	037/85
	Preparatory Assistance for Donor Meeting (English and French)	04/86	056/86
	Urban Household Energy Strategy (English)	02/89	096/89
	Industrial Energy Conservation Program (English)	05/94	165/94
Seychelles	Energy Assessment (English)	01/84	4693-SEY
	Electric Power System Efficiency Study (English)	08/84	021/84
Sierra Leone	Energy Assessment (English)	10/87	6597-SL
Somalia	Energy Assessment (English)	12/85	5796-SO
Republic of South Africa	Options for the Structure and Regulation of Natural Gas Industry (English)	05/95	172/95

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Sudan	Management Assistance to the Ministry of Energy and Mining	05/83	003/83
	Energy Assessment (English)	07/83	4511-SU
	Power System Efficiency Study (English)	06/84	018/84
	Status Report (English)	11/84	026/84
	Wood Energy/Forestry Feasibility (English)	07/87	073/87
Swaziland	Energy Assessment (English)	02/87	6262-SW
	Household Energy Strategy Study	10/97	198/97
Tanzania	Energy Assessment (English)	11/84	4969-TA
	Peri-Urban Woodfuels Feasibility Study (English)	08/88	086/88
	Tobacco Curing Efficiency Study (English)	05/89	102/89
	Remote Sensing and Mapping of Woodlands (English)	06/90	--
	Industrial Energy Efficiency Technical Assistance (English)	08/90	122/90
	Power Loss Reduction Volume 1: Transmission and Distribution System Technical Loss Reduction and Network Development (English)	06/98	204A/98
	Power Loss Reduction Volume 2: Reduction of Non-Technical Losses (English)	06/98	204B/98
	Energy Assessment (English)	06/85	5221-TO
Togo	Wood Recovery in the Nangbeto Lake (English and French)	04/86	055/86
	Power Efficiency Improvement (English and French)	12/87	078/87
Uganda	Energy Assessment (English)	07/83	4453-UG
	Status Report (English)	08/84	020/84
	Institutional Review of the Energy Sector (English)	01/85	029/85
	Energy Efficiency in Tobacco Curing Industry (English)	02/86	049/86
	Fuelwood/Forestry Feasibility Study (English)	03/86	053/86
	Power System Efficiency Study (English)	12/88	092/88
	Energy Efficiency Improvement in the Brick and Tile Industry (English)	02/89	097/89
	Tobacco Curing Pilot Project (English)	03/89	UNDP Terminal Report
	Energy Assessment (English)	12/96	193/96
	Rural Electrification Strategy Study	09/99	221/99
Zaire	Energy Assessment (English)	05/86	5837-ZR
Zambia	Energy Assessment (English)	01/83	4110-ZA
	Status Report (English)	08/85	039/85
	Energy Sector Institutional Review (English)	11/86	060/86
	Power Subsector Efficiency Study (English)	02/89	093/88
	Energy Strategy Study (English)	02/89	094/88
	Urban Household Energy Strategy Study (English)	08/90	121/90
	Energy Assessment (English)	06/82	3765-ZIM
Zimbabwe	Power System Efficiency Study (English)	06/83	005/83
	Status Report (English)	08/84	019/84
	Power Sector Management Assistance Project (English)	04/85	034/85
	Power Sector Management Institution Building (English)	09/89	--
	Petroleum Management Assistance (English)	12/89	109/89
	Charcoal Utilization Prefeasibility Study (English)	06/90	119/90
	Integrated Energy Strategy Evaluation (English)	01/92	8768-ZIM
	Energy Efficiency Technical Assistance Project: Strategic Framework for a National Energy Efficiency Improvement Program (English)	04/94	--
	Capacity Building for the National Energy Efficiency Improvement Programme (NEEIP) (English)	12/94	--

