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**BRAZIL**

**SMALL PROJECTS FINANCING PROGRAM**

**PROMOTION OF RURAL RENEWABLE ENERGY MICROENTERPRISES IN  
THE NORTHEAST REGION OF BRAZIL  
(SP-9802415)**

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## ABBREVIATIONS

ABC	Brazilian Cooperation Agency
BNB	Northeast Bank of Brazil
FSO	Fund for Special Operations
FTV	Teotônio Vilela Foundation
GGC	Golden Genesis Companies
PRODEEM	Program for the Development of Energy of States and Municipalities
PROGERAR	Project of Employment and Income in Rural Areas
SEBRAE	Brazilian Association for the Support of Micro and Small Enterprises
SHS	Solar Home Systems
SMSE	Sustainable Markets for Sustainable Energy Program

**PROMOTION OF RURAL RENEWABLE ENERGY MICROENTRISES  
IN THE NORTHEAST REGION OF BRAZIL**

**EXECUTIVE SUMMARY**

<b>AMOUNT AND SOURCE:</b>	IDB: Financing:	US\$350,000
	Technical cooperation:	<u>US\$250,000</u>
	Total:	US\$600,000

The total amount of the financing will be drawn from the Net Income of the Fund for Special Operations (local currency).

<b>FINANCIAL TERMS AND CONDITIONS:</b>	Amortization period:	10 years
	Grace period:	3 years
	Disbursement period:	4 years
	Fee:	1% annually
	Maintenance of value (in US\$) will apply to the resources of the financing.	

**OBJECTIVES:** The general objective of the project is to raise the standard of living in isolated communities by creating and strengthening microenterprises that provide a modern renewable energy supply to the communities.

The specific objectives of the project are: (i) to create new energy service microenterprises and to enable creation of ancillary service providers, such as maintenance/repair technicians; (ii) to provide sustainable, renewable energy services to rural communities with no electricity supply; (iii) to improve the organizational infrastructure of FTV, in particular in the areas of financial monitoring, long-term planning, and inventory management; and (iv) to test the applicability of an alternative solar technology in 15 pilot communities.

**DESCRIPTION:** The "Luz do Sol" program, created and implemented by the Teotônio Vilela Foundation (FTV), brings electrification to remote rural communities in Northeastern Brazil through the creation of renewable energy service microenterprises. A single individual in a non-electrified community is chosen by the community members to manage the energy service microenterprise. The microentrepreneur purchases a solar energy kit (including photovoltaic panels, a battery charging station, batteries, and the necessary auxiliary equipment and fixtures) and sells

battery charging services to members of the community. The revenues from energy sales are sufficient to cover the financing of the purchase of the solar energy kit and to provide a profit to the microentrepreneur.

The reimbursable resources (US\$350,000) of the proposed project will enable the institution to purchase certain fixed assets necessary for expanding its program to a sustainable level; will finance direct incremental expansion costs until the institution reaches its break-even point; and will finance the purchase of SHS to be tested as an alternative solar energy technology in a 15-community pilot project.

The project's non-reimbursable resources (US\$250,000) will be used to: (i) strengthen the organizational infrastructure of FTV through training and investments in financial management, inventory management, and portfolio monitoring; (ii) support microenterprises in the region through training for energy service microentrepreneurs and maintenance/repair technicians, and (iii) finance pilot project operational expenses to assist FTV through the learning curve they will face as they deploy an unfamiliar solar technology in 15 communities.

**CESI:** The Committee on Environment and Social Impact (CESI) at its meeting of May 5, 1998 approved the project profile. No comments were offered.

**POVERTY TARGETING:** Women comprise 21.6% of the microentrepreneurs. 34 of 51 microentrepreneurs and the majority of energy users are farmers, involved primarily in subsistence activities. According to data gathered by FTV, the typical microentrepreneur and the average user each earn approximately one minimum salary per month, or about US\$108.

**RISKS:** The primary risk to the long-term viability of the Luz do Sol program is the lack of loan repayment by the microentrepreneurs. Although this would not affect FTV directly, current and potential financing agents, including banks and energy suppliers, will not finance the microentrepreneurs if they believe the loans will not be repaid. The project is designed to improve FTV's ability to monitor finances, while not encouraging FTV to play the role of financial intermediary in the long run. By guaranteeing the on going participation of formal

financial intermediaries in the project, the Bank minimizes the risks of problems associated with loan delinquency.

**BANK COUNTRY  
STRATEGY:**

The Bank's strategy in Brazil concentrates on supporting its objectives of systematically eliminating the causes of chronic inflation, alleviating some of its social consequences, investing in human resources, and promoting economic modernization. It also calls for an increased role of the Bank in support of microenterprise development in the country through its various instruments such as small projects, technical cooperation, and global credit loans.

**SPECIAL  
CONTRACTUAL  
CONDITIONS:**

Prior to the disbursement of the financing component, FTV will present to the Bank evidence that agreements have been reached with BNB regarding a series of adjustments to the microenterprise financing model (see paragraph 4.2) In addition, FTV will ensure that at least 80% of microentrepreneurs in the repayment phase have complied with 100% of their previous month's payment obligation.

In addition, prior to the disbursement of the financing component, FTV will present evidence of an agreement with BNB to manage the loans made to microentrepreneurs participating in the pilot program. No sub-loans will be made directly by FTV within the context of this operation.

As a condition precedent to the first disbursement of the technical cooperation component, FTV will submit the terms of reference for the financial management consultant and the microenterprise management consultant to the satisfaction of the Bank.

At FTV's request, as much as 20% of the total technical cooperation funding may be paid as an advance to ensure a timely flow of funds for the program.

In order to help strengthen FTV and to correct any deficiencies that may arise during program execution, a consultant with experience in this type of program will conduct a mid-term evaluation to gauge the fulfillment of the objectives and conditions of execution of the program components once 60% of the financing has been committed or one year has expired, whichever comes first.

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Earnings accumulated by FTV through project activities will be reinvested in the Luz do Sol program or used to finance similar activities. Under no circumstances will these earnings be used by FTV to engage in financial intermediation.



