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**RURAL ELECTRIFICATION IN THE DEVELOPING WORLD:
A SUMMARY OF LESSONS FROM SUCCESSFUL
PROGRAMS**

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The pace of rural electrification over much of the developing world is painfully slow. In many African and South Asian countries, it is even lower than rural population growth.

Well-publicized reports on the problems of some programs are also leading to increasing wariness about rural electrification among energy policy makers. The highly subsidized Indian program, for example, has drained the resources of many of the state power companies, with highly damaging effects on their overall performance and quality of service.

Rural electrification programs can undoubtedly face major obstacles. The low population densities in rural areas result in high capital and operating costs for electricity companies. Consumers are often poor and their electricity consumption low. Politicians interfere with the orderly planning and running of programs, insisting on favored constituents being connected first and preventing the disconnection of people not paying their bills. Local communities and individual farmers may cause difficulties over rights of way for the construction and maintenance of electricity lines.

Yet in spite of these problems, many countries have been quietly and successfully providing electricity to their rural areas. In Thailand, over 80 percent of rural people has a supply. In Costa Rica, cooperatives and the government electricity utility provide electricity to almost 95 percent of the rural population. In Tunisia, 75 percent of rural households already has a supply and the national electricity company confidently expects the proportion to rise to well over 80 percent by the year 2001.

The World Bank is carrying out a series of case studies to identify the crucial factors determining the success of such programs. Certain clear lessons are already emerging. Some reinforce what is already well-known, but others run counter to much of the conventional wisdom. There is no doubt that applying these lessons to future programs will bring a significant increase in the rate of rural electrification and the provision of significant and sustainable benefits to increasing numbers of rural people.

Setting up effective institutional structures

Large scale grid-based rural electrification is a relatively complex business and an effective implementing agency is one of its most basic requirements. The exact institutional structure, however, does not appear to be critical, as a variety of approaches have been successful. They include a separate rural electrification authority (Bangladesh); setting up rural electric

cooperatives (Costa Rica); allocating rural electrification to a department of the national distribution company (Thailand); or delegating it to the regional offices of the utility (Tunisia).

Although no one institutional model appears unquestionably superior, there are common factors between those which have worked well. A high degree of operating autonomy--in which the implementing agency can pursue rural electrification as its primary objective--seems to be essential. But with autonomy must come responsibility as well. A typical example was Ireland, where the rural electrification agency had its own budget and control over access to materials and labor, and worked to its own realistically drawn up and costed plans, but it also was strictly accountable for meeting its targets.

Less tangible but even more important, experience shows that implementing agencies need dynamic leadership with a capacity to motivate staff and bring a sense of dedication to the task of rural electrification. In Thailand and other countries with successful programs, the extent to which the staff of the implementing agencies felt they were laying the foundation for the development and advancement of their country is notable. A sense of security and clear career prospects within the implementing agency can contribute significantly to the build-up of such attitudes among staff.

Dealing with the political dimension

The use of public funds for rural electrification often leads to political interference at national and local levels. The politicians regard public funding as giving them rights to interfere, but experience shows that nothing is more damaging.

Once technical and financial decision-making in the implementing agency becomes based on political string pulling, professional discipline is destroyed and the organizational structure is undermined. Waste of resources, low staff morale and operational ineffectiveness are the characteristics of rural electrification programs suffering from a high degree of political interference.

Sometimes this can be turned into a positive force as in Thailand where local politicians were encourage to raise and contribute funds, so that their constituents could receive electricity before the planned time. It is even more important to ensure that rural electrification planning is open and objective. Successful programs use clearly defined criteria to rank areas in order of priority for electrification, so that the decision-making is clearly seen by all to be fair.

Criteria for rural electrification

Countless failed initiatives show the futility of premature rural electrification. Providing an electricity supply will only make a significant contribution to sustainable rural development when the other necessary conditions are present.

Security of land tenure, availability of agricultural inputs, access to health and education services, reliable water supplies, and adequate dwellings are among the more obvious of these conditions. If farmers are to invest in increased agricultural production they must have access to

markets where they can obtain fair prices for their higher outputs. Families must have a level of disposable income that allows them to place improved lighting, and ownership of TVs and other electricity-using appliances among their expenditure priorities before they will pay for a supply.