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Zimbabwe	Rural Electrification Study	03/00	228/00
EAST ASIA AND PACIFIC (EAP)			
Asia Regional	Pacific Household and Rural Energy Seminar (English)	11/90	--
China	County-Level Rural Energy Assessments (English)	05/89	101/89
	Fuelwood Forestry Preinvestment Study (English)	12/89	105/89
	Strategic Options for Power Sector Reform in China (English)	07/93	156/93
	Energy Efficiency and Pollution Control in Township and Village Enterprises (TVE) Industry (English)	11/94	168/94
	Energy for Rural Development in China: An Assessment Based on a Joint Chinese/ESMAP Study in Six Counties (English)	06/96	183/96
	Improving the Technical Efficiency of Decentralized Power Companies	09/99	222/99
Fiji	Energy Assessment (English)	06/83	4462-FIJ
Indonesia	Energy Assessment (English)	11/81	3543-IND
	Status Report (English)	09/84	022/84
	Power Generation Efficiency Study (English)	02/86	050/86
	Energy Efficiency in the Brick, Tile and Lime Industries (English)	04/87	067/87
	Diesel Generating Plant Efficiency Study (English)	12/88	095/88
	Urban Household Energy Strategy Study (English)	02/90	107/90
	Biomass Gasifier Preinvestment Study Vols. I & II (English)	12/90	124/90
	Prospects for Biomass Power Generation with Emphasis on Palm Oil, Sugar, Rubberwood and Plywood Residues (English)	11/94	167/94
Lao PDR	Urban Electricity Demand Assessment Study (English)	03/93	154/93
	Institutional Development for Off-Grid Electrification	06/99	215/99
Malaysia	Sabah Power System Efficiency Study (English)	03/87	068/87
	Gas Utilization Study (English)	09/91	9645-MA
Mongolia	Energy Efficiency in the Electricity and District Heating Sectors	10/01	247/01
	Improved Space Heating Stoves for Ulaanbaatar	03/02	254/02
Myanmar	Energy Assessment (English)	06/85	5416-BA
Papua New Guinea	Energy Assessment (English)	06/82	3882-PNG
	Status Report (English)	07/83	006/83
	Institutional Review in the Energy Sector (English)	10/84	023/84
	Power Tariff Study (English)	10/84	024/84
Philippines	Commercial Potential for Power Production from Agricultural Residues (English)	12/93	157/93
	Energy Conservation Study (English)	08/94	--
	Strengthening the Non-Conventional and Rural Energy Development Program in the Philippines: A Policy Framework and Action Plan	08/01	243/01
	Rural Electrification and Development in the Philippines: Measuring the Social and Economic Benefits	05/02	255/02
Solomon Islands	Energy Assessment (English)	06/83	4404-SOL
	Energy Assessment (English)	01/92	979-SOL
South Pacific	Petroleum Transport in the South Pacific (English)	05/86	--
Thailand	Energy Assessment (English)	09/85	5793-TH
	Rural Energy Issues and Options (English)	09/85	044/85