## I. FRAME OF REFERENCE

### A. Socio-Economic Context

- 1.1 The Northeast region of Brazil is comprised of nine entire states and the northern portion of the state of Minas Gerais. The population of the region is 44.8 million, representing 28.5% of that of Brazil. Despite 5.2% average growth in GDP over the past 25 years, the northeast still only contributes 15.6% of the national GDP. As a result, in 1996, the per capita GDP for the region was US\$2,567, while the national figure was US\$4,743. Poverty indicators for the region are consistently worse than the average for the country as a whole. In 1994, infant mortality was 63.1 per 1000 live births (compared to a national average of 57) and life expectancy was 61.5 years (compared to a national average of 66). Finally, 30.5% of Nordestinos were illiterate as of 1994, whereas only 15.6% of Brazilians were illiterate. As in other parts of Brazil, rural income in the Northeast is considerably lower than urban income. An estimate of 1996 rural per capita GDP for the region is a mere US\$931.
- 1.2 Northeastern Brazil is home to the semi-arid *sertao* region. The *sertao* is frequently struck by droughts, which may inflict significant damage on the agriculturally-based economy. The drought of 1997-1998, due to the effects of the unusually strong El Niño weather system, has been one of the five worst droughts in the last 100 years. <sup>1/</sup> The economic impact has been correspondingly severe.
- 1.3 The three states of Alagoas, Bahia, and Pernambuco together with the northern portion of Minas Gerais comprise 814,867 square kilometers, or 9.5% of the territory of Brazil. These areas are home to 23,942,600 people, or 15.2% of the national population, of whom approximately 8.1 million (34.0%) live in rural areas. Most of the residents of these areas are without electricity. In Alagoas, Bahia, and Pernambuco, 89.0%, 92.1%, and 86.0%, of rural properties, respectively, are without electricity. More than 1.1 million rural properties are non-electrified in the three states and northern Minas Gerais. Poverty levels in these states are very high. Per capita GDP (in PPP\$) comprises only 38.2%, 58.0% and 51.7% of the poverty line in Alagoas, Bahia, and Pernambuco, respectively. Among the 20 Brazilian states with a Human Development Index Score, Alagoas ranks 19; Bahia and Pernambuco rank 12 and 15; and, although Minas Gerais ranks in the top half (9), the northern part of the state, if measured alone, would not score as well.
- 1.4 Microenterprises are an important part of the economies of these states. The northeast, as a whole, has 67% of the 3.08 million

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<sup>1/</sup> Centro de Previsao do Tempo e Estudos Climaticos.

farms in Brazil with fewer than 10 hectares of land and 84% of the farms with 2 hectares or fewer. Micro and small businesses throughout the region contribute substantially to GDP and employment. For example, in Bahia 45% of the state's GDP and 75% of employment are generated by micro and small enterprises.

B. Statement of Non-Objection

- 1.5 FTV submitted a request for financing and technical cooperation funding to the Bank under the Small Projects Financing Program. The Government of Brazil, through the Brazilian Cooperation Agency (ABC), issued a letter of non-objection (No. 577/ABC/CTRM) to financing for the proposed project on June 19, 1998.
- 1.6 According to its charter, FTV is legally empowered to take on loans from national and international institutions.

C. Government Strategy

- 1.7 The development strategy of the Government of Brazil rests upon the three pillars of public sector reform, modernization of productive sectors, and poverty alleviation. Included among poverty alleviation objectives are rural development and support of microenterprises. The proposed program will support the government strategy since it is designed to strengthen FTV's capacity to create a sustainable commercial market for renewable energy in which microenterprises provide an electricity source to rural families.

D. Bank Strategy

- 1.8 The Bank's strategy in Brazil concentrates on supporting its objectives of systematically eliminating the causes of chronic inflation, alleviating some of its social consequences, investing in human resources, and promoting economic modernization. It also calls for an increased role of the Bank in support of microenterprise development in the country through its various instruments such as small projects, technical cooperation, and global credit loans.
- 1.9 The goal of the Bank's Microenterprise Development Strategy is to expand economic opportunities through sustainable, dynamic microenterprise development (GN-1938-3). Specific objectives include the development of strong, sustainable institutions providing financial and non-financial services to meet the demands of microenterprises, and improved access of low-income and disadvantaged microentrepreneurs (including women and indigenous peoples) to financial and business services. This project is consistent with the microenterprise strategy in that it aims to create and strengthen microenterprises through the delivery of financial and business services in a sustainable manner.

- 1.10 The objective of the Bank's Sustainable Markets for Sustainable Energy Program (SMSE) is to promote the development of sustainable commercial markets for "clean" or energy efficient and renewable energy technologies. Through the creation of microenterprises that utilize locally-based renewable energy resources to supply electricity services to their communities, the proposed project expects to create the foundation for self-sustaining, clean energy markets for poor rural areas.

E. The Bank's Experience with Microenterprise in Brazil

- 1.11 The IDB microenterprise portfolio in Brazil primarily supports microfinance activities. To date, 33 Small Projects and 30 Technical Cooperation Programs, totaling US\$28 million, have been executed in Brazil. With the exception of a few handicrafts marketing and fisheries projects, the majority of Small Projects are aimed at strengthening microcredit programs currently operated by NGOs in urban areas. Technical Cooperation projects have supported feasibility studies for new microfinance institutions or have provided technical assistance to existing institutions. In addition, the Bank is currently analyzing a US\$150 million credit facility, Support for Microenterprise (BR-0289), to be executed by the Brazilian National Development Bank (BNDES).
- 1.12 FTV has implemented one technical cooperation project with support from the Bank, (ATN/TF 4148-BR) for US\$1 million. The project, begun in 1992, benefited 3,000 families of fishermen. FTV assisted the fishermen to form cooperatives, build fishing centers for tourism, and obtain fiberglass canoes. Project funds have been 100 percent disbursed, however, several issues arose during execution with regard to FTV: (i) technical weakness in the fisheries area, (ii) weakness in financial management, and (iii) occasional lack of transparency in decisionmaking. The proposed project has been designed to benefit from the lessons learned during execution of the fisheries project by including a strengthening component focused on improving FTV's financial management, and by specifying objective, mutually agreed upon performance indicators and narrowly defined conditions which will be strictly applied and monitored.

## II. THE INTERMEDIARY

A. Identity, Origin, and Objectives

- 2.1 FTV is a private, not-for-profit foundation established in 1984 specializing in promoting the creation of small and micro businesses. The mission of FTV is "to give life to development" by researching the economic viability of business opportunities, assisting entrepreneurs in accessing investment capital, and providing management training.

- 2.2 FTV has received financial support from a number of branches of the Brazilian government, including the Ministries of Culture, Labor, Mines and Energy, and the Environment; from the municipalities of Maceio and Arapiraca; from the Brazilian Association for the Support of Micro and Small Enterprises (SEBRAE); and, as mentioned previously, from the Bank (ATN/TF 4148-BR).

B. Administrative Organization

- 2.3 FTV is overseen by a five-member board of directors, to which the President of the Foundation reports. The Director of the Luz do Sol Program, who is responsible for its overall management, reports to the Foundation President. Four units report to the Luz do Sol Director: (i) finance (responsible for portfolio monitoring, project accounting, and BNB relations); (ii) community mobilization; (iii) technical (responsible for installation and maintenance); and (iv) microentrepreneur training. FTV currently has a staff of 58, 10 of whom work directly on the Luz do Sol program (8 full time, 2 part time).