Successful rural electrification programs have all developed their own system for ranking or prioritizing areas for obtaining a supply. Capital investment costs, level of local contributions, numbers and density of consumers, and the likely demand for electricity are among the factors normally taken into account. In Costa Rica, the ranking of communities was based on their population density, level of commercial development, and potential electricity load. Thailand developed a numerical ranking system taking account of a variety of factors such as level of income, the number of existing commercial enterprises, and the government's plans for other infrastructural investments in the area.

Importance of cost recovery

Cost recovery is probably the single most important factor determining the long-term effectiveness of rural electrification programs. When cost recovery is pursued, most of the other program elements fall easily into place. All the successful programs reviewed in the case studies placed a strong emphasis on covering their costs, though there is a wide variation in how it was approached.

In contrast, electricity supply organizations depending on operational subsidies are critically vulnerable to any downturn in their availability. When the subsidy is reduced, as inevitably happens, the virtue of increased sales turns into the vice of greater losses, creating a significant disincentive to extend electricity to new customers, especially poor people. The contradictory signals to management make proper running of the organization impossible.

In Kenya, for example, where the rural electrification program depends on the availability of grant funds from donors, progress has been slow and intermittent. In Malawi, the state electricity company states flatly that it has no interest in rural electrification, because electricity prices, by government order, are too low to cover even operating costs.

Capital investment subsidies raise different questions. In most successful programs, a substantial proportion of the capital has been obtained at concessionary rates or in the form of grants; at commercial rates of return a substantial proportion of the rural areas in would never be electrified. The program in Costa Rica started with low interest loans from USAID. In Ireland, a proportion of the investment costs, which varied depending on the state of the national exchequer, were covered by government grants.

Provided it is used wisely, and operating costs are covered, having access to such concessionary capital need have no ill-effects on the implementing agency or the rural electrification program. But concessionary capital should never be provided to organizations which are not covering their operating and maintenance costs; it will simply worsen their financial position.

Charging the right price for electricity

There is a widespread belief that electricity tariffs need to be extremely low, often well below their true supply costs, if rural electrification is to benefit rural people. The facts do not support this.

Rural electrification only makes sense in areas where there is already a demand for electricity-using services such as lighting, television, refrigeration and motive power. In the absence of a grid supply, these services are obtained by spending money on kerosene, LPG, dry-cell batteries, car battery recharging and small power units, all of which are highly expensive per unit of electricity supplied. Recent surveys in regions without electricity in Uganda and Laos indicate that people spend approximately 5 dollars per month on these energy sources. Private suppliers often find a ready market for electricity at more than one US dollar per kilowatt hour.

Rural electrification tariffs set at realistic levels do not prevent people making significant savings in their energy costs, as well as obtaining a vastly improved service. Charging the right price allows the electricity company to provide an electricity supply in an effective, reliable, and sustainable manner to an increasing number of satisfied consumers. In Costa Rica, the price of electricity is set through a regulatory process, but it is high enough for the cooperatives to make a modest profit. In 1996, the price for residential electricity starts with a fixed charge of USD 2.59 for the first 30 kilowatt hours of service, and increases steadily to over 25 cents a kilowatt hour for people consuming over 150 kilowatt hours of electricity per month. This also focuses the attention of the electricity company on consumer service and the need to provide value for the price it charges.

Lowering the barriers to obtaining a supply

The initial connection charges demanded by the utility are often a far greater barrier to rural families than the monthly electricity bill. Reducing these charges, or spreading them over a several years, even if it means charging more per unit of electricity, allows larger numbers of low income rural families to obtain an supply.

In Bolivia, for example, a small local grid, in spite charging 25 to 30 cents per kilowatt hour, immediately doubled its number of consumers when it offered them the option of paying for the connection cost over 5 years. By contrast, in Malawi where the electricity company charges the full 30 year cost of line extension to new customers, the rural electrification rate is just 2 percent.

Benefits of community involvement

Traditional thinking in many utilities is often oblivious to the importance of local community involvement. Rural electrification is seen simply as a technical matter of stringing lines to grateful consumers. The case studies show clearly that rural electrification programs can benefit greatly from the involvement of local communities - or suffer because of its absence.

Setting up a rural electrification committee to represent the local community can do, much to smooth the implementation of the program. The committee can play a crucial role in helping

assess the level of demand, educating consumers in advance, encouraging them to sign up for a supply, and promoting the wider use of electricity.

