

# Financing electric power in developing countries

*The global investment outlook and the role of the World Bank*

by A. Heron

The recent global recession has severely disrupted the growth momentum achieved by many developing countries. Although the current economic recovery has bestowed considerable benefits on many industrial nations, it has only reached a few developing countries. It is encouraging to note that there are some impressive success stories of recovery and growth in Asia, but the transition to sustained long-term growth for the majority of nations in the developing world will be complex and long.

In this context, as would be expected, the financial environment for power utilities around the world continues to be difficult. Reflecting both capital shortages and a slowing of demand growth, there have been major reductions in investment programmes in the power sector. Some improvement, however, is to be expected as economic recovery takes hold.

Power system investment levels and patterns over the next 10 years will be dominated by four considerations: the growth of demand; the use of power systems as an important instrument for changing the mix of a country's energy consumption; the critical need to improve efficiency and resource utilization; and, perhaps most important, the availability of capital.

## Outlook for electricity demand

Demand for electricity grows relatively rapidly because of its versatility and efficiency in end-use and the fact that, for some purposes, electricity is the only usable energy source. A clear manifestation of consumer preference for electricity is the cost that industrial users in many developing countries are willing to incur to meet

their own needs when supply from the power utility is inadequate and unreliable. Generating their own power may cost as much as 20 to 40 cents per kilowatt-hour, as compared to power tariffs in the range of 4 to 20 cents per kilowatt-hour.\*

In the 1960s and 1970s, electricity consumption in developing countries grew at about 9% a year, although in some of the more industrialized countries — such as Brazil, the Republic of Korea, Indonesia, and Thailand — growth rates have been in the 13–20% per annum range. Over the past few years, the slowing down of economic activity has reduced the growth of electricity demand in most developing countries. However, in some countries — such as China (10.9%), India (6.6%), Indonesia (19%), Pakistan (9%), and Turkey (8%) — the growth of electricity consumption has been constrained by supply and there is a large unsatisfied demand, which has a high economic cost for those countries. The future rate of growth in those countries will be, for some years to come, determined as much by the schedule of commissioning of new plants as by the growth in the underlying demand for electricity.

The growth of electricity demand comes not only from new connections, but also from existing customers. Though utilities can use changes in price and other techniques of load management to restrain demand to a certain extent, in practice it is impossible to limit consumers to a given amount of electricity. If capacity is inadequate, the quality of service deteriorates rapidly with severe consequences for the equipment both supplying and using electricity. This means that once a power

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\* Costs and prices throughout this article are expressed in US currency.

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system is in operation, planning its expansion to meet less than the level of demand will inevitably lead to reduction in its efficiency.

In 1983, the World Bank estimated that electricity consumption in developing countries might grow at about 7% a year over the period 1985–95 as economic activity picks up. More recent indications are that 7% might be a little on the optimistic side and the estimate could be off by about a percentage point. At a 6% annual growth rate, electricity consumption would increase about 80% in the next 10 years. Even after the increase, the untapped market for electricity in developing countries would be enormous. Nearly 75% of the households in developing countries will still not have access to electricity, and the average consumption per capita will remain only one-twentieth of that in industrialized countries.

#### **Investment patterns and the energy mix**

Power systems offer efficient means of using coal, lignite, and gas to distribute energy to a wide range of users. Hydropower, nuclear, and, to some extent, geothermal energy can only be harnessed effectively in the generation of electrical power. In countries that have appropriate energy sources, an important objective in the near future will be to modify the pattern of electricity generation, using the power system as an instrument to reduce dependence on imported oil. The large scope for this is evidenced by electricity's major share in the energy sector.

For many countries, changing the energy sources from which electricity is generated is an essential part of adjusting to the higher price of oil. World Bank projections have indicated that the cost of imported oil for electric power generation will account for about one-third of developing countries' oil imports. Plants using sources such as hydro, coal, lignite, gas, geothermal, and nuclear energy that may have been uneconomic at lower oil prices may now be developed profitably — even though all but natural gas typically require larger investment per kilowatt than oil-based plants. The economics for substitution are particularly attractive in countries that have an abundant supply of indigenous gas.

The scope for changing the generation mix depends on the size of the system and the country's specific conditions. A dozen developing countries with a sizeable amount of low-cost coal, lignite, hydro, or geothermal energy might be able to maintain generation costs of incremental supply at about 4 cents per kilowatt-hour. Examples are Algeria, Colombia, Gabon, Trinidad and Tobago, Zaire, Zambia, and Zimbabwe.