C. Activities

- 2.4 FTV operates more than 10 programs, covering a range of issues from culture to technology. The organization's non-energy related projects and programs include Project of Employment and Income in Rural Areas (PROGERAR), an assistance program for small and micro enterprises in Alagoas; a second small business program sponsored by SEBRAE; and, the aforementioned Bank-sponsored fisheries project.
- 2.5 Renewable energy has become FTV's primary focus. Luz do Sol is one of the organization's two largest programs, the other being PROGERAR. In addition to Luz do Sol, FTV is exploring ways that renewable energy can be used to improve the quality of rural health and education services. FTV is also developing technical expertise in wind and biomass energy and is a key partner in the government's National Program for the Energy Development of States and Municipalities (PRODEEM). Through its active participation in these programs, FTV has become one of the nation's leading institutions with expert knowledge in the field of renewable energy.

D. Luz do Sol Program

- 2.6 FTV has created an innovative and easily replicable method for bringing electricity to isolated rural communities. The model is similar to that of a franchise. FTV provides rural microentrepreneurs with: (i) a business plan for their energy service microenterprise and the training necessary to manage the enterprise, (ii) assistance in obtaining financing from a formal financial intermediary, and (iii) assistance in obtaining equipment from manufacturers of solar energy technology.

- 2.7 In implementing the Luz do Sol program, FTV first identifies communities that are at least 3 kilometers from the local electricity grid and which presently have no electricity supply. Meeting with family leaders from these communities, FTV determines those communities that are willing and able to financially support the energy service microenterprise. FTV has calculated that at least 50 families in a community must be willing and capable of paying a US\$10 monthly energy bill in order for the microenterprise to be commercially viable in that community. In the communities that demonstrate their capacity and willingness to pay, FTV asks community members to select one person they believe is the most capable of competently managing the new enterprise. This person becomes the energy service microentrepreneur.
- 2.8 Prior to establishing the microenterprise, FTV assesses the seriousness of the community's commitment by requiring at least 50 of the prospective energy customers to pay US\$10 each. This US\$500 is used as a down payment on the energy equipment. A single photovoltaic solar system can provide enough energy for 50 homes and costs US\$27,500. 2/
- 2.9 After the community makes its financial commitment to the program, FTV enlists the support of an accountant to formally establish the energy service microenterprise. Shortly thereafter, FTV installs the necessary battery charging equipment on the property of the microentrepreneur and electrical fixtures in the homes of users. FTV sources the equipment from the Golden Genesis Companies (GGC), based in Golden, Colorado and Rio de Janeiro, Brazil.
- 2.10 FTV arranges financing for the microentrepreneur from two sources. Banco Nordeste do Brasil (BNB) has made available US\$10.4 million, sourced from a special government line of financing targeted to promote renewable energy. The rate payable by the microentrepreneur on the BNB line of credit as of May 5 was 11.1% annually, compared to the open market rate of 19.5% annually. BNB finances 54%, or US\$14,850, of each microentrepreneur's initial equipment investment. The loan is amortized over 12 years, including an initial grace period of six months during which interest is payable at the end of the third and sixth months.
- 2.11 FTV has also arranged up to US\$8.1 million in financing from GGC. GGC finances the remaining US\$12,650 of the initial investment and charges the microentrepreneur a fixed rate of 11% per year. GGC pays 2% to BNB as a fee for funds management. GGC financing is amortized over 5.5 years, including an initial grace period of six months during which interest is payable at the end of the third and sixth months.

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2/ Until recently, FTV installed systems for 55-family and 70-family projects. Installation of these larger systems has been discontinued based on FTV's experiences during the first stages of the program.

- 2.12 The microenterprise charges each energy user a flat fee of US\$10 per month for up to four battery charges. If a user wishes to have his battery charged more than four times, he must pay an additional US\$2 per charge. <sup>3/</sup> Thus, an energy-service microentrepreneur with 50 customers expects monthly revenues to be at least US\$500.
- 2.13 Table 1 below shows the microentrepreneurs' payment plan during the term of the financing:

Table 1. Energy service microentrepreneur payment plan

Payments	Months 3 and 6 (quarterly)	Months 7-66 (monthly)	Months 67-144 (monthly)
To BNB	R\$368.93	R\$304.35	No Payment
To GGC	R\$374.45	R\$191.31	R\$191.31
Total	R\$743.38	R\$495.66	R\$191.31
Payments			

\* Grace period: Interest payments only.

- 2.14 Microentrepreneurs make their monthly payments at the nearest BNB Branch office. BNB periodically provides FTV with a record of the payments made on the GGC portion of the loan and FTV monitors microentrepreneur repayment through field staff visits to microentrepreneurs. Microentrepreneurs who are late in making payments or who otherwise manage the business poorly risk having the energy equipment repossessed.
- 2.15 With the current repayment plan, the profit margin of the energy service microenterprises is very narrow. For this reason, FTV is looking for softer sources of financing and alternative, lower cost, technologies. The profitability level of the microentrepreneurs will be considered a critical performance indicator for the project, and will be measured carefully during the mid-term evaluation. In addition, the adjustments which FTV will make to the financing model in order to improve the BNB/GGC loan portfolio indicators will serve to increase profitability at the microenterprise level (see paragraph 4.2).

E. Luz do Sol Activity to Date

- 2.16 Table 2 below shows a summary of Luz do Sol achievements to date. The first installation of solar energy equipment at an energy service microenterprise occurred in December, 1996. Prior to the first installation, FTV carried out significant work identifying and qualifying communities. In the 14 months leading up to the

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<sup>3/</sup> Prior to the "Luz do Sol" program, community members typically spent R\$5 to R\$8 on candles, kerosene, diesel, and batteries each month. The introduction of solar energy has reduced or, in some cases, eliminated these expenditures.

first installation, FTV identified 60 communities interested in and capable of supporting a energy service microenterprise. In the first three months of 1997, energy service microenterprises in ten communities received their solar equipment. After these initial installations, FTV focused its efforts on ensuring the financing arrangements for each of the new microenterprises. Installations resumed later in the year. In 1998, FTV has focused largely on replacing less efficient technology used in the first installations with more reliable and efficient technology. Despite the shift in focus to maintenance and upgrading, FTV has installed energy equipment for 11 new microentrepreneurs thus far in 1998.

Table 2: Luz do Sol Activities--December 1996 to May 1998

	Alagoas	Bahia	Pernam- buco	Minas Gerais	Total
Communities identified	115	35	14	0	164
Microentrepreneurs identified	40	35	11	0	86
Microenterprises formed	34	32	6	0	72
Systems installed	21	10	0	0	31
Financing arranged	21	10	0	0	31
Technology upgraded	18	n/a*	0	0	18

\*Upgraded technology was used in the initial installations in Bahia.

