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CHAPTER XVII - ALTERNATIVE MEANS OF FOREIGN FINANCING

I. Introduction

1.01 The rapid expansion of electricity production in the developing countries over the last twenty years has required investment of very large amounts of capital in generation, transmission and distribution. This is plainly evident from the various cases discussed. In Chapter I it was estimated that total investment in electrical utility systems in developing countries over the period 1950-70 aggregated some \$ 40 billion. The investment programs covered in this review aggregate some \$ 4.5 billion, or rather more than 10% of the total. Not only is the electricity supply industry capital intensive (generally with a capital-output ratio between 5.0 and 10.0) but also it is usually foreign exchange intensive in developing countries. The foreign exchange component of the capital cost of hydroelectric plants is typically around 40 - 50% and that of thermal plants usually higher (60 - 75%), while it is more variable in the case of transmission and distribution works. The overall foreign exchange component of the investment programs reviewed in this report is about 50%, but it varies considerably over time and between countries.

1.02 Because of the relatively stable nature of the business and the rather long lives of many of the investments involved, the electrical supply industry has traditionally shown a higher share of debt in total capitalization than most other industries. Developing countries have always faced considerable difficulties in raising domestically the large amounts of capital and especially the loan capital required to finance

electricity expansion; this has been due both to the absolute shortage of savings in these countries, the result partly of their low incomes, and partly of deficient institutional mechanisms for mobilizing and channeling savings. In many countries, prior to the 1950-70 period under consideration here, electrical utilities depended on foreign sources of finance not only for the debt portion of their financing but also for equity. Since the installed capacity of utilities in developing countries was less than 15,000 MW in 1950 and is now more than 100,000 MW (a nearly seven-fold expansion) far greater resources have been required than before. Additional equity to meet these requirements has come principally from retained earnings and from infusions of capital from domestic Government sources. Debt financing has been raised to some extent domestically, again mainly from Government or other public sector sources, but to a much larger extent from abroad. In the case of the utility expansion programs studied here, foreign borrowings have typically covered the total foreign exchange cost of the necessary investments and sometimes some of the local costs also.

1.03 As a result of these conditions electric power now accounts for a significant proportion of the foreign debt of many developing countries -- considerably more than its share in total investment in these countries. For illustrative purposes, the following table shows the situation as at the end of 1970 for seven out of the eight countries dealt with in this review (no comparable data are available for Brazil).

Table 17.1

Seven Countries: Total Foreign Public Debt Outstanding and
the Share Incurred for Electric Power, 12/31/70
(amounts in \$ million; including undisbursed)

	<u>Total Debt Outstanding</u>	<u>Power Debt Outstanding</u>	<u>Power As % of Total</u>
Argentina	2,428	556	22.9
Colombia	1,720	340	19.8
Ethiopia	256	47	18.4
Ghana	501	91	18.2
Malaysia	548	132	24.1
Mexico	3,765	685	18.2
Singapore	276	73	26.4

Source: IBRD Debt Data

The closeness of all the shares to 20% is striking; these power figures may be underestimates insofar as they account only for debt accounted for by use. It will be recalled from Chapter I that, as a proportion of total investment, power typically represents only some 6%, and in relation to total public investment about 15%.

1.04 Thus the problem of financing the expansion of the electricity supply industry in the developing countries is not unrelated to the overall debt service problem of these countries. It is well known that the debt burden on many developing countries, especially certain ones, and the proportion of foreign exchange earnings which has to be devoted to servicing foreign debts has increased rapidly during the 1960s and that present trends are toward continuation, even acceleration, of this increase. In absolute terms the burden involved in servicing a debt of any given

size depends on the terms, especially the interest rate and amortization arrangements, on which debt is contracted. The various types of foreign credit that have been used for power developments, as for other purposes, are listed in the following table.