At the other extreme, several countries will continue to rely heavily on oil or expensive hydropower and will be unable to avoid costs of 12 to 24 cents per additional kilowatt-hour. Examples are Benin, Chad, Mali, Niger, Somalia, and the People's Democratic Republic of Yemen. For this group, not only is the resource too small or costly to develop, but the use of imported coal is not

economical because either power systems are modest in size or the countries are landlocked, raising transportation costs.

In between these two extremes, most countries are managing to phase out a share of their oil-based generation. Another alternative for an individual country is the replacement of oil-based generation with imported electricity. A key factor here is the development of national and regional interconnection grids that allow a pooling of resources and substantial economies of scale in generation and transmission.

For some countries without sufficient national resources for the generation of power, nuclear power plants are an alternative. Two important considerations are the significant economies of scale in their construction and the fact that for technical and economic reasons they must operate close to their full available capacity. Less than a dozen developing countries that are World Bank members now have power grids large enough to use the smaller economically viable reactors of 600 megawatts. For some of these countries, this increment represents several years of base-load growth. Some countries, such as Argentina, Brazil, India, the Republic of Korea, and Pakistan, already have nuclear capacity, and they plan that by 1995 nuclear energy will supply 15 to 50% of their electricity. Others will soon start modest nuclear power programmes. However, even by the turn of the century, nuclear power is expected to supply less than 10% of the electricity in developing countries as a group.

#### **Efficiency improvements**

In most developing countries today, the most cost-effective way of increasing electricity supply is to improve the efficiency of existing facilities. This can be done by rehabilitating units out of service, improving the availability and efficiency of existing plants, and by reducing losses incurred in distribution and transmission. The introduction of computer-designed turbine runners can increase the capacity of hydroelectric plants and their efficiency. Significant amounts of fuel can be wasted if thermal plants are not operated at optimal conditions of temperature and pressure. Preventive maintenance should be undertaken, since improving the availability of units reduces investment requirements for new plants. Simple corrective measures, such as cleaning blocked condensers or repairing leaking valves, can have payback periods as short as a few days. Adequate spare parts should be on hand. Staff training programmes need to be improved and expanded.

The World Bank is giving serious attention to these matters in all of its power and energy assessment operations. As regards the latter, in April 1983 the United Nations Development Programme (UNDP) and the World Bank started a joint Energy Sector Management Assistance Programme (ESMAP), with the objective of assisting countries in implementing the main investment and policy recommendations of the energy sector assess-

ment reports produced under another joint UNDP/World Bank programme.

ESMAP provides staff and consultant assistance in formulating and justifying priority pre-investment and investment projects and in providing management, institutional, and policy support. Many studies being undertaken under the programme relate to power sector efficiency. The reports provide governments, donors, and potential investors with the information needed to speed up project preparation and implementation. The programme aims to supplement, advance, and strengthen the impact of bilateral and multilateral resources already available for technical assistance for the energy sector. It is a major international effort and, while the core financing has been provided by the UNDP and the World Bank, important financial contributions also have been made by a number of bilateral agencies.

**Financing power expansion in developing countries**

On the assumption of a 6% annual growth rate in electricity demand, the total investment over the next decade (1986–95) for electric power facilities (generation, transmission, and distribution) would be about \$522 billion (excluding interest during construction) for an incremental capacity of about 285 000 megawatts. Average capacity cost on which this figure is based is