#### F. Financial Analysis

- 2.17 The financial analysis of FTV was based on its financial statements for fiscal years 1995, 1996, and 1997, which are presented in Annex I.
  - a. **Assets.** FTV's assets totaled US\$354,435 in 1997, of which US\$57,382 (16.2%) were fixed assets such as office equipment and vehicles. FTV had US\$124,350 invested in interest earning accounts (money market) and in short-term investments. The majority of these funds are tied to other programs and agreements and, thus, are not a source of liquidity. Finally, 46.1% of FTV's assets are in the form of advances to product and service suppliers.
  - b. **Asset Quality.** FTV's asset quality is high with 53.9% of its assets coming in the form of either fixed productive assets, cash, or highly liquid investments. The remaining portion consists of prepaid expenses. FTV has no loans or notes receivable among its assets nor any cash-account receivables.

- c. **Liabilities.** FTV's liabilities totaled US\$98,298 in 1997. Nearly two-thirds of this was short-term financing from Banco Sudameris, all of which will be repaid within 1998. The financing has been used as a guarantee fund by FTV in programs unrelated to Luz do Sol. FTV has no long term debt obligations, so once the Sudameris loan is paid off, the Foundation will have no further debt payments. Long term liabilities include US\$22,422 paid from various sources as advances on project implementation.
- d. **Net Worth.** FTV's net worth has grown in real terms in each of the past two years. It grew by 95.9% between 1995 and 1996, due to the rapid growth in project-related revenues. (See Income Statement). In 1997, as staffing needs caught up with project related revenues, expenses increased and the addition to net worth was only 2.5%.
- e. **Luz do Sol Income.** With minor exceptions, all income for the program has come from GGC. GGC financed the start-up of the Luz do Sol program in 1996-1997, motivated by the vast market potential that the company believes exists for solar energy in rural Brazil. Start-up financing aside, GGC pays FTV US\$2,641 as a fee-for-service for each system FTV installs.

G. Characteristics of the Target Group

- 2.18 Women compromise 21.6 % of the microentrepreneurs. 34 of 51 microentrepreneurs and the majority of energy-users are farmers, involved primarily in cattle-raising. Other subsistence activities include fishing, raising of chickens and pigs, and harvesting of beans and manioc. According to data gathered by FTV, the typical microentrepreneur and the average user each earn approximately one minimum salary per month, or about US\$108.

H. Strengths and Weaknesses of FTV

- 2.19 **Strengths.** FTV's primary strength lies in the technical abilities acquired by its staff during the initial design and implementation phases of the Luz do Sol program. FTV's expertise in the installation and repair of solar equipment has been recognized by the government of Brazil, which has made FTV a key partner in many of its renewable energy programs. The institution has also demonstrated an ability to effectively organize low-income rural communities around the issue of renewable energy, while maintaining a business approach to their activities.
- 2.20 **Weaknesses.** FTV's primary weakness is the absence of a solid organizational infrastructure that would allow the organization to grow the Luz do Sol program to a larger scale. Specifically, the organization lacks the proper tools and resources for information gathering and management, financial monitoring, and inventory



management. Secondly, FTV's reliance to date on GGC as its sole supplier of energy equipment may be a weakness.

### III. THE PROJECT

#### A. Objectives

- 3.1 The general objective of the project is to raise the standard of living in isolated communities by creating and strengthening microenterprises that provide a modern renewable energy supply to the communities.
- 3.2 The specific objectives of the project are: (i) to create new energy-service microenterprises and to enable creation of ancillary service providers, such as maintenance/repair technicians; (ii) to provide sustainable, renewable energy services to rural communities with no electricity supply; (iii) to improve the organizational infrastructure of FTV, in particular in the areas of financial monitoring, long-term planning, and inventory management; and (iv) to test the applicability of an alternative solar technology in 15 pilot communities.

#### B. Description of the Project

- 3.3 Through the creation of microenterprises that utilize locally-based renewable energy resources to supply electricity services to their communities, the proposed project expects to create the foundation for an expansion of self-sustaining, clean energy markets in poor rural areas. The Luz do Sol program, created and implemented by FTV, is a unique program in rural electrification efforts in Brazil by virtue of its rural energy service microenterprise model. The program has gained invaluable experience in renewable energy applications and in launching energy service microenterprises in remote communities.
- 3.4 The model, which has already been refined and adjusted several times by FTV to incorporate lessons learned in the field, appears very promising in its potential for reaching an accelerated and expanded scale of operations in the Northeast. It is important to strengthen the model at this time before such a scale up is undertaken. Moreover, although the solar battery-charging technology currently used by FTV in the Luz do Sol program has undergone considerable improvements during the course of the program and continues to be generally well accepted by end-users, SHS--which are solar panel and battery kits manufactured for installation in individual homes--may also be a good rural electrification option for at least some of the communities or customers in the sertao. SHS allow a higher level of household energy demand to be met more effectively in terms of energy availability and convenience for the customer, although they may not be appropriate for customers with minimum electricity demand.

- 3.5 Among the critical issues to be addressed through this project are the financial model used in the Luz do Sol program, improved general management for more efficient implementation of the renewable energy installations and establishment of the microenterprises, and more flexibility in the technology options available to the participating communities through the introduction of SHS. Experts will be deployed to assist FTV in strengthening the model in the indicated areas. Equipment, software, and other assets needed to achieve a stronger financial and operational management and implementation capacity will be financed. Training needs will also be met in the areas of financial management; inventory; equipment procurement, installation, maintenance and repair; and community mobilization. The project will specifically finance the purchase of SHS that will be deployed in a 15-community pilot testing the applicability and acceptance of the alternative solar technology, which will thereby give FTV greater flexibility in accommodating customer needs.
- 3.6 The financing component of the program will allow FTV to reach a viable scale of operations, while the technical cooperation component will support pilot equipment tests for the SHS technology option and support other adjustments to the energy service microenterprise model that the institution has developed, as described in the following paragraphs.
- 3.7 Financing Component (US\$350,000)  
The reimbursable resources will enable the institution to purchase certain fixed assets necessary for expanding its program to a sustainable level; will finance direct incremental expansion costs until the institution reaches its break-even point; and will finance the purchase of equipment for an alternative solar energy technology to be used in a 15 community pilot project.
- 3.8 Non-Reimbursable Technical Cooperation Component (US\$250,000)  
The non-reimbursable resources will be used to: (i) strengthen the organizational infrastructure of FTV through training and investments in financial management, inventory management, and portfolio monitoring; (ii) support microenterprises in the region through training for energy service microentrepreneurs and maintenance/repair technicians; (iii) finance pilot project operational expenses to assist FTV through the learning curve they will face as they deploy unfamiliar solar technology in 15 communities.
- 3.9 Cost and Financing  
The total cost of the financing will be US\$600,000: US\$350,000 for the reimbursable financing component and US\$250,000 for the non-reimbursable technical cooperation component. The project will be financed with Net Income of the Fund for Special Operations (FSO).
- 3.10 The amount of the financing component will be US\$350,000 disbursed in local currency according to standard Bank procedures. The financing component will have a disbursement period of four years,

an amortization period of ten years, and a grace period of three years. An annual fee of 1% will be charged, with a provision to ensure maintenance of the value of the funds in United States dollars. The grace period will only apply to the principal. Interest will be payable annually, in order to establish financial discipline in the institution. The principal will be amortized over the seven-year period following the grace period. The technical cooperation funding will be non-reimbursable, in the amount of US\$250,000 disbursed in local currency according to standard Bank procedures.