Table 17.2

Principal Types of External Loan Financing for Developing Countries and Net Disbursements of Each 1965 and 1970

	<u>Terms ^{a/}</u>			<u>Net Amounts</u>		
	<u>Inter- est Rate (%)</u>	<u>Matur- ity (years)</u>	<u>Grace Period (years)</u>	<u>Disbursed (\$ billion)</u>		
				<u>1965</u>	<u>1970</u>	<u>Increase 1965-70</u>
Private Financial Insts.	6.8	6	2	0.5	1.0	0.5
Bond Issues	7.0	10	4	0.3	0.3	-
Private Supplier Credits	6.0	9	2	0.8	2.2	1.4
Public Supplier Credits <u>b/</u>	6.0	12	3	0.3	1.1	0.8
Multilateral Loans	5.6	25	5	0.7	1.1	0.4
Communist Countries	2.0	16	3	0.3	0.3	-
Bilateral Aid (ODA <u>c/</u>)	2.0	34	8	<u>1.8</u>	<u>2.4</u>	<u>0.6</u>
Total				<u>4.7</u>	<u>8.4</u>	<u>3.7</u>

a/ Average terms of gross amounts disbursed in each category to developing countries in 1967-69.

b/ i.e. in DAC terminology, "Other Official" Flows, most of which is Publicly financed supplier credits.

c/ Official Development Assistance, excluding grants and contributions to multilateral organizations.

Source: Based on IBRD/IDA Annual Report 1971 and DAC sources.

The table distinguishes among the various types of credit by showing the average terms characterizing them in 1967-69 and also indicates the approximate net amounts of each type disbursed to the developing countries, for all purposes, in 1965 and 1970. The table shows that the net flows of loan

capital to the developing countries have increased substantially between 1965 and 1970 but that the increase has been heavily concentrated in the categories with harder terms, particularly supplier credits and credits from private financial institutions (banks, insurance companies, etc.). Foreign bond issues, which were such an important source of financing before the Second World War, particularly for utilities in developing countries, now account for a relatively small proportion of total capital flows to these countries.

1.05 Quite apart from any institution-building considerations, an important part of the rationale for a major IBRD role in financing electric power in the developing countries has been the view that the financial terms and conditions of Bank loans provide certain important advantages over other types of credit. There are several aspects to this: long amortization period, availability of Bank funds for procurement from any other member country (plus Switzerland) under international competitive bidding, and Bank scrutiny of project composition and contract specifications.

1.06 How significant these advantages of Bank financing for electric power may be in practice is important. This is particularly so because in planning its lending for many countries the Bank faces some dilemma between continuing to lend in large amounts for electric power and spreading its efforts more widely into other fields, where Bank lending may have greater impact in directly inducing development or where institutional improvement is needed even more than in the power sector. The Joint Finan-

cing technique, referred to at various places in this report, was adopted in the middle 1960s in several countries partly as one solution to this dilemma.

1.07 This chapter discusses these matters. It briefly reviews the various types of foreign financing used for electric power development, especially by the companies studied in the report. It considers the evidence available from these cases regarding the alleged advantages of Bank financing of power projects. And it discusses at some length experience under the joint financing schemes sponsored by the Bank. It ends with a few tentative conclusions.

II. Sources of Foreign Funds for the Companies Reviewed

2.01 Table 17.3 shows actual foreign funding of the principal power development programs reviewed in this report.^{1/} There has been considerable variation among the companies in sources employed, but all the types of financing listed in Table 17.2 have been used to some extent. The Bank has been the dominant foreign source in all cases except for Mexico, and in several cases -- particularly the Colombian companies, Malaysia and Ethiopia -- it has been the exclusive foreign source, or nearly so. Overall the Bank has accounted for some 50% of the foreign financing provided, compared with some 20% attributable to supplier credits and loans from foreign private financial institutions, the next two most important sources; the importance of the financial institutions in the total results almost entirely from the inclusion of Mexico in the review. Again mainly

^{1/} CFE (Mexico) before 1958, and CVC/CHIDRAL (Colombia) for all years, are omitted for lack of adequate data. Also note that there are some small overlaps in the periods covered.

as a result of inclusion of Mexico, foreign bond issues account for a significant 7% of the total, rather more than bilateral assistance agencies (less than 5%). Other international agencies are not significant in the total, partly because most of the relevant ones were founded only relatively recently and partly because joint financing with them has not been very usual.