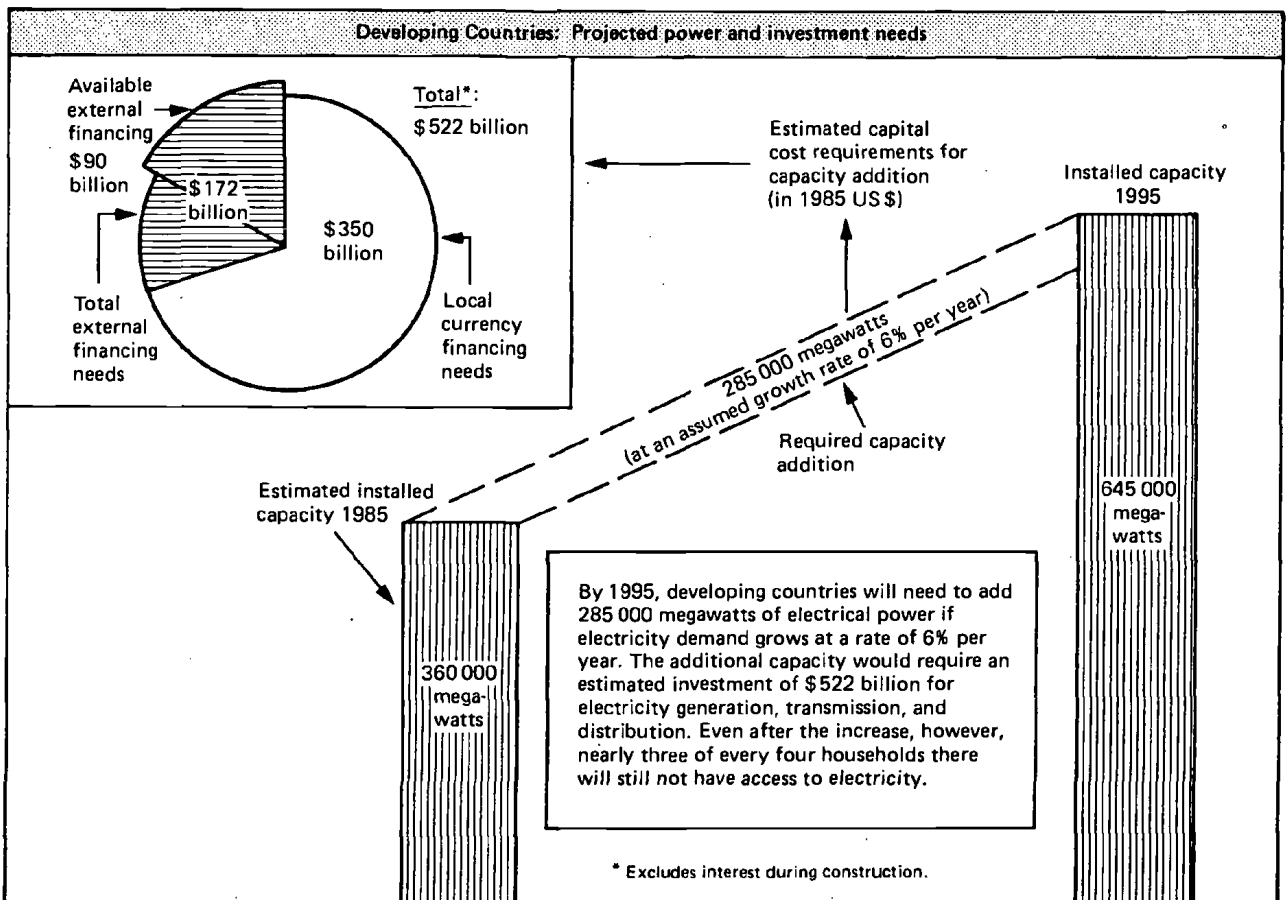
assumed to be \$1830 per kilowatt, of which generating plant would be about \$1280 per kilowatt, and transmission and distribution \$550 per kilowatt. The generation investment reflects a mix of thermal (51%), hydro (36%), nuclear (12%), and geothermal (1%).

**Foreign exchange requirements**

On the basis that about one-third of the total cost of developing countries' power investment will be in foreign exchange, the total external requirements would be about \$172 billion during the 1986–95 period. This funding would have to come from export-related sources, commercial banks, multilateral banks, bilateral concessional sources, and, if available, developing country foreign exchange reserves.

The role of the World Bank in any particular country's power sector cannot be defined outside the context of what other financing is in prospect for the power sector and what Bank assistance is being sought for other sectors. However, on the assumption that annual Bank lending for power is maintained at about 17% of total lending, the annual amount available for power could be about \$2.5 billion in 1985 US dollars.

In the light of past experience, other multilateral agencies might continue to lend for power at about 70%



of the volume of the Bank group, or about \$1.8 billion, and bilateral concessional lending might provide about \$1.7 billion.

Together, all these sources total \$6 billion, which is far short of the \$17.2 billion annual foreign exchange investment requirement under the 6% per annum growth scenario. The 1986 requirement is estimated at \$13 billion, escalating to \$22 billion by 1995.