In Bangladesh consumer meetings were held before the arrival of the electricity supply, helping to avoid costly and time-consuming disputes over rights of way and construction damage. Community contributions, in cash or kind, were often the decisive factor in bringing areas within the scope of the rural electrification program in Thailand. The efforts to recruit customers made by parish rural electrification committees in Ireland ensured that the utility received an adequate return on its investment and contributed to the rapid implementation of the country's rural electrification program.

Reducing construction and operating costs

There are major opportunities for the reduction of construction and operating costs of rural electrification in most countries. In many cases, careful attention to system design enables construction costs to be reduced by up to 30 percent, contributing significantly to the pace and scope of the rural electrification program.

Where the main use of electricity is expected to be for lights and small appliances, typical of many rural areas, there is no reason to apply the design standards used for much more heavily loaded urban systems. The rural distribution system can be designed for the actual loads, often no more than 15 kilowatt hours per month, imposed on it by rural households. Although consumption normally grows, this is usually at a slow pace and provided the necessary design provisions are made, systems can be relatively cheaply upgraded later.

Each country will have its own cost-saving opportunities for rural electrification planners. In Thailand, materials were standardized and manufactured locally, reducing procurement, materials handling, and purchasing expenses. In Costa Rica, the Philippines and Bangladesh, adoption of the well proven single-phase distribution systems, used in the US rural electrification program of the 1930s, brought major savings over the three-phase system still widely used in Africa and elsewhere. The case studies show that careful and critical analysis of design assumptions and implementation practices invariably reveals potential for significant cost savings.

Alternatives to the grid

Grid-based rural electrification is often portrayed as being in competition with alternatives, especially photovoltaic systems. This is a mistake as there is little conflict between the two.

The grid allows people to use standard electrical equipment and appliances without any practical constraint on the quantities of electricity they consume. It provides a level of service which cannot be approached by the alternatives and where technically and financially feasible will always be the first choice among consumers.

In remote or hard to reach areas where grid supplies are impractical on cost, technical or institutional grounds, people generally meet their need for lighting and electricity-using services

by using kerosene, LPG, dry-cell and car batteries, and, occasionally, small diesel or gasoline generators. Photovoltaic systems are increasingly demonstrating that they can be competitive on cost and service grounds with these conventional energy sources.

Looking forward

Well-planned, carefully targeted, and effectively implemented rural electrification programs provide enormous benefits to rural people. Indeed, once an area has reached a certain level of development, further progress in raising standards of living to socially and politically acceptable levels will depend on the availability of a public electricity supply. As radical restructuring of national power utilities gathers pace around the developing world, it is essential that this is borne in mind and the appropriate institutional frameworks and incentives are created to ensure that rural electrification takes place.

The main message from the World Bank's best practice case studies is positive. There are major opportunities for increasing the pace and widening the scope of rural electrification. If these opportunities are grasped, it will enable large numbers of new consumers to enjoy the benefits of an electricity supply at acceptable costs and without burdening national governments and power utilities with unsustainable subsidies.

Rural Electrification Information for Selected Countries

Country	Rural Coverage (%)	Financing	Pricing Structure	Financial Viability
<i>Cooperatives</i>				
Costa Rica	85-90	<ul style="list-style-type: none"> • Initial loans from USAID and concessional loans to the cooperatives. The terms were 40 years with a grace period of 10 years at an annual interest rate of 1% to 2.5%. • Communities were required to come up with part of capital costs if they were too far from network. • Communities are required to pay for the difference between the rate of return allowed by the regulatory agency and the investment costs by the cooperative. 	<ul style="list-style-type: none"> • Cost covering prices after grants and concessional loans are taken into consideration. • 1996 residential minimum charge (\$1.28) for 1st 30 kWh and increasing block rates for 30-100 (\$0.04), 100-250 (\$0.06), 250-400 (\$0.08), and 400+ (\$0.13). In addition there was a thermal factor charge of \$0.04 per kWh added to the bill. • Poor consumers can receive a concessional connection fee. 	<ul style="list-style-type: none"> • After the initial setup period of 5 years, the cooperatives were required to cover their cost and pay of their loans. • Poor performing cooperatives were merged with healthy ones • For each new community to receive electricity, the cooperative predicts cash flow based on number of consumers and system design. If cash flow is negative, consumers are required to make up the difference by paying for capital costs.
Philippines	60	Initial USAID grants and concessional loans. Now financed through budget provided to National Electrification Administration	<ul style="list-style-type: none"> • Cost covering prices after grants and concessional loans are taken into consideration. • Rural electricity prices quite high compared to other Asian countries 	<ul style="list-style-type: none"> • About one-third of cooperatives financially sound, one-third are breaking even, and one-third are in very poor condition • Present financial viability depends on load mix in cooperatives, with remote cooperatives having difficulty