2.02 It is interesting to note that the foreign share of financing in these companies' expansion programs has in most cases shown some tendency to increase. This is true particularly in the case of Mexico, Malaysia, Singapore and Medellin in Colombia; the two principal exceptions are SEGBA in Argentina and Furnas in Brazil. The foreign exchange components of total procurement for power development programs may vary considerably over time, depending on the nature of the plants to be built, but it would seem that CFE is somewhat exceptional among the Latin American cases reviewed, with rising foreign share of total financing despite increasing ability of local industry to meet equipment requirements; foreign financing of local procurement must have grown substantially. (Refinancing of debt incurred earlier is largely excluded from the data for Mexico presented here).

2.03 Table 17.3, referring only to power development programs in which the Bank has participated, clearly is not indicative of the relative importance of the Bank in total foreign financing of power development in the developing countries. The following table, based on various simple assumptions, shows rough estimates of the global role of the Bank, and how it

has evolved over time.

Table 17.4

Estimates of Total Investment in Public Power Supply in Developing Countries 1951-70 and of IBRD/IDA Share
(amounts in \$ billions)

Five-Year Plan	Estimated Total Investment in Power ^{a/}	IBRD/IDA Disbursement for Power	IBRD/IDA as % of	
			Total	Foreign ^{b/}
1951-55	3.9	0.2	6.2	12.4
1956-60	6.4	0.4	5.6	11.2
1961-65	11.1	1.1	9.5	19.0
1966-70	<u>18.6</u>	<u>1.3</u>	<u>6.8</u>	<u>13.6</u>
	<u>40.0</u>	<u>3.0</u>	<u>7.5</u>	<u>15.0</u>

a/ Based on UN figures for growth of installed public generating capacity and an assumed \$ 450 total investment per KW installed.

b/ Based on assumption of 50% foreign financing.

Assuming, as the Table does, that about 50% of the estimated \$ 40 billion^{1/} of investment in electric power in the developing countries has been provided from foreign sources, then the Bank has covered about 15% of this, with a peak (in percentage terms) apparently reached in the first half of the 1960s. The detailed figures underlying the table suggest that in 1970 the Bank may have provided about 13% of the total foreign financing.

2.04 Among official sources of credit for electric power the Bank has of course been much more significant. Indeed it has been very much the predominant individual source. The following table shows the amount of power loans and credits (exclusive of guarantees) made to developing countries by a number of public institutions over the five-year period July 1, 1965 to June 30, 1970.

^{1/} See Chapter I for derivation of estimate.

Table 17.5

Power Loans Committed by Various Public Agencies,

7/1/65-6/30/70

(Amounts in U.S. \$ millions)

IBRD/IDA	1,744
Inter-American Dev. Bank <u>a/</u>	450
U.S. EXIM Bank	478
U. S. AID	329
Asian Development Bank <u>b/</u>	46
African Development Bank <u>b/</u>	7
French Government Agencies	<u>33</u>
	<u>3,087</u>

a/ Including FSO (Fund for Special Operations).

b/ Power lending began in 1969 only.

This table fails to account for a number of bilateral agencies such as the German Kreditanstalt fur Wiederaufbau, the Canadian International Development Agency, the Swedish International Development Authority and the Kuwait Fund which have also provided significant amounts of financing for power. DAC figures for all bilateral official capital commitments in 1967 and 1968 (excluding private foreign direct investment and private supplier credits) suggest that, in total, commitments for power may have approximately equalled IBRD/IDA commitments for this purpose in the same years. To this should be added a certain amount for the IDB and a small amount for the Communist countries. It would appear that Bank commitments may have represented some 40% of this total.

2.05 In this connection it is also interesting to note that power accounts for a much larger proportion of the Bank's commitments than of those of other agencies concerned with assistance to the developing

countries. Power accounted for some 26% of total IBRD/IDA commitments in the 1960s (compared with 32% in the 1950s) but for only about 14% of total commitments over the same period both by the IDB, and by KfW out of German capital aid funds; this is also the share of total bilateral official commitments in 1967-68 which is accounted for by power, according to the DAC figures referred to above.