- 3.11 Execution of the financing component will be carried out in two stages separated by a mid-term evaluation (see Section E of Chapter IV). Up to US\$210,000 (60%) will be allocated to the first stage following normal disbursement procedures and US\$140,000 to the second stage, also following normal disbursement procedures.

C. Sizing

- 3.12 FTV's assets are worth US\$354,435, an amount approximately equal to the total value of the financing component. The financing component will therefore be disbursed in two tranches, to ensure that FTV is effectively utilizing the resources and that its operations have reached the expected level of financial sustainability (in accordance with the indicators presented in Table 4), which would enable the institution to pay off the financing component. A smaller financing component would not be sufficient to allow FTV to reach its break-even point.
- 3.13 Four-year cashflow projections are shown in the table below. The projections incorporate FTV's payments on the proposed financing component. During the three-year grace period, payments are made on interest only and, as a result, FTV achieves monthly break-even with the installation of the 14th unit. Long-term break-even, allowing for principal payments, can be achieved with the 18th unit. The proposed financing component funds provided for "Incremental Operating Costs" are designed to finance FTV during its initial expansion period, when losses will be incurred. Specifically, during the first 8 months of growth, FTV will lose a total of approximately US\$44,710. In addition to this loss, cash layouts in month 9 to finance future operations will be approximately US\$38,300. After that point, revenues should begin to cover costs. As a result, to allow FTV to reach a scale of operations which is financially viable, the institution requires a minimum of US\$83,000. The Bank's financing component provides US\$95,000, allowing a small buffer for cost overruns or lower-than-expected output.

Table 3: Break-even Volume of Operations (US\$)

Period	Installations per month (per period)	Period Cash Outlays	Revenue per Installation	Period Cash Income	Period Net Cashflow	Cumulative Cash Increase (Decrease)
Months 1-8	10 (80)	\$255,990	\$2641	\$211,280	(\$44,710)	(\$44,710)
Months 9-16	15 (120)	\$306,305	\$2641	\$316,920	\$10,615	(\$34,095)
LONG TERM BREAK-EVEN = 18 INSTALLATIONS PER MONTH						
Months 17-24	20 (160)	\$356,619	\$2641	\$422,560	\$65,941	\$31,846
Year 3	25 (300)	\$666,911	\$2641	\$792,300	\$342,300	\$374,146
Year 4	25 (300)	\$666,911	\$2641	\$792,300	\$181,900*	\$556,046

\*Principal and income payments from FTV to the Bank are included in the calculation; thus in year four after the grace period has ended, FTV's costs rise and net income is lower than in Year 3.

- 3.14 The remaining resources of the financing component will be used to finance the purchase of assets to ensure long-term growth, and to finance equipment purchase for the 15-community SHS pilot sub-project. The Technical Cooperation resources are targeted to strengthen FTV during its growth period, as well as finance the non-recoverable costs of the pilot project, so that it can reach and then exceed its long-term break-even point of 18 installations per month during year two.

#### IV. PROGRAM EXECUTION

##### A. Responsibility for Execution

- 4.1 FTV will be responsible for administration and execution of the proposed program. It would enter into a contract for the financing and technical cooperation funding and would carry out the program according to the terms of this document and its annexes. The program activities will be carried out by FTV staff with the support of the individual consultants to be financed under the technical cooperation component.

##### B. Conditions of Financing Component

- 4.2 Prior to the disbursement of the financing component, FTV will work with BNB and GGC to make a series of adjustments to the microenterprise financing model. These adjustments may include, but are not restricted to: (i) elimination of the grace period, to instill the discipline of monthly payments, (ii) creation of a written policy on sanctions for late payment by microentrepreneurs; (iii) introduction of a flexible pricing scheme, which will allow the microentrepreneur to earn higher profits, dependent upon the

number of users, and (iv) requirement of a greater number of "commitments to use" per community prior to the establishment of a microenterprise, to safeguard against user dropout.

- 4.3 The purpose of these adjustments will be to reduce the amount of payment in arrears to 5.0% of the outstanding BNB/GCC portfolio. <sup>4/</sup> Finally, prior to disbursement of any financing component resources, FTV will ensure that at least 80% of microentrepreneurs in the repayment phase have complied with 100% of their previous month's payment obligation.
- 4.4 To ensure that the financing component is spent in coordination with the appropriate level of organizational infrastructure development, no more than 60% of the financing component will be disbursed until at least 45% of the technical cooperation funds have been disbursed. This way, financing component funds will be spent only when FTV is equipped to operate at a larger scale.

C. Non-Reimbursable Technical Cooperation Component

- 4.5 To achieve the objectives of the technical cooperation, FTV will hire consultants with the following areas of expertise: (i) financial management (including loan enforcement policies, pricing of services, financial monitoring, financial management software), and information gathering and management; (ii) microenterprise management training; (iii) solar energy maintenance and repair training; and (iv) inventory management and quality improvement.
- 4.6 FTV will be responsible for hiring the specialized consultants, which it will do according to Bank procedures for the selection and hiring of consultants. As a condition precedent to the first disbursement of the technical cooperation component, FTV will submit the terms of reference for the financial management consultant and the microenterprise management consultant to the satisfaction of the Bank.
- 4.7 As part of the technical cooperation component, software and information hardware will be purchased to improve the information system for financial monitoring. FTV will be responsible for the procurement of goods under the program and will follow the applicable Bank standards, procedures, and policies.
- 4.8 At FTV's request, as much as 20% of the total technical cooperation funding may be paid as an advance to ensure a timely flow of funds for the program. Establishment and replenishment of the advance will be considered disbursements. To obtain a replenishment of the advance, FTV will submit to the Bank for consideration detailed accounts on the use made of the funds received.

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<sup>4/</sup> As measured by amount of payments overdue divided by the amount of loans outstanding and in the repayment phase. Currently, 8.3% of the BNB/GCC portfolio represents payments in arrears.