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Thailand	Accelerated Dissemination of Improved Stoves and Charcoal Kilns (English)	09/87	079/87
	Northeast Region Village Forestry and Woodfuels Preinvestment Study (English)	02/88	083/88
	Impact of Lower Oil Prices (English)	08/88	--
	Coal Development and Utilization Study (English)	10/89	--
Tonga	Energy Assessment (English)	06/85	5498-TON
Vanuatu	Energy Assessment (English)	06/85	5577-VA
Vietnam	Rural and Household Energy-Issues and Options (English)	01/94	161/94
	Power Sector Reform and Restructuring in Vietnam: Final Report to the Steering Committee (English and Vietnamese)	09/95	174/95
	Household Energy Technical Assistance: Improved Coal Briquetting and Commercialized Dissemination of Higher Efficiency Biomass and Coal Stoves (English)	01/96	178/96
	Petroleum Fiscal Issues and Policies for Fluctuating Oil Prices In Vietnam	02/01	236/01
Western Samoa	Energy Assessment (English)	06/85	5497-WSO
SOUTH ASIA (SAS)			
Bangladesh	Energy Assessment (English)	10/82	3873-BD
	Priority Investment Program (English)	05/83	002/83
	Status Report (English)	04/84	015/84
	Power System Efficiency Study (English)	02/85	031/85
	Small Scale Uses of Gas Prefeasibility Study (English)	12/88	--
	Reducing Emissions from Baby-Taxis in Dhaka	01/02	253/02
India	Opportunities for Commercialization of Nonconventional Energy Systems (English)	11/88	091/88
	Maharashtra Bagasse Energy Efficiency Project (English)	07/90	120/90
	Mini-Hydro Development on Irrigation Dams and Canal Drops Vols. I, II and III (English)	07/91	139/91
	WindFarm Pre-Investment Study (English)	12/92	150/92
	Power Sector Reform Seminar (English)	04/94	166/94
	Environmental Issues in the Power Sector (English)	06/98	205/98
	Environmental Issues in the Power Sector: Manual for Environmental Decision Making (English)	06/99	213/99
	Household Energy Strategies for Urban India: The Case of Hyderabad	06/99	214/99
	Greenhouse Gas Mitigation In the Power Sector: Case Studies From India	02/01	237/01
Nepal	Energy Assessment (English)	08/83	4474-NEP
	Status Report (English)	01/85	028/84
	Energy Efficiency & Fuel Substitution in Industries (English)	06/93	158/93
Pakistan	Household Energy Assessment (English)	05/88	--
	Assessment of Photovoltaic Programs, Applications, and Markets (English)	10/89	103/89
	National Household Energy Survey and Strategy Formulation Study: Project Terminal Report (English)	03/94	--
	Managing the Energy Transition (English)	10/94	--
	Lighting Efficiency Improvement Program Phase 1: Commercial Buildings Five Year Plan (English)	10/94	--

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Pakistan	Clean Fuels	10/01	246/01
Sri Lanka	Energy Assessment (English)	05/82	3792-CE
	Power System Loss Reduction Study (English)	07/83	007/83
	Status Report (English)	01/84	010/84
	Industrial Energy Conservation Study (English)	03/86	054/86
EUROPE AND CENTRAL ASIA (ECA)			
Bulgaria	Natural Gas Policies and Issues (English)	10/96	188/96
Central Asia and The Caucasus	Cleaner Transport Fuels in Central Asia and the Caucasus	08/01	242/01
Central and Eastern Europe	Power Sector Reform in Selected Countries	07/97	196/97
	Increasing the Efficiency of Heating Systems in Central and Eastern Europe and the Former Soviet Union (English and Russian)	08/00	234/00
	The Future of Natural Gas in Eastern Europe (English)	08/92	149/92
Kazakhstan	Natural Gas Investment Study, Volumes 1, 2 & 3	12/97	199/97
Kazakhstan & Kyrgyzstan	Opportunities for Renewable Energy Development	11/97	16855-KAZ
Poland	Energy Sector Restructuring Program Vols. I-V (English)	01/93	153/93
	Natural Gas Upstream Policy (English and Polish)	08/98	206/98
	Energy Sector Restructuring Program: Establishing the Energy Regulation Authority	10/98	208/98
Portugal	Energy Assessment (English)	04/84	4824-PO
Romania	Natural Gas Development Strategy (English)	12/96	192/96
Slovenia	Workshop on Private Participation in the Power Sector (English)	02/99	211/99
Turkey	Energy Assessment (English)	03/83	3877-TU
	Energy and the Environment: Issues and Options Paper	04/00	229/00
MIDDLE EAST AND NORTH AFRICA (MNA)			
Arab Republic of Egypt	Energy Assessment (English)	10/96	189/96
	Energy Assessment (English and French)	03/84	4157-MOR
	Status Report (English and French)	01/86	048/86
Morocco	Energy Sector Institutional Development Study (English and French)	07/95	173/95
	Natural Gas Pricing Study (French)	10/98	209/98
	Gas Development Plan Phase II (French)	02/99	210/99
Syria	Energy Assessment (English)	05/86	5822-SYR
	Electric Power Efficiency Study (English)	09/88	089/88
	Energy Efficiency Improvement in the Cement Sector (English)	04/89	099/89
	Energy Efficiency Improvement in the Fertilizer Sector (English)	06/90	115/90
Tunisia	Fuel Substitution (English and French)	03/90	--
	Power Efficiency Study (English and French)	02/92	136/91
	Energy Management Strategy in the Residential and Tertiary Sectors (English)	04/92	146/92
	Renewable Energy Strategy Study, Volume I (French)	11/96	190A/96
	Renewable Energy Strategy Study, Volume II (French)	11/96	190B/96
Yemen	Energy Assessment (English)	12/84	4892-YAR