2.06 With the Bank bulking so large among public institutional sources of credit for power on a worldwide basis, and, in the case of the development programs actually reviewed, accounting for such a large proportion of total foreign financing provided, it is hard to see whether and where the companies reviewed might have raised equivalent financing outside the Bank. No doubt the Inter-American Development Bank would have played a larger role in power in Latin America were it not for the World Bank. But its resources would not have permitted it to do more than take up part of the slack, even in that region. Table 17.2 suggested that, on a world-wide basis, the principal elastic types of credit over the last years for developing countries have been supplier credits from industrialized countries and loans from private financial institutions. These would presumably have been the main practical alternatives to loans from the Bank but their typically much harder terms (see Table 17.2) and the limited amounts in which they are usually available for any given contract would probably have meant that the developing countries as a whole would simply not have been able to undertake such large expansion of electricity production as has been possible with the existence of the Bank.

III. The Financial Advantages of IBRD Loans

3.01 The terms of Bank loans for electric power are among the best that are available for financing power development. Traditionally the amortization period on a Bank loan for power has been related to the expected life of the equipment, but with a maximum of 25 years. In practice this has tended to mean that loans for hydroelectric schemes would typically have an amortization period of 25 years, and those for other works in the power field 20 years. Virtually no loans for electric power have had amortization periods of less than 20 years. Grace periods have typically ranged between 3 and 5 years, depending mainly on the construction period for the project and partly on the borrower's financial state; in special circumstances grace periods have been as little as 1 year and as much as 10 years. The interest rate, the aspect on which Bank loans have been least competitive, has been related to the rate at which the Bank itself could borrow. A few loans have been made, for large hydroelectric projects, with exceptionally long amortization periods -- for instance, among those studied here, 35 year amortization, with 5 year grace, for the EPM Guatape project in 1964, and 30 year amortization, with 7 year grace, for the Marimbondo project in Brazil and the Chivor project in Colombia, both loans signed in 1970. The extra long maturity given to the Guatape loan ^{1/} was justified at the time on grounds of Colombia's need for easier terms of capital inflow and the example that the Bank should be setting to other members of the Consultative Group for Colombia, established in 1963.

^{1/} The exceptionally easy terms of this loan generated some jealousy among other power companies in Colombia, since the advantages of the terms went fully to EPM. EPM is the strongest power company in Colombia in many respects, and it is hard in retrospect to justify fully the easy terms granted.

3.02 Loans on terms substantially easier than those of the Bank have been available only for the power programs in Ghana, among those studied here; in other cases, even where bilateral aid agencies also participated, the terms of their loans were about the same as those of the Bank. Table 17.6 shows the principal loans making up the financing plans for the two programs in Ghana.

Table 17.6

Amounts and Terms of Principal Loans for the Volta River Project

<u>Source</u>	<u>Terms</u>			
	<u>Amount</u> (US \$ mlns.)	<u>Interest</u> Rate %	<u>Maturity</u> (Years)	<u>Grace</u> Period (Years)
IBRD (1962)	47.0	5-3/4	25	6
U.S. Dev. Loan Fund (1962)	27.0	3-1/2	30	6
U.S. EXIM Bank (1962)	10.0	5-3/4	25	6
U.K. ECGD (1962)	14.0	6	25	6
IBRD (1969)	6.0	6-1/2	25	10
Canada (CIDA) (1969)	7.6	none	50	n.a.
Italy (supplier credit) (1969)	1.7	6	8	4

Only the large loan from the U.S. DLF and the Canadian loan of 1969 have been on substantially easier terms than the Bank's loans, and, as pointed out in Chapter V, this case is rather a special one because of the importance of the international aluminum company among the consumers of the power to be produced.