D. Progress Reports

- 4.9 During program execution, within 60 days after the end of each calendar year, FTV will submit to the Bank a progress report on the program. The report will incorporate results according the performance indicators presented in Table 4. The last progress report will constitute the final report and will contain a summary of the results achieved compared with the original objectives of the program. Based on the results achieved, the report will include data on improvements in FTV's institutional capacity, particularly with respect to the expansion of its services and the long-term financial sustainability of the program.
- 4.10 For a period of five years from the year in which disbursements begin, within 120 days after the close of each calendar year, FTV will submit to the Bank its financial statements and those of the program, certified by an independent auditor or an independent public accounting firm to be hired to the satisfaction of the Bank as a condition precedent to the first disbursement of the financing component.

E. Mid-term Evaluation

- 4.11 In order to help strengthen FTV and to correct any deficiencies that may arise during program execution, a consultant with experience in this type of program will conduct a mid-term evaluation to gauge fulfillment of the objectives and conditions of execution of the program components once 60% of the financing has been committed or one year has expired, whichever comes first. The Country Office in Brazil will directly hire the necessary consulting services to conduct the evaluation, using resources from the technical cooperation funding.
- 4.12 The purpose of the evaluation will be to review the goals achieved through program execution and to determine the progress made by FTV in expanding the reach of the Luz do Sol program and in developing its organizational infrastructure. The main indicators used in the evaluation, to be monitored by the Country Office in Brazil, are as follows:

Table 4: Mid-term Performance Indicators

Indicator	Target Range
Financial Sustainability	Operational expenses are 100% covered by "fees for services"
Average system installations per month in previous 3 months	15
Direct Cost per Installation	Less than \$ 1,250
Installation Team Efficiency	>4 systems per month per installation staff
% of systems with "major technical problems"*	<2%
% of users reporting "minor technical problems"**	<4%
Microenterprise profit margin	>10% and increasing
Payments in Arrears (as % of outstanding BNB/GCC portfolio)	3%

\*"Major technical problems" are defines as those requiring replacement of all or most of a system

\*\*"Minor technical problems are those that occur at user level (rather than system level) and do not require replacement of charging stations or sets of photovoltaic panels.

- 4.13 The consultant will also review data gathered by FTV on the income brackets of its clientele and make a field visit. The consultant will make an assessment regarding improvements in the quality of life of microentrepreneurs and community users of the energy services. Microentrepreneurs' profit levels should be increasing over time and should be sufficient to ensure not only repayment but the accumulation of savings. In addition, the consultant will analyze the costs and benefits of viable options to convert some or all of FTV's related operations into a separate for-profit enterprise, and make recommendations based on the overall optimization of the project.
- 4.14 The Bank will review the findings reported and the recommendations made in the evaluation and, if it deems them satisfactory, will authorize the disbursement of remaining funds.

#### F. Procurement

- 4.15 The financing component will finance the purchase of solar home systems, a photocopier, electrical tools and motor vehicles. The non-reimbursable technical cooperation component will finance the purchase of hardware and software to improve FTV's information management systems. FTV will be responsible for the procurement of goods under the program and will follow the applicable Bank standards, procedures, and policies.

#### G. Earnings

- 4.16 Earnings accumulated by FTV through project activities will be reinvested in the Luz do Sol program or used to finance similar activities. Under no circumstances will these earnings be used by FTV to engage in financial intermediation.

## V. PROGRAM IMPACT, FEASIBILITY, AND RISKS

### A. Socioeconomic Impact

- 5.1 The program will help improve the standard of living of residents of remote rural communities in Northeastern Brazil. In its first year, by installing 150 solar energy systems, the Luz do Sol program can bring the benefits of renewable energy to 37,500 people. A key potential benefit of the project will be the creation of a viable commercial energy market where none has previously existed and, with that market, increased income for the families of microentrepreneurs and the potential development of new microenterprises to support the use of renewable energy equipment. Beyond the microenterprise-creating opportunities, the provision of of cleanly produced electricity to remote poor communities that are largely beyond the reach of most social and economic programs provides a means of introducing new community and household social and cultural activities: for example, watching national cultural, educational and other programs on television or video-cassette recorders, listening to musical and news programs on the radio. Better (brighter and healthier) lighting provides greater security in common community areas as well as enables more social and productive activities at night. The SHS option in particular will enable the use of electrical equipment such as sewing machines and small refrigeration units, giving community members to consider new productive activities and enterprises.

### B. Institutional Feasibility

- 5.2 FTV has demonstrated its ability to develop and implement an innovative and sophisticated model for bringing energy services to remote communities. At the same time, it is clear that the institution needs to improve its organizational infrastructure, particularly in the areas of financial monitoring and long-term planning, if it is to expand the Luz do Sol program to begin to meet the vast demand for rural energy that exists. The technical cooperation funding is designed to strengthen FTV institutionally so that it can operate at the much larger scale required to provide the benefits discussed above and to reach financial viability.

### C. Financial Feasibility

- 5.3 The market for renewable energy in rural areas in Brazil is vast. In Alagoas, Bahia, Pernambuco, and northern Minas Gerais alone, there is potential for approximately 22,000 energy service microenterprises. This figure translates to equipment sales of approximately US\$605 million in those states. It is this large market potential that has attracted GGC to Brazil and which may attract other providers. The large potential market means that a program like Luz do Sol should be able to achieve financial sustainability. As mentioned earlier, for each system it installs, FTV receives a "fee for service" from GGC. This payment is made in



return for FTV's services of identifying and mobilizing communities, establishing microenterprises, providing business and technical training to microentrepreneurs, and monitoring the finances of the program. The table presented on page 11 demonstrates the financial feasibility of the project.

D. Risks of the Operation

- 5.4 The primary risk to the long-term viability of the Luz do Sol program is the lack of loan repayment by the microentrepreneurs. Although this would not affect FTV directly, current and potential financing agents, including banks and energy suppliers, will not finance the microentrepreneurs if they believe the loans will not be repaid. To date, three causes for poor repayment can be cited: (i) existence of technical problems with the equipment; (ii) shortcomings in the financing model; and (iii) the drought that has damaged the rural economy in the region affecting the ability to pay of energy customers. The technical problems have been largely overcome and will continue to be monitored under the project. Regarding the drought, although the weather is beyond the control of FTV, with assistance from the Bank, FTV can develop pricing plans that help microentrepreneurs withstand a drop in demand due to a economic problem caused by a drought or any other reason. Finally, the project is designed to improve FTV's ability to monitor finances, while not encouraging FTV to play the role of financial intermediary in the long run. By guaranteeing the on going participation of formal financial intermediaries in the project, the Bank minimizes the risks of problems associated with loan delinquency.