Bangladesh	24	<ul style="list-style-type: none"> • Technical assistance grants, low interest concessional loans • Main donors: World Bank, USAID, Japan, Asian Development Bank, and Kuwait along with many others. 	<ul style="list-style-type: none"> • Cost covering prices after grants and concessional loans are taken into consideration. • PBSs receive loans of 3 % loans and lower bulk supply prices. REB gets bulk supply of tk 1.77 versus industry price of tk 2.45. 	<ul style="list-style-type: none"> • Government policy to cover operating costs after a 5 year grace period • For the cooperatives expected to cover costs, about 17 were covering costs and 22 did not.
Public Companies				
Thailand	90-95	<ul style="list-style-type: none"> • Initial grants from USAID and to complete feasibility studies and master plan. • Main Donors: Soft loans and grants from World Bank Japan, Saudi Arabia, and Asia Development Bank • Blending of commercial and concessional loans important for program • Government mandates lower bulk power prices from state run electricity producing company (EGAT), providing rural company with one-third lower energy costs • Some contributions from rural communities enabled distribution company to serve more consumers. 	<ul style="list-style-type: none"> • National pricing structure carefully based on load of distribution company. Subsidies to poor consumers are made up by higher prices to higher consuming, higher income consumers • Residential tariff: Lowest category involves a minimum charge, with rising blocks. Higher consumption blocks do not benefit from subsidy given in lower blocks • Slightly higher rates for commercial and industrial consumers increases the financial viability of distribution company expanding rural service 	<ul style="list-style-type: none"> • Government mandates that all electricity companies should be financially viable after soft loans • In 1979 direct budgetary subsidies were for supporting electricity tariffs. However, the main electricity companies organized to eliminate the subsidies and return to principle of adequate pricing and financial viability • Close attention to load promotion and planning during the initial stages of the program lead to greater revenue and better financial viability
Mexico		<ul style="list-style-type: none"> • Initially in the 1950s the federal government, state and local 	<ul style="list-style-type: none"> • The government has had a tariff subsidy policy for many years. 	<ul style="list-style-type: none"> • The operating cost of the overall electricity sector in Mexico is not

		<p>governments contributed funds for rural electrification.</p> <ul style="list-style-type: none"> • In 1970 the Mexican government developed a plan to distribute social development funds to the states, and the amounts were inversely proportionate to the economic level of the state. A Planning and Development Committee allocated the funds. • Total budget for rural electrification investment between 1997 and 2000 was about 60 million dollars per year from a mix of federal state municipal and local funds (including social funds) 	<p>Although many subsidies have been eliminated, today there is a subsidy for agriculture and residential customers.</p> <ul style="list-style-type: none"> • In Mexico, over the years the tariff has fluctuated, sometimes coming close to costs but sometimes being well below costs. • 	<p>financially viable based on the revenues collected from customers.</p> <ul style="list-style-type: none"> • During 2000, the national electricity sector received a fiscal transfer from the federal government of 5.8 billion dollars or about 1% of GDP as an operating subsidy. • The subsidies cannot be broken down into urban and rural components, but they amount to 65% for residential sector, 12 % for agriculture, and 23% for inefficiencies in LFT. •
Tunisia		<ul style="list-style-type: none"> • For new connections, in the past the financing was shared fairly equally by STEG, consumers, and the State. • Currently costs are \$200 for consumer (over 36 payments), 200 from STEG financial resources, and up to \$1800 from the state budget. The costs are allocated based on the coordinating committee. There also is a presidential fund for very remote villages that do not qualify under normal program. 	<ul style="list-style-type: none"> • Pricing structure follows practice to price higher voltage consumers at a lower price than lower voltage consumers. The overall average prices is about 5 to 6 cents per kilowatt hour. • The prices involve peak and off peak tariffs, with off peak at one-half the price of peak use. • Irrigation tariffs are the lowest for all categories to promote rural development. • Lifeline rates cover the first 50 kilowatt hours of service, and are priced at 5 to 6 cents per kWh and have been stable over the years. 	<ul style="list-style-type: none"> • Reduced financing costs by 20 percent by adopting MALT technical design: a blend of 3-phase backbone and single-phase network distribution. SWER introduced in 1990s to further reduce cost of remote connections. • Other cost saving techniques involved lighter poles, less expensive meters and other innovations. • STEG on the whole is financially viable, but this includes both its oil and gas businesses. They have raised prices substantially over time, so they are just keep up with