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Yemen	Energy Investment Priorities (English)	02/87	6376-YAR
	Household Energy Strategy Study Phase I (English)	03/91	126/91
LATIN AMERICA AND THE CARIBBEAN (LAC)			
LAC Regional	Regional Seminar on Electric Power System Loss Reduction in the Caribbean (English)	07/89	--
	Elimination of Lead in Gasoline in Latin America and the Caribbean (English and Spanish)	04/97	194/97
	Elimination of Lead in Gasoline in Latin America and the Caribbean - Status Report (English and Spanish)	12/97	200/97
	Harmonization of Fuels Specifications in Latin America and the Caribbean (English and Spanish)	06/98	203/98
Bolivia	Energy Assessment (English)	04/83	4213-BO
	National Energy Plan (English)	12/87	--
	La Paz Private Power Technical Assistance (English)	11/90	111/90
	Prefeasibility Evaluation Rural Electrification and Demand Assessment (English and Spanish)	04/91	129/91
	National Energy Plan (Spanish)	08/91	131/91
	Private Power Generation and Transmission (English)	01/92	137/91
	Natural Gas Distribution: Economics and Regulation (English)	03/92	125/92
	Natural Gas Sector Policies and Issues (English and Spanish)	12/93	164/93
	Household Rural Energy Strategy (English and Spanish)	01/94	162/94
	Preparation of Capitalization of the Hydrocarbon Sector	12/96	191/96
	Introducing Competition into the Electricity Supply Industry in Developing Countries: Lessons from Bolivia	08/00	233/00
	Final Report on Operational Activities Rural Energy and Energy Efficiency	08/00	235/00
	Oil Industry Training for Indigenous People: The Bolivian Experience (English and Spanish)	09/01	244/01
Brazil	Energy Efficiency & Conservation: Strategic Partnership for Energy Efficiency in Brazil (English)	01/95	170/95
	Hydro and Thermal Power Sector Study	09/97	197/97
	Rural Electrification with Renewable Energy Systems in the Northeast: A Preinvestment Study	07/00	232/00
Chile	Energy Sector Review (English)	08/88	7129-CH
Colombia	Energy Strategy Paper (English)	12/86	--
	Power Sector Restructuring (English)	11/94	169/94
	Energy Efficiency Report for the Commercial and Public Sector (English)	06/96	184/96
Costa Rica	Energy Assessment (English and Spanish)	01/84	4655-CR
	Recommended Technical Assistance Projects (English)	11/84	027/84
	Forest Residues Utilization Study (English and Spanish)	02/90	108/90
Dominican Republic	Energy Assessment (English)	05/91	8234-DO
Ecuador	Energy Assessment (Spanish)	12/85	5865-EC
	Energy Strategy Phase I (Spanish)	07/88	--
	Energy Strategy (English)	04/91	--
	Private Minihydropower Development Study (English)	11/92	--
	Energy Pricing Subsidies and Interfuel Substitution (English)	08/94	11798-EC
	Energy Pricing, Poverty and Social Mitigation (English)	08/94	12831-EC