VI. JUSTIFICATION AND RECOMMENDATIONS

- 6.1 The areas impacted by the Luz do Sol project include some of the most remote areas of Northeastern Brazil where the vast majority of residents have no access to electricity and are unlikely to benefit from electricity grid extensions in the foreseeable future. Luz do Sol is beneficial simply by providing electricity to communities that otherwise would be without it. In addition, Luz do Sol is helping to create a sustainable commercial market for energy in the rural Northeast. Not only is Luz do Sol unique in using the creation of microenterprises to provide energy services to remote communities on a profit-making basis, it also creates the opportunity for a sector of solar energy system and electrical appliance maintenance and repair enterprises, enterprises selling electrical fixtures and other auxiliary equipment, and enterprises that provide products and services using the new energy supply to come into being.
- 6.2 FTV has reached a critical juncture where the expansion of the program in a truly sustainable manner requires improvement of the model in its financial structure and greater flexibility in the selection of renewable energy technology, as well as other minor

adjustments. The project will allow FTV to advance the Luz do Sol program more quickly than it otherwise could by providing financing to the organization through initial periods when expenses exceed revenue and by funding a pilot program to test an alternative solar technology. Through the non-reimbursable Technical Cooperation Component, the proposed project will strengthen FTV's organizational infrastructure to prepare it for its growth to a sustainable level.

- 6.3 In view of the above analysis, it can be concluded that the program is feasible, pursuant to the terms and conditions proposed herein. The Management of the Bank therefore recommends that the Board of Executive Directors approve the financing and hereby submits the corresponding proposed resolution for reimbursable financing and non-reimbursable technical cooperation funding for FTV.

### Income Statements 1995-1997: LUZ DO SOL PROGRAM (of FTV)

(All figures in US Dollars – Exchange rates used are shown at the top of the column for each year.)

Exchange Rates	1.116	1.039
	1997	1996
<b>Revenues</b>		
Resources for Projects	\$ 345,003.28	\$ 312,828.28
<i>from Golden Genesis (USA)</i>	172,582.97	312,828.28
<i>from Golden Genesis (Brazil)</i>	116,432.71	-
<i>World Bank PAPP</i>	55,987.60	-
Earnings from Financial Investments	11.19	2.65
	-	-
<b>Total Revenues</b>	<b>\$ 345,014.47</b>	<b>\$ 312,830.93</b>
<b>Expenses</b>		
Social Security Payments	\$ 76.09	\$ -
Labor & Per Diem Expenses	193,812.63	107,032.59
Sub-Contracted Services*	32,873.91	18,876.28
Gas & Oil	1,582.68	1,879.62
Vehicle Expenses	1,599.00	2,469.59
Telephone & Telex	189.23	492.96
Documents/Copying Expenses	613.80	1,495.21
Film & Photography	502.69	104.44
Freight & Shipping	10,009.40	7,711.04
Travel	492.83	2,635.60
Purchase of permanent assets	698.18	331.12
Insurance	835.67	1,316.12
Building Maintenance**	756.63	12,507.22
Honoraria	1,255.27	1,236.89
Leasing of Vehicles	13,861.88	2,354.52
Miscellaneous***	179.21	13,211.83
<b>Total Expenses</b>	<b>\$ 259,339.10</b>	<b>\$ 173,655.04</b>
<b>Profit (Loss)****</b>	<b>\$ 85,675.37</b>	<b>\$ 139,175.89</b>

\*Includes services of transportation & handling companies at ports & service of sub-contractor in Bahia.

\*\*This heading in 1996 included the R\$10,000 purchase of iron for solar energy charging stations

\*\*\*In 1996, this number includes water, subscriptions, lunches, kitchen items, charitable contributions, parties, professional courses, marketing materials, and tools.

\*\*\*\*The profit from Luz do Sol has been distributed to cover losses in other programs. The remainder is accumulated in the organization's retained earnings.

**Promotion of Rural Renewable Energy Service Microenterprises in Northeast  
Brazil**

**Plan of Operations  
Annex 2**

**I. Background**

In addition to requesting a financing component, the Teotonio Vilela Foundation (FTV), hereinafter also referred to as the intermediary, also requested non-reimbursable technical cooperation component to support execution of the project proposed in the financing document.

**II. Objectives**

The objectives of the proposed non-reimbursable technical cooperation component are the following:

- a. strengthen the intermediary's financial capabilities, specifically with regard to the monitoring of loan repayment by microentrepreneurs participating in the Luz do Sol Program,
- b. support the intermediary in the development and implementation of long-term plans in other critical areas, including inventory management and microentrepreneur training,
- c. stimulate the creation and growth of a solar energy repair industry through the development of training seminars and videos on solar energy equipment repair, and
- d. support a pilot project utilizing an alternative solar technology so that the intermediary can develop the knowledge necessary to deploy the technology on a large, sustainable scale.

**III. Description of the Project**

The non-reimbursable technical cooperation component of the project will be implemented simultaneously with the financing component that would be approved concurrently except that no more than 60% of the financing component will be disbursed until at least 45% of the technical cooperation funds have been disbursed. FTV will be responsible to the Bank for execution of the technical cooperation project.

**A. Hiring of Consultants**

FTV will hire five consultants to assist in the following areas:

- (i) Financial monitoring: This consultant will help FTV improve its process for monitoring loans made to Luz do Sol program participants and design collection policies that improve loan repayment. The consultant

will advise FTV on the procurement of appropriate financial management information software. The consultant will also conduct special training seminars with both FTV and Banco do Nordeste do Brasil (BNB) staff to improve the quality of the information exchanged between the two entities.

(ii) Microenterprise Management Training: This consultant will assist FTV to develop a program of seminars and a training video to teach Luz do Sol microentrepreneurs the fundamental skills they need to manage a small business. The video is meant to allow for replication of the program in other communities.

(iii) Solar Energy Maintenance/Repair Training: This consultant will assist FTV to develop a series of seminars and a training video to teach local electricians the skills they would need to start their own solar energy maintenance/repair business.

(iv) Inventory Management: This consultant will work with FTV to improve the organization's inventory management. The consultant will advise FTV on the procurement of appropriate inventory management software.

FTV will be responsible for hiring the specialized consultants, according to Bank procedures for the selection and hiring of consultants. As a prior condition to the first disbursement, FTV must submit the terms of reference of the financial consultant and the microenterprise management consultant to the satisfaction of the Bank.

#### B. Pilot Project

FTV will use a portion of the technical cooperation funds to finance consultant fees and the incremental transportation and freight expenses associated with a 15-community pilot project. The pilot project is designed to test the applicability of an alternative solar energy technology to the conditions in rural northeastern Brazil. In addition to testing and adjusting the solar technology, FTV will adjust the financing model with the goal of developing a system which is more profitable for the microentrepreneur.

#### C. Mid-term Evaluation

The Bank, through the Country Office in Brazil, will directly hire the necessary consulting services to conduct a mid-term evaluation of the intermediary's execution of the project once approximately 60% of the financing has been committed.