Prior to 1982, it could be expected that a level of about \$4.6 billion of commercial bank lending and \$4.8 billion (both in 1985 US dollars) of export credits

would be available annually. However, the former has dried up for all but a few developing countries, and the volume of export credit has been sharply reduced. The lower availability of these sources primarily reflects creditworthiness, but in the case of export credits, it may also reflect lower equipment orders, as developing country power sector investment programmes have been cut back.

Thus, at least for the near and medium term, obtaining the historical level of foreign exchange financing from private sources will be a formidable task. Without a

### The World Bank's electric power lending

The World Bank has been the largest single international financier of electric power in developing countries since it made the first power loan to Chile in 1948. Since then, over the past 37 years, power projects have accounted for about \$24.4 billion, about 16% of the Bank's total lending, for some 460 projects in about 90 countries.

In the 10-year period, 1976–85, 197 electric power loans totalling \$16.9 billion were approved (in terms of 1985 US dollars, the amount is \$21.3 billion). This figure excludes lending for electric power components in other sectors: multipurpose irrigation, rural development, and tourism.

Bank-financed projects generally are of a multi-component nature and often include sizeable components for system rehabilitation. In countries where the power sector is well developed and well managed, a sector loan may be made. An analysis of the projects financed shows that over the past six years there has been a distinct move away from oil-fired thermal generation towards hydro-generation, with significant activities in transmission, distribution, and rural electrification. Since 1980, annual average lending for hydro projects has been a little over \$600 million, with lending for transmission and distribution almost \$750 million. On average, Bank finance covers about 30% of the total project costs.

Equally if not more important than its financial contribution is the Bank's assistance in strengthening institutions in the power sector — by advising on priorities for system development, management structure, electricity tariffs, financial and technical operating practices, and by enhancing their ability to raise funds for expansion from domestic as well as public or private external sources other than the Bank. The Bank now is looking deeper and more systematically into the development effect of power projects, and it is trying to become involved as early as possible in the project identification stage, particularly in order to ensure the optimum selection and design of projects.

#### Nuclear power lending

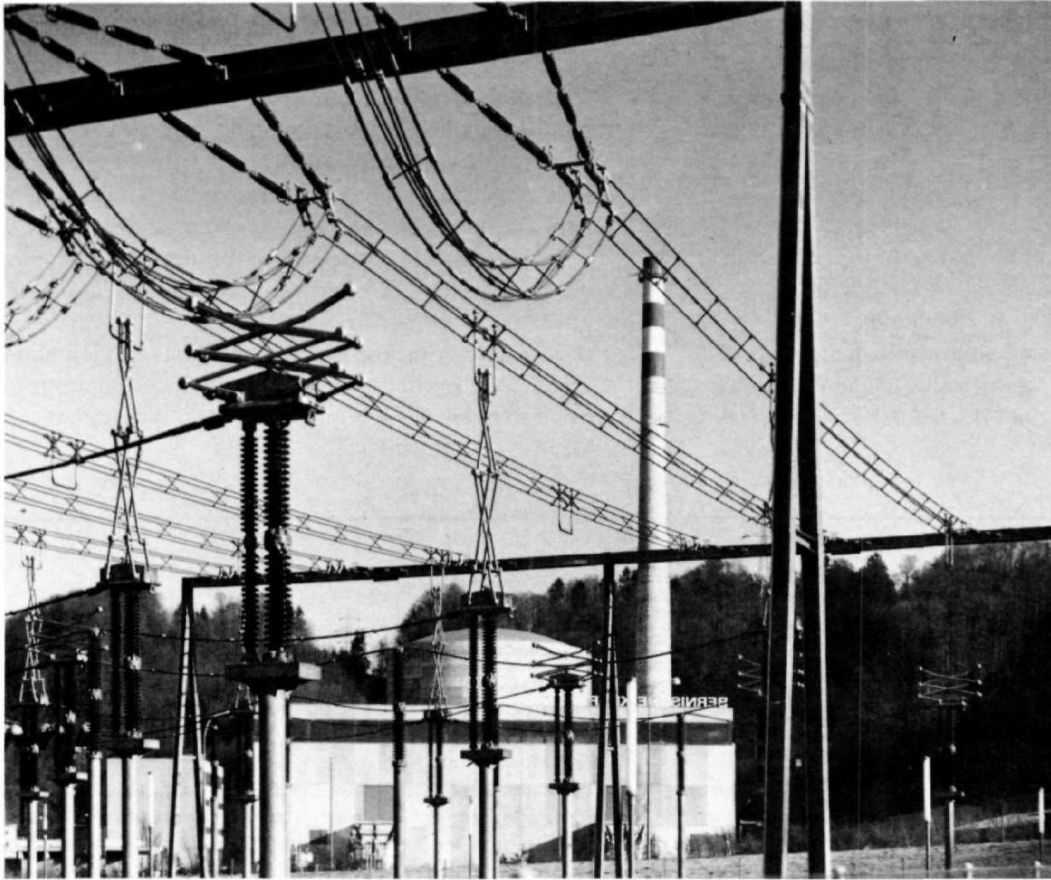
The World Bank has financed only one nuclear unit in its long history of lending. In 1959, the Bank made a \$40 million loan to Italy for a 150-megawatt boiling-water reactor, whose economic justification at that time was probably only marginal, although the project was quite useful to Italy for purposes of training and institution building. Since then, the Bank has monitored the eco-