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Guatemala	Issues and Options in the Energy Sector (English)	09/93	12160-GU
Haiti	Energy Assessment (English and French)	06/82	3672-HA
	Status Report (English and French)	08/85	041/85
	Household Energy Strategy (English and French)	12/91	143/91
Honduras	Energy Assessment (English)	08/87	6476-HO
	Petroleum Supply Management (English)	03/91	128/91
Jamaica	Energy Assessment (English)	04/85	5466-JM
	Petroleum Procurement, Refining, and Distribution Study (English)	11/86	061/86
	Energy Efficiency Building Code Phase I (English)	03/88	--
	Energy Efficiency Standards and Labels Phase I (English)	03/88	--
	Management Information System Phase I (English)	03/88	--
	Charcoal Production Project (English)	09/88	090/88
	FIDCO Sawmill Residues Utilization Study (English)	09/88	088/88
	Energy Sector Strategy and Investment Planning Study (English)	07/92	135/92
Mexico	Improved Charcoal Production Within Forest Management for the State of Veracruz (English and Spanish)	08/91	138/91
	Energy Efficiency Management Technical Assistance to the Comision Nacional para el Ahorro de Energia (CONAE) (English)	04/96	180/96
	Energy Environment Review	05/01	241/01
Nicaragua	Modernizing the Fuelwood Sector in Managua and León	12/01	252/01
Panama	Power System Efficiency Study (English)	06/83	004/83
Paraguay	Energy Assessment (English)	10/84	5145-PA
	Recommended Technical Assistance Projects (English)	09/85	--
	Status Report (English and Spanish)	09/85	043/85
Peru	Energy Assessment (English)	01/84	4677-PE
	Status Report (English)	08/85	040/85
	Proposal for a Stove Dissemination Program in the Sierra (English and Spanish)	02/87	064/87
	Energy Strategy (English and Spanish)	12/90	--
	Study of Energy Taxation and Liberalization of the Hydrocarbons Sector (English and Spanish)	120/93	159/93
	Reform and Privatization in the Hydrocarbon Sector (English and Spanish)	07/99	216/99
	Rural Electrification	02/01	238/01
Saint Lucia	Energy Assessment (English)	09/84	5111-SLU
St. Vincent and the Grenadines	Energy Assessment (English)	09/84	5103-STV
Sub Andean	Environmental and Social Regulation of Oil and Gas Operations in Sensitive Areas of the Sub-Andean Basin (English and Spanish)	07/99	217/99
Trinidad and Tobago	Energy Assessment (English)	12/85	5930-TR
GLOBAL			
	Energy End Use Efficiency: Research and Strategy (English)	11/89	--
	Women and Energy--A Resource Guide		
	The International Network: Policies and Experience (English)	04/90	--
	Guidelines for Utility Customer Management and Metering (English and Spanish)	07/91	--

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Global	Assessment of Personal Computer Models for Energy Planning in Developing Countries (English)	10/91	--
	Long-Term Gas Contracts Principles and Applications (English)	02/93	152/93
	Comparative Behavior of Firms Under Public and Private Ownership (English)	05/93	155/93
	Development of Regional Electric Power Networks (English)	10/94	--
	Roundtable on Energy Efficiency (English)	02/95	171/95
	Assessing Pollution Abatement Policies with a Case Study of Ankara (English)	11/95	177/95
	A Synopsis of the Third Annual Roundtable on Independent Power Projects: Rhetoric and Reality (English)	08/96	187/96
	Rural Energy and Development Roundtable (English)	05/98	202/98
	A Synopsis of the Second Roundtable on Energy Efficiency: Institutional and Financial Delivery Mechanisms (English)	09/98	207/98
	The Effect of a Shadow Price on Carbon Emission in the Energy Portfolio of the World Bank: A Carbon Backcasting Exercise (English)	02/99	212/99
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	Privatization, Competition and Regulation in the British Electricity Industry, With Implications for Developing Countries	02/00	226/00
	Reducing the Cost of Grid Extension for Rural Electrification	02/00	227/00
	Undeveloped Oil and Gas Fields in the Industrializing World	02/01	239/01
	Best Practice Manual: Promoting Decentralized Electrification Investment	10/01	248/01
	Peri-Urban Electricity Consumers—A Forgotten but Important Group: What Can We Do to Electrify Them?	10/01	249/01
	Village Power 2000: Empowering People and Transforming Markets	10/01	251/01
	Private Financing for Community Infrastructure: Issues and Options	05/02	256/02