			<p>But residential tariffs over the lifeline rate have risen substantially.</p>	<p>inflation.</p>
<p>Decentralized Distribution Company</p> <p>China</p>	<p>85-90</p>	<ul style="list-style-type: none"> • Financing is generally a blend from central government, provincial government, banks, county governments, and individual villagers. • Initially the majority of the financing came from the state, but over time the financing from the state became a small proportion of the total financing and a large share comes from commercial banks • Some informal subsidies were given in the form of low cost construction materials • Rates of 3.6 percent interest given for small hydro system development 	<ul style="list-style-type: none"> • Rural tariff is almost twice the urban tariff. • Recent initiatives to try to reduce the difference between urban and rural tariffs. 	<ul style="list-style-type: none"> • The decentralize power companies are allowed to maintain a 10 percent profit.
<p>Chile</p>		<ul style="list-style-type: none"> • To serve areas without electricity, a subsidy fund was developed to pay for part of the distribution costs of the private utility or cooperative 		

Institutions and Politics of Rural Electrification

Country	Political Support	Local Participation	Special Institution for Grid RE
<i>Cooperatives</i>			
Costa Rica	<ul style="list-style-type: none"> • Strong political support for rural electrification, but the government was initially hesitant to fund it. • The government agreed to allow the development of cooperatives with support from USAID and technical assistance from NRECA. 	<ul style="list-style-type: none"> • Cooperative ownership • Extensive outreach and community involvement at beginning of service • General manager runs the company and participation of consumers is low • Cooperative provides discounts on electrical appliances and insurance, and established a scholarship fund for needy families. 	<ul style="list-style-type: none"> • NRECA provided technical assistance to development of cooperatives. • Cooperatives cover 20 percent of population and national public utility covers the rest of the country. • Other cooperatives were well accepted prior to rural electrification program.
Philippines	<ul style="list-style-type: none"> • Strong political support for rural electrification for the last 25 years. • Corruption almost made system collapse during the Marcos regime, despite support from Marcos and his wife for the program. • Support of politicians still strong, but with some sentiment for reforming implementation of program 	<ul style="list-style-type: none"> • Cooperative ownership and extensive local support for electricity distribution. • Cooperatives have become highly politicized by local politicians. • Extensive community outreach, especially at beginning of program. • Cooperatives became overloaded with rural programs about 10 years ago, keeping them from properly doing their primary job properly. 	<ul style="list-style-type: none"> • National Electrification Administration; oversees rural electrification programs, development of cooperatives, and most procurement. • Cooperatives are utilized to provide for rural distribution of electricity.
Bangladesh	<ul style="list-style-type: none"> • Government strongly supports the rural electrification program ever since the founding of Bangladesh in 1973 • Budget surpluses have been 	<ul style="list-style-type: none"> • Cooperative ownership and extensive local support for electricity distribution • Regular meetings held with community leaders, rural industries, farming groups and commercial leaders 	<ul style="list-style-type: none"> • Rural Electrification Board oversees cooperative management of distribution and has power to replace the general manager • Rural Electrification Board does all procurement to reduce costs that would

	<p>channeled to REB when unspent by other programs</p> <ul style="list-style-type: none"> • Legislation to promote the program 	<ul style="list-style-type: none"> • Information bulletins provided with customers bills • New village advisory program to discuss how cooperative management can address customer concerns 	<p>be incurred if all cooperatives</p> <ul style="list-style-type: none"> • Rural Electrification Board provides extensive technical assistance to cooperatives, including billing assistance, technical standards, and others
Public Companies			
Thailand	<ul style="list-style-type: none"> • Strong government support for the program, as King adopted it • Government legislated support for the program through cross subsidies between companies serving Bangkok and serving rural areas 	<ul style="list-style-type: none"> • Cooperation with local communities stressed very strongly in the program • Local bill collecting by leaders in many parts of the country • Village assistance sought during construction phase of the project in the form of transporting materials and providing right of ways for poles and wires • Villagers hired during the construction phase of the project • Extensive commitment to customer service 	<ul style="list-style-type: none"> • Office of rural electrification set up specifically for rural expansion within the distribution company serving all non-metro Bangkok areas • Office of rural electrification can borrow money and has its own budget • Once expansion is complete, rural areas are turned over to the distribution company for all aspects of electricity service • Since the completion of the task, the special office of rural electrification has been eliminated
Mexico	<ul style="list-style-type: none"> • Very strong government support for the program for the last 50 years • Program has been funded from government budgets of the federal, state and local governments. • Social infrastructure funds now being utilized for rural electrification have very strong political support. 	<ul style="list-style-type: none"> • There is no local participation in the program at the grass roots level. But the funds for infrastructure are now decentralized to the municipalities and the states • Municipalities now select the infrastructure program that they would like to implement, and then the work is contracted to the public electricity 	<ul style="list-style-type: none"> • Program initially implemented through typical state run vertically integrated utility. • In 1952 CFE was entrusted to extend electricity service to towns and communities in rural areas • Rural Electrification Boards were created in each state to plan electrification plans and programs.