nomics of nuclear power as well as the availability of enough proven technologies/equipment to allow international competitive bidding to work. The last review, conducted in 1974–75, concluded positively in both aspects. Nuclear power had become an economic alternative to other fuels in some developing countries with power systems large enough to accommodate the large unit sizes then being manufactured. Also, both the light-water reactors and heavy-water reactors have demonstrated their reliability in commercial operation and can now be procured through international competition, along with the requisite turbine generators and other plant components.

Though Bank lending was thus feasible, none has as yet taken place. The principal reason has been the availability to developing countries of bilateral financing on favourable terms from a number of industrialized countries — Canada, France, and the United States. Another commercial reason is that in the relatively few larger countries where nuclear power is economic, there have been other energy projects where the Bank could contribute more "non-financial assistance" per dollar loaned than for nuclear power. Examples are natural gas development where the Bank can help implement a strategy fostering development and utilization of gas to back out imported fuels.

While there is nothing unique about nuclear as a technology that justifies any different financial treatment vis-à-vis imported coal, for example, the principal distinguishing features are the size of the plants and the amount of investment involved. Perhaps as much as 15% of the total foreign exchange required for power expansion in developing countries in the next 10 years may be allocated for nuclear plants.

Until now, there has been little financing by multilateral agencies, mainly because industrial nations have been willing to provide this assistance, many times under exceptionally generous terms, to assist their manufacturers in establishing a position in the nuclear power export market. In this respect, the US Export-Import Bank has played a major role in financing US-manufactured nuclear plant exports to industrial and developing countries. Canada, France, and the Federal Republic of Germany now are also in this market. Given the Bank's limited resources, the indications at the present time are that the external finance for nuclear plants will continue to come mainly from bilateral and private lending sources.



Electricity is needed, but financing power plants continues to be a problem, particularly in the developing world.

significant improvement in the creditworthiness of developing countries, commercial lending as it has evolved to date simply will not be forthcoming. A very rough estimate suggests that over the near term about \$9 billion of foreign exchange will be available from all sources, of which only \$3 billion will be from export credits (\$2.5 billion) and commercial banks (\$0.5 billion).

This expectation of a shortfall in foreign exchange financing for the power sector has two ramifications. Power sector investment may be restricted in line with foreign exchange availability. For example, at a 4% annual growth rate in power demand, the foreign exchange requirement would be reduced to \$105 billion, with the 1986–95 annual requirement being \$9 to 10 billion. Limiting power generation facilities will most certainly reduce economic growth.

Alternatively, new ways to mobilize financing for the developing country power sector will be found and investment programmes will be appropriate to demand requirements. To attract commercial loans and private sector investment, developing countries will have to adopt policies that will improve the investment climate and reduce political, foreign exchange, and commercial risk. In this regard, both Turkey and Pakistan have invited proposals for private sector construction and operation of power generating stations, the output of which would be sold to national power authorities at prices that would amortize debt financing and provide a return on equity. To assist in mobilizing private sector capital to developing countries, the World Bank has

developed co-financing schemes and is working on others, including guarantees to mitigate risks due to a project's location in a developing country.

#### Local currency requirements

Based on the assumed 6% annual growth rate, the local currency power investment requirement of developing countries will be \$350 billion in the aggregate. Given the parallel external financing problem, it is essential that developing countries take measures to generate these resources locally. The availability of domestic resources also will be a decisive factor in the success or failure of power investment programmes. Many developing countries have difficulty in mobilizing domestic resources for power investment — partly for reasons specific to the sector, partly because political pressure keeps rates below appropriate levels, and partly because domestic savings in general are low and financial markets are almost non-existent.