#### D. Procurement of Equipment

Hardware and software will be procured to support the proposed project. The cost of the equipment and materials to be purchased using resources from the technical cooperation funding will be less than 30% of the total amount of that funding. FTV will hold responsibility for the procurement of goods under the project and will follow Bank standards, procedures, and policies.

E. Transition Expert

At the end of two years, FTV will hire a consultant to review the costs and benefits of converting FTV, or a portion of it, into a for-profit entity that would continue to supply rural Brazil with solar energy services.

**IV. Cost and Financing**

The total cost of the technical cooperation project is an estimated US\$280,000, of which US\$250,000 would be financed by the Bank on a non-reimbursable basis according to the itemized budget shown in the table on the following page. The non-reimbursable funding for the proposed operation will be drawn on the net income of the Fund for Special Operations (FSO).

**V. Project Execution**

The consultants will be hired by the intermediary, except for the consultant who will carry out the mid-term evaluation of the project, who will be hired directly by the Bank. As a prior condition to the first disbursement, the intermediary will submit the terms of reference of the financial consultant and the microenterprise management consultant to the satisfaction of the Bank.

The intermediary will provide all the logistical support necessary for proper execution of the project in terms of secretarial services, office space, telecommunications services, electrical power, etc.

**VI. Justification**

The proposed technical cooperation project is justified for the following reasons:

- a. It will help the intermediary to develop its skills in the areas of financial monitoring, inventory management, and micro-entrepreneur training, all of which will be critical to the financial sustainability of the project.
- b. It will support the development of a maintenance/repair industry which is essential to the long-term viability of the rural solar energy industry.
- c. It will support the intermediary in testing the applicability of an alternative solar technology.

To a great extent, effective implementation of the proposed financing component of the project will be contingent upon the proposed technical cooperation component.

Project Costs (equivalent in US\$)		
Category		IDB
Consultant's Fees		95,000
Financial Expert a/		15,000
Equipment Maintenance/Repair Expert b/		27,000
Microenterprise Management Expert c/		36,000
Inventory Management Expert d/		9,000
Transition Expert e/		8,000
<b>Training</b>		<b>50,000</b>
Seminars for BNB Staff f/		6,000
Maintenance/Repair Video g/		10,000
Maintenance/Repair Seminars h/		12,000
Microenterprise Management Video i/		10,000
Microenterprise Management Seminars j/		12,000
<b>Pilot Project k/</b>		<b>49,500</b>
<b>Equipment</b>		<b>28,500</b>
Computer Hardware l/		18,500
Software		1,000
Photocopier		3,000
Electrical Tools		6,000
<b>Evaluation</b>		<b>15,000</b>
<b>Contingencies</b>		<b>12,000</b>
<b>Total</b>		<b>280,000</b>

- a/ Includes Financial Expert for 5 months (\$3000/month)
- b/ Includes Equipment Expert for 9 months (\$3000/month)
- c/ Includes Microenterprise Management Expert for 12 months (\$3000/month)
- d/ Includes Inventory Management Expert for 3 months (\$3000/month)
- e/ Includes Transition Expert for 2 months (\$3000/month)
- f/ Includes 12 seminars (\$500/seminar)
- g/ It is expected that FTV will contribute \$15,000 to the cost of producing this video, in addition to the IDB contribution.
- h/ 18 Seminars X US\$670 per Seminar
- i/ It is expected that FTV will contribute \$15,000 to the cost of producing this video, in addition to the IDB contribution.
- j/ 18 Seminars X US\$670 per Seminar
- k/ Includes salary, transportation, and freight expenses for 15 installations (US\$3300 per installation)
- l/ Includes 3 Desktop Computers (US\$4,000 each), 2 Laptops (US\$2500 each), and 3 printers (US\$500 each)

#### VII. Disbursements

The proceeds of the Bank's contribution will be disbursed within a period of 48 months from the effective date of the agreement.

At the request of the intermediary, an advance of funds may be established in the amount of up to 20% of the total technical cooperation funding, to ensure a timely flow of funds for the project. Establishment and replenishment of the advance will be considered disbursements. To obtain a replenishment of the advance, the intermediary will submit to the Bank for consideration detailed accounts on the use made of the funds disbursed and spent.

### **VIII. Reports**

Consultant Reports. The contracts into which the intermediary will enter with the consultants will include an obligation on the part of the consultants to submit to the intermediary, with a copy to the Bank for its approval: (i) semi-annual progress reports, within 30 days after the end of each semi-annual calendar period, beginning on the date the work is initiated, indicating the progress achieved in project execution; (ii) a final report, within 30 days after the date on which the consultant's work is completed, indicating the results achieved compared with the project's objectives and making recommendations for the future; and (iii) any additional report the intermediary or the Bank may reasonably request regarding execution of the work.

Intermediary Reports. The intermediary will submit to the Bank to its satisfaction: (i) annual progress reports on project execution, including comments on the work carried out by the consultants; (ii) an evaluation of the reports submitted by the experts, within 30 days after the end of each contract; and (iii) a financial report audited by independent auditors, within 120 days after the close of the calendar year in which the final disbursement of the project is made, showing the use made of the Bank contribution.

### **IX. Supervision**

The consulting services will be supervised by the intermediary. The Bank will also supervise the proposed project through the Country Office in Brazil.

### **X. Evaluation Criteria**

The proposed technical cooperation operation will be evaluated by comparing the proposed objectives with the extent to which they have been achieved, based on the reports described in Section VIII of this document, and by assessing the quality of the work carried out during project execution. The evaluation will consider the criteria established to evaluate the financing and non-reimbursable technical cooperation components of the project, as described in Table 4 and paragraphs 4.13 and 4.14 of the financing proposal.



PROPOSED RESOLUTION

**BRAZIL. FINANCING AND TECHNICAL COOPERATION TO THE TEOTONIO VILELA FOUNDATION  
FOR THE PROMOTION OF RURAL RENEWABLE ENERGY MICROENTERPRISES IN THE  
NORTHEAST REGION OF BRAZIL WITHIN THE PROGRAM FOR FINANCING SMALL PROJECTS**

The Board of Executive Directors

**RESOLVES:**

1. That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank, to enter into such agreement or agreements as may be necessary with the Teotônio Vilela Foundation, of the República Federativa do Brasil, to grant it, within the Program for Financing Small Projects, approved by Resolutions DE-85/78 and DE-147/79: (a) reimbursable financing for the execution of the program referred to in Document PR- ; and (b) nonreimbursable technical cooperation for the execution of the program, in accordance with Annex 2 of said document.

2. That up to the equivalent of US\$350,000 in reais, is authorized for the purposes indicated in paragraph 1(a), and up to the equivalent of US\$250,000 in reais, for the purposes indicated in paragraph 1(b), both chargeable to the net income of the Fund for Special Operations.