3.03 A broader picture of the relative terms of loans that have been made for power is given in Table 17.7, which is based on IBRD Country Debt Data and shows the original terms of outstanding debt contracted for power

purposes, from the IBRD and from other sources. The table shows that the principal advantage of the IBRD loans has been their long amortization periods, especially compared with other sources of financing used in the Latin American countries covered. The figures for Mexico reflect the importance of supplier credits and financing from private foreign financial institutions in meeting the capital requirements of the power sector. Average amortization periods for non-IBRD power debt in Argentina and Colombia are considerably longer than in Mexico, due to participation of German capital aid on a large scale in Argentina and to IDB lending and generally favorable terms of supplier credits in the case of Colombia. The table shows that in Ethiopia and Ghana outstanding debt for power to the Bank Group is on harder terms than that owed to others. However in Ethiopia the amount of financing provided by others is quite insignificant. In the case of Ghana the actual structure of power debt is better than Table 17.6 would have implied due to the fact that several of the original loans on harder terms that were committed for the Volta River project were not extensively drawn upon due to savings in project costs.

3.04 The comparatively good terms of the IBRD loans, particularly in respect of amortization period, have been important from the view of both the recipient company, and, more importantly, the country in which it is located. The importance to the company is well illustrated by the repeated difficulties which have confronted CFE in Mexico due to its over-dependence on short-term debt; these problems were fully described in Chapter VII. As regards member countries, the national debt service problems confronting

Table 17.7

Outstanding Amounts and Original Terms of Various Countries'
Public Foreign Debt for all Purposes and for Power
(status as of December 31, 1970)

	Outstanding Amounts <u>a/</u> (\$ mln)	Interest Rate (%)	<u>Periods (years)</u>	
			<u>Grace</u>	<u>Maturity</u>
<u>Argentina</u>				
Total	2,428	6.7	3.4	14.2
Power	556	6.3	4.6	19.9
of which - IBRD	271	6.3	4.3	23.0
-Other	285	6.3	4.9	16.9
<u>Colombia</u>				
Total	1,720	4.5	6.1	26.9
Power	340	5.9	4.4	25.6
of which - IBRD	248	6.1	4.7	26.9
-Other	92	5.4	3.6	19.9
<u>Mexico</u>				
Total	3,765	6.7	3.5	13.4
Power	685	6.1	3.4	17.6
of which - IBRD	472	5.7	3.5	21.5
-Other	213	6.8	3.2	11.0
<u>Ethiopia</u>				
Total	256	3.8	6.5	28.2
Power	47	5.9	5.3	25.4
of which - IBRD	45	6.0	5.1	25.1
-Other	2	3.7	10.0	32.2
<u>Ghana</u>				
Total	501	4.4	7.2	24.6
Power	91	4.3	6.2	30.7
of which - IBRD	59	4.9	7.1	29.1
-Other	32	3.2	4.5	33.7

a/ Including undisbursed.

Source: IBRD Debt Data

many of them were referred to earlier. The move in recent years towards somewhat longer maturities and grace periods on large-scale hydroelectric projects, which clearly have every prospect of having longer lives even than the current amortization periods, seems highly desirable. Further easing of terms, desirable as it would be, must depend mainly on increased availability of IDA resources. Bank practice has traditionally been to use IBRD resources for electric power projects in countries eligible for borrowing both from IBRD and from IDA, and where IDA resources have been used they have often been on-lent by the recipient Government at harder terms than those on which the funds were received; these policies seem desirable in view of the revenue-earning potential of electric power projects and the advantages of giving financial incentive to charging adequate tariffs for power.

3.05 Another advantage of IBRD loans, compared with many other sources of financing for electric power, is their availability for purchases in any other member country, together with Switzerland. This has permitted the use of international competitive bidding, on which the Bank has frequently been most insistent, partly in order to ensure procurement at the lowest costs feasible. By contrast bilateral aid loans have frequently been available only for procurement within the country providing the aid, which may offset at least part of the advantages of easier financial terms of the loan. If the country can obtain supplier credits then bids can of course be called on an international basis, with provision that supplier financing must be provided and, possibly, that

the terms of the financing will be taken into account in bid comparison. This, however, does not always result in quotation of the same prices as when the contracts are to be financed out of an international loan, partly because the availability of supplier credits is limited, and partly because a manufacturer's own time and credit are inevitably involved to some extent in making any such financial arrangements. Moreover, supplier credits, or equivalent type of financing, are often available only for equipment supply, not for civil works.