Power sector operations in many developing countries are not efficient, both from an operating cost and investment standpoint. Power entities have to varying degrees been beset by the identical problems — too little managerial autonomy and accountability, cumbersome procedures, uncompetitive salaries, employment of redundant staff, etc. These problems compound the effects of sub-optimal tariffs and have serious implications for the financial viability of the entities and their ability to mobilize domestic resources for investment.

All must be resolved, but unless the political will is found to raise tariffs to levels that will produce a reasonable contribution to investment, a country's power sector investment programme will be either constrained or maintained at the expense of general revenues.

During the 1960s and early 1970s, many power utilities financed a reasonable portion (in the range of 40%) of their investment requirements from internal sources. Revenues from power tariffs often covered local investment costs and external borrowings were used to finance foreign exchange requirements.

Since the initial oil price shock in 1973, the finances of power utilities have seriously deteriorated. Sharp increases in fuel and borrowing costs have not been matched by increases in tariffs. Investments now being contemplated have longer gestation periods and much higher costs requiring loans with longer maturities than are generally available. Reliance on budget support for financing power investment means that investment often has to be restrained when macroeconomic pressures on the budget become severe.

Inability to raise domestic financial resources has delayed the implementation of power investments in many countries, leading to shortages of power and heavy economic losses due to the disruption of production. Shortage of local currency also hampers maintenance programmes that reduce the output of existing generating plant. On the optimistic assumption that the rate of internal cash contribution to investment can be increased to 40%, there still would be (at a 6% growth rate) a gap of \$141 billion to be financed by governments or local capital markets.

The growing financial strains on power utilities mean that greater attention, therefore, must be paid to three key factors influencing financial viability — operational efficiency, tariffs, and financial structure.

● *Operational efficiency.* The growth of revenues is being held back in many countries by technical inefficiencies, lack of spares, and lack of skilled maintenance and operating staff. Poor maintenance organization is causing unsatisfactory plant availability and reliability, and heavy losses in the transmission and distribution of power. Plants are in urgent need of rehabilitation. Bad metering and poor collection of bills add to these problems. Unpaid bills exceeding six months of revenues are common. Even when tariff levels are adequate, uncollected bills payable by governments and other State enterprises often are a serious problem, and one that cannot be resolved without budgetary intervention, especially when the situation has been allowed to deteriorate for many years. The World Bank is increasingly addressing these issues and is making loans for maintenance, rehabilitation, and institutional improvements.

● *Power tariffs.* In many utilities, power tariffs do not even cover the operating costs and debt service, and in most countries rates are below the long-run marginal cost of supply, in some cases by very sizeable margins.

In addition to its economic impact, underpricing electricity causes the wasteful usage of energy and critically impairs the operating revenues of utilities, forcing them to reduce inventories, forego essential maintenance, request government subsidies, and undertake additional borrowing that imposes a heavy debt service burden in later years. Many national power entities now need to increase their tariffs by as much as 40 to 60% to regain their long-term financial balance and to bring down their borrowing requirements to more manageable levels. The unwillingness of governments to raise tariffs in line with costs stems both from the political unpopularity of these measures and the mistaken conviction that curbing utilities' tariffs helps control inflation. Recent tariff increases in most developing countries have been granted on a haphazard basis to overcome immediate difficulties, rather than to ensure their long-term financial equilibrium. The World Bank always has agreed with borrowers on revenue objectives in its loan covenants, and as a result, Bank power sector clients probably are better off than others. In our current projects, we are going beyond the revenue objective and obtaining borrower and government commitment to an action programme specifying cost-cutting and revenue enhancement measures designed to achieve the agreed targets.

● *Financial structure.* Shortfalls on local cost financing from internally generated funds have led some governments (Colombia, for example) to attempt to create new sources of medium- to long-term local financing, or to increase government loans or equity injections from the public budget to the utilities. Capital contributions from the government are not always forthcoming when due, and utilities therefore either have to rely to a greater extent on money borrowed at high rates of interest or cut back their programmes. Utility borrowing is also sometimes restrained by a country's need to limit new debt as a result of support agreements. Difficulties in generating cash, coupled with the inadequacy of domestic capital markets in developing countries in some cases, have forced utilities to borrow foreign exchange to meet local costs. In view of the scarcity of external capital, it would clearly be inappropriate to borrow abroad for local costs without first having assured a maximum effort to raise the resources domestically. Such effort should include an appropriate tariff level and structure to provide a reasonable degree of self-financing within the sector. As previously mentioned, recently some utilities have been looking at the possibility of having part of their capital costs met by private sector investment in generating plant, and selling power to the government on a commercial basis.