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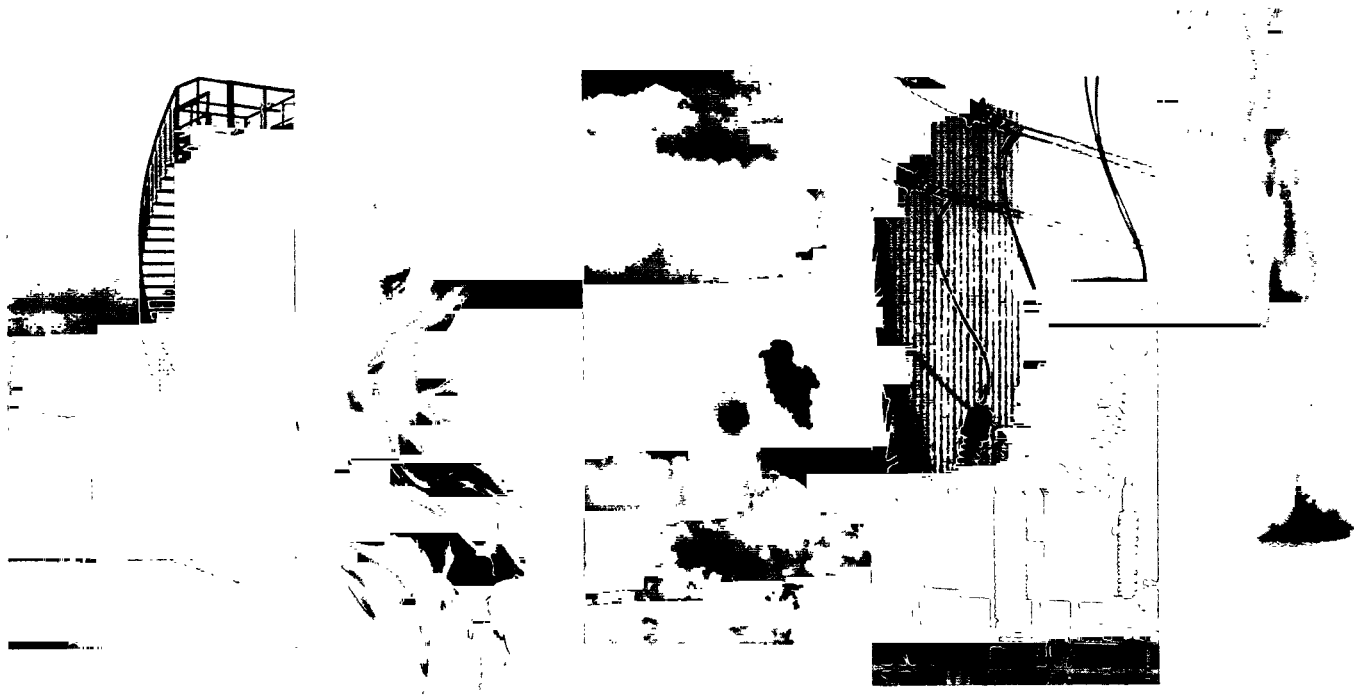
1818 H Street, NW

Washington, DC 20433 USA

Tel 1 202 458 2321 Fax 1 202 522 3018

Internet www.esmap.org

Email esmap@worldbank.org



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