3.06 It is not possible to lay down any general rule as to the savings obtainable by use of international competitive bidding, but all Bank borrowers interviewed in the course of this study have been emphatic about the relatively high prices of equipment financed out of tied bilateral aid. The most dramatic case of cost savings by international competition is that of the 100 MW Finchaa hydroelectric scheme in Ethiopia, now under construction. Initially this plant was to be financed under a loan from U. S. AID, with restricted bidding. But, due to the size of the bids received, it was decided to request financing from the IBRD. The low bid under international competitive bidding procedures and with IBRD financing was slightly below cost estimates, whereas the earlier bids, under restricted competition, had been more than 75% above cost estimates. Several plants in Brazil that have been financed out of tied aid (eg. Santa Cruz thermal station) also appear to have been relatively expensive.

3.07 As regards contracts financed out of supplier credits the pic-

ture is less clear, and probably less stable since prices of equipment as well as terms of financing provided depend considerably on how sharp the competition is between supplying countries at any particular moment for export contracts for particular types of equipment, depending in turn on the state of business in the developing countries, the balance of payments situation in the latter and the amount of financing available for power from international institutional sources. Some borrowers interviewed stressed the points made above regarding higher prices when supplier credit financing is used; others stressed the highly competitive offers that they had recently obtained, with supplier credit financing, particularly from the Eastern European countries, which are ineligible for procurement financed out of IBRD loans. It should of course be noted that most of the countries covered in this review (outside Africa) have fairly strong balance of payments situations, so that they can obtain supplier credits fairly easily and can therefore organize international competitive bidding, with financing to be provided, and financial terms to be taken into account in bid comparison. It is possible nevertheless that there may be some price advantage to procurement out of Bank funds even under these circumstances. In Singapore, the unit cost of the Jurong station (four 60 MW units), built in 1967-71 without Bank participation and mainly with supplier credit financing, is about \$ 150/KW compared with \$ 138/KW for the very similar Pasir Panjang B station, also consisting of four 60 MW units and built between 1963 and 1966 with Bank assistance. It would seem then that there may be some saving from pro-

curement under IBRD loans for countries which can readily raise supplier credits, but these advantages are probably generally slight -- and may be reversing with the growing capability of non Bank member countries to produce power supply equipment. On the other hand countries with weak foreign exchange situations which have difficulty in raising supplier credit financing may obtain more price advantage from procurement under IBRD loans.

3.08 Competitive bidding for procurement on an international basis can cause administrative problems in coordination of different suppliers and thereby result in delays, to some extent offsetting the advantages of the lower prices obtained. A project may be split for bidding purposes into a greater or smaller number of component parts. To a certain extent the more parts the lower prices, since suppliers able to offer the lowest prices on each part will win the contracts (provided each contract is still large enough to attract a reasonable amount of competition). On the other hand there are then somewhat greater problems of putting the project together again in actual construction. Some of the very extensive delays on the Guatape project in Colombia seem to have been due to these problems of coordination. Possibly there would have been advantage in calling for bids on larger parts of the project.

3.09 For procurement under Bank loans the staff of the Bank always reviews the bidding documents and specifications, both to ensure that they are compatible with free international competitive bidding and to protect the interests of the borrower. Sometimes the borrowers request a similar

review by Bank staff of bidding documents for contracts to be financed out of other sources of funds. This check is a useful function often leading to minor clarifications and better specification of responsibilities. Occasionally it has led to improvements of considerable significance, for instance by broadening specifications in such a way that more suppliers can participate in the bidding, ultimately resulting in significantly lower prices. Among the projects reviewed here no particular cases of this sort have come to attention.