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## The World Bank Group: Origin, nature, and functions

The World Bank Group consists of three international financial institutions — the World Bank itself, officially known as the International Bank for Reconstruction and Development (IBRD) or, in short, the Bank; and two affiliates, the International Development Association (IDA) and the International Finance Corporation (IFC). Each has its own special function, but all are devoted to the same general objective: the promotion of economic development.

### IBRD: The Bank

The Bank, the senior institution of the three, was established in 1945 together with the International Monetary Fund. It makes loans to member governments or, with a member government guarantee, to autonomous agencies or private firms at conventional rates of interest. By 30 June 1985, the Bank had 148 members. As of the same date, the Bank had made 2560 loans totalling about \$112.9 billion to more than 100 countries. During fiscal year 1985, the Bank approved 131 loans totalling \$11.4 billion to 49 countries.

The World Bank is an intergovernmental organization, but it relies mainly on private capital markets for funding of loans. Although a total of more than \$58 billion of its authorized capital of approximately \$78 billion has been subscribed, members have been requested to pay in less than 10%. The remainder — the callable capital — primarily is for the protection of those from whom IBRD has borrowed money. The possibility is remote, however, that a "call" will ever be made against its capital. The Bank has not had any losses on its loans and no loan has ever been written off.

To date, the Bank has borrowed a cumulative total of almost \$84 billion, of which \$50.3 billion is outstanding. The interest rate that the Bank charges on loans to its borrowers is related to the cost at which it raises funds in capital markets. On loans made before July 1982, the interest rate was fixed for the life of the loan. On loans made subsequently, the interest rate is variable and is subject to change every six months. In September 1985, the rate was 8.82%. On the average, Bank loans are repaid over 15 to 20 years.

Aside from borrowings, paid-in capital subscriptions, and charges on its loans, the Bank has two other principal sources of funds it can lend. Most important is the flow of repayments on previous loans. Also, the Bank earns substantial profit on its operations. Net income for fiscal year 1985 was \$1.14 billion. The profit is used primarily to build reserves and, thus, increase the Bank's financial strength. Since 1964, those earnings not placed in reserves have been given each year to IDA to help increase its ability to assist the poorer countries.

### The International Development Association

The need for lending to many poor countries on much easier terms than the Bank could provide became apparent in the 1950s and resulted in the foundation of the International Development Association (IDA) in 1960. IDA has 133 members. It finances the same general type of projects as the Bank, selected according to the same

standards, but on terms which place a lighter burden on the balance of payments of the borrowing country. Its assistance, in the main, has been confined to countries where per capita incomes are exceptionally low, and which cannot meet all their external capital requirements on the basis of borrowing on conventional terms. IDA does not have a separate staff — all Bank staff members automatically hold the same positions in the Association. As of 30 June 1985, IDA had made 1494 credits (the terms "loan" for a Bank operation and "credit" for an IDA operation are used to make a distinction between the two) amounting to about \$36.7 billion to 86 countries.

IDA has three main sources of funds:

- Contributions primarily from its richer members, but also from a number of developing countries. This source is the largest of the three. Since 1964, about \$40 billion has been provided, mainly under seven agreements to replenish IDA funds. The seventh replenishment was concluded early in 1984 to cover the period 1 July 1984 to 30 June 1987. Thirty-three countries pledged to contribute some \$9 billion to IDA's resources. However, it has been more difficult for IDA to assure adequate and timely replenishment of its resources than for the Bank to obtain additional funds through borrowing in capital markets.
- Transfers from the Bank's net earnings
- Members' subscriptions.

### Borrowing from IDA

IDA resources are carefully rationed for use in the poorest of the developing countries. There are four main criteria that a country must meet to borrow from IDA:

- It must be very poor. While the "income ceiling" is roughly \$805 per capita, in about 90% of IDA commitments countries have an annual per capita gross national product below \$411. About 50 countries (including China and India) that together have a combined population of more than 2.1 billion come under the income ceiling.
- It must have sufficient economic, financial, and political stability to warrant long-term development lending.
- It must have little prospect of borrowing on conventional terms from private sources and limited ability to service non-concessional debt.
- Its policies must indicate a genuine commitment to development.