			company.	<ul style="list-style-type: none"> • In the 1970s as the funds for infrastructure were allocated to the states, Planning and Development Committees took over all infrastructure planning. CFE transformed RE Boards to RE Departments in each state. • In 1996, the infrastructure funds were further decentralized to municipalities, who would be involved in infrastructure planning for their communities. The actual implementation is done by CFE or other infrastructure programs.
Tunisia	<ul style="list-style-type: none"> • National commitment to rural electrification a part of broader program of rural development, gender equity, and reducing inequality. • Main support for the program involves direct government budgetary contributions through Programme Regional de Development. • Special Presidential Fund support for the program. • Some contribution from loans and donors. 	<ul style="list-style-type: none"> • Consumers pay part of the connection fee for obtaining an electricity connection • During initial stages, local people are hired to assist in construction of the local electricity distribution system • Increasing focus on customer service for those who have electricity 	<ul style="list-style-type: none"> • Tunisia's program can be characterized as a coordination between government programs and implementing agencies • Coordinating body is the Commission Nationale d'Electrification (CNER) • Implementing agency is STEG, the national utility, but the utility also has a decentralized implementation structure with regional offices in each district and some subdistricts. • Extensive training program for local technicians • RE construction is done by outside, private contractors. 	
<i>Decentralized Distribution Company</i>				
China	<ul style="list-style-type: none"> • Strong by shifting government 	<ul style="list-style-type: none"> • Outside of the large cities and metropolitan areas, the program 	<ul style="list-style-type: none"> • Decentralized county distribution and small scale generation companies serve 	

	<p>support for rural electrification</p> <ul style="list-style-type: none"> Initially, local funds were used to finance rural electrification, with some finding to Ministry of Water Resources for Small (1949-57) The program shifted to technical assistance from the State, and most of funds from local entities. NRECP created to support local power production through microhydro expansion, with 100 million annually to each of the 100 counties participating in program. 	<p>centered on decentralized power companies at the township, county or prefecture level</p> <ul style="list-style-type: none"> DCPs own and operate sub-transmission and in most cases small generation plants. With assistance from center, the local companies were responsible for the expansion, under the guidance of Bureaus of Power, which assisted with planning Communities organized and built civil infrastructure 	<p>rural populations.</p> <ul style="list-style-type: none"> DCPs are supported in terms of technical assistance by central government, and especially in the case of microhydro generation the Ministry of Water Resources and Small Power In the later stages of the program, the NPRECP played an important role.
Chile	<ul style="list-style-type: none"> After privatization of electricity sector which was begun in 1982, both existing cooperatives and independently owned utilities were formed to serve urban and rural consumers. By the early 1990s, the government understood that to promote rural access they must provide the private companies and cooperatives incentives to expand service. A rural electrification fund was established to promote the growth of electricity access in rural areas. 	<ul style="list-style-type: none"> Municipalities were key in the development of plans to provide access to rural communities. Communities work with the utilities to obtain the funding from the rural electrification fund Community members also are involved in negotiating tariff agreements, although in practice there is little variation from the regulated level 	<ul style="list-style-type: none"> The Programme de Electrification Rurale was implemented in 1994 to promote greater access to electricity by rural people. The program essentially is for providing subsidies as incentives to private utilities and cooperatives to expand service to areas of the country that would not be profitable for them. Projects are approved for subsidy that are financially viable for the utility with the subsidy and have a high economic rate of return as established by a model that calculates consumer surplus versus project costs.