During fiscal year 1985, IDA approved 105 credits totalling \$3 billion to 45 countries. A blend of IBRD loans and IDA credits was provided to another six countries, including China and India.

Without funds on soft terms, any significant help to the very poorest countries over the near term might well be impossible. Over the longer term, it is hoped that revised policies and enhanced economic growth will create climates where private sector investments can be made and where debt service capacity will support commercial borrowings. The availability of IDA resources to initiate the process of policy change and generate income will be determined chiefly by the level of contributions agreed to from time to time by IDA's developed member countries.



### The International Finance Corporation

The International Finance Corporation (IFC), founded in 1956, supplements the activities of the Bank by making and encouraging investments on commercial terms in productive private enterprises in developing member countries. As of 30 June 1985, IFC had 127 members. At the same date, it had made 848 loans totalling \$7.2 billion.

IFC's role is to stimulate the flow of private capital into productive private and mixed private/public enterprises — not to replace it. Thus, IFC operates as a catalyst in bringing together entrepreneurship, investment capital, and production.

### Distribution of Bank loans and IDA credits

On a sector basis, Bank/IDA lending has been mainly for transportation (17%), electric power (16%), agriculture (25%), and industry, including development finance companies (14%). The remaining 28% was split up among communications, education, population, tourism, water supply, oil and gas, and urban projects, and general programme loans.

The regional distribution has been 24% to Latin America; 21% to Europe, the Middle East, and North Africa; 21% to South Asia; 20% to East Asia and the Pacific; 8% to East Africa; and 6% to West Africa.

### Co-financing arrangements

For those World Bank borrowers that can borrow on commercial terms, export credits and commercial banks constitute the most important source of external financing. Under the traditional arrangement for co-financing with commercial banks, the World Bank and a commercial bank enter into separate loan agreements with the borrowing country. Loans from the commercial banks are on market terms and negotiated directly by the banks with the borrower. The loans are linked to the Bank loan through an optional cross-default clause, and a memorandum of agreement is signed by the Bank and the agent for the commercial bank.

In an endeavour to strengthen its role as a catalyst for more commercial investment, the Bank in 1983 introduced innovative new co-financing instruments. The so-called "B" loan programme was designed to increase the participation of commercial banks in projects assisted by the World Bank. It was intended to supplement the Bank's traditional methods of co-financing with the private sector and to provide a wider range of options for structuring co-financed operations.

Under the "B" loan scheme, three additional options become available that permit the Bank to participate in

financing from commercial sources, in addition to making a direct loan. The new options are:

- Direct financial participation in the later maturities of a commercial loan
- Guarantees of the later maturities of a private loan instead of direct funding
- Contingent participation in the later maturities of a commercial loan that, initially, would be financed entirely by commercial lenders.

By providing the commercial banks ways by which they can become more closely associated with the World Bank, their perception of the quality and security of co-financed assets will be increased. The new instruments also strengthen investor confidence, resulting in an increase in net capital flow to developing countries and extended loan maturities.

At present, the programme has produced good results and has established a base for future evolution of the B-loan instrument. Fiscal year 1984 marked the first year of B-loan approvals, and 11 were completed in 1984 and 1985 for a total volume of \$1.5 billion. Specifically, for the power sector in Colombia the Bank took a 15% direct participation in two loans to a power financial intermediary totalling \$200 million. The co-financing package represented something of a breakthrough. The loans were among the first new market operations and the first syndicated loans to Colombia since 1983. They represented a significant improvement with respect to both maturities and syndicate participation over the terms and conditions of Colombia's most recent previous borrowings.

### Looking at new possibilities

In the context of its overall energy lending operations, the Bank is actively looking at the possibilities for non-recourse or limited recourse financing techniques as a means of mobilizing additional resources for power development. These techniques, which have so far been used in only a few instances in financing energy development in developing countries, allow commercial firms and lenders to finance attractive projects on the basis of the projects' own cash flow, rather than on the basis of an overall guarantee offered by the host government or the project owner.

The required conditions for successful project financing of this nature include a reasonable perception of country and project risks; a strong and internationally recognized project sponsor; preferably an export orientation of the project; and generally a long-term purchase contract. These conditions are only likely to prevail in a very few projects. Nevertheless, the Bank feels that there is a need to explore the use of the techniques as a means of mobilizing additional external finance.