IV. Joint Financing Arrangements

4.01 Bank loans have often been made available for projects with overall financing plans which included loans from other sources, and occasionally, as for instance with the Indus Basin Works and to some extent the Volta River Project in Ghana, the Bank has taken an important role in organizing financing from various sources for a major scheme. But in the middle 1960s special efforts were initiated to mobilize supplier credits, from either public or private sources, for participation in Bank-financed projects. It is these efforts which are referred to here under the general heading of Joint Financing, although in fact Joint Financing also refers to one of the two principal techniques evolved, the other being called Parallel Financing. The essential distinction is that under Joint Financing, in the narrow definition, individual contracts are financed jointly by the Bank and suppliers, in some predetermined ratio, while under Parallel Financing the Bank finances certain contracts 100% and the suppliers finance other contracts 100%. In both cases the Bank

appraises the whole project, as though it were financing the whole scheme, but the relationship between the Bank and the source of supplier financing is much closer in the case of Joint than Parallel Financing. There are a number of important subsidiary differences between the two techniques. With Joint Financing, bidding and bid evaluation normally conform with standard IBRD procurement rules, with full international competition and bid comparison on the basis of actual prices, exclusive of financing terms. With Parallel Financing, bidding may be restricted and financing terms may be taken into account in bid comparison.

4.02 There were a number of purposes to these efforts. In the first place it was hoped to reduce the amount of IBRD funds that would be required for individual projects, so that more could be made available for projects in other fields; this was particularly important at times when the Bank was placing a lot of emphasis on limiting its total lending in a given country from a portfolio point of view, or when it was encountering difficulties in raising funds. Secondly, it was intended to help direct supplier credits to priority projects, to improve their terms and to combine their use more effectively with international competitive bidding procedures. Essentially, then, it was a matter partly of tapping a new source of finance for assistance with development and partly of improving the terms of an existing source; the emphasis was different depending in part on whether or not the borrowing country had previously made much use of supplier credits.

4.03 The Joint Financing technique was first developed in 1964-65

and applied on a pilot basis in connection with the Bank's Loan 436-ME of December 1965 for the 1965-66 Mexican power program. Agreement was reached with four countries (Canada, France, Italy and Japan) whereby contracts won by their nationals in open international competitive bidding would be financed two-thirds out of the Bank loan and one-third out of a supplier's credit, to be provided from public or private sources in the country in question on the most favorable terms normally offered on supplier credits for such goods. A second stage was reached in 1968 with repetition of similar arrangements on a further loan to the Mexican power sector (Loan 544-ME) and, more particularly, with the introduction of Joint Financing for two power projects in Colombia. All ten major equipment supplying countries (Belgium, Canada, France, Germany, Italy, Japan, Sweden, Switzerland, United Kingdom and United States) and also, for Mexico, Spain participated at this second stage. In addition, it was agreed that joint financing would apply to contracts as low as \$ 200,000 (provided total contracts won by firms of the country in question aggregated \$ 1 million), that financing of such contracts would be shared 50/50 between the Bank loan and the supplier credits (66/33 again for Mexico) and that the credits would be made available with at least ten years' amortization and with other terms as favorable as available on comparable credits. A ten-year amortization period was quite long for supplier credits covering such small contracts. A third stage was reached in 1970, with application of the 50/50 financing ratio in connection with the Bank's Loan 659-ME for the 1970-71 Mexican power program and extension of

the practice to the Marimbondo hydroelectric project of Furnas for which the Bank made Loan 677-BR.

4.04 Thus, all the principal Joint Financing efforts of the Bank in power apply to companies covered in this review. Reference has been made in appropriate preceding chapters for each company, but Table 17.8 summarizes the cases.

Table 17.8

Joint Financing Schemes Sponsored by IBRD
(Amounts in US\$ million)

	IBRD Loan	Joint Financing			
		Formula IBRD/Others	Amount Sought	Amount Committed	Amount Disbursed
1965 Mexico (CFE)	110.0	66/33	35.0	35.0	8.1
1968 Mexico (CFE)	90.0	66/33	22.3	39.0	21.8 <u>a/</u>
Colombia (EEEB)	18.0	50/50	7.0	9.9	6.3 <u>a/</u>
Colombia (ISA)	18.0	50/50	3.4	6.5	n.a.
1970 Brazil (Furnas)	80.0	50/50	26.0	n.a.	n.a.
Mexico (CFE)	125.0	50/50	45.0	50.9	n.a.

a/ Disbursements through December 31, 1970.

As the table shows more funds have often been raised under Joint Financing schemes than initially expected, but disbursements have sometimes been slow. This was especially the case with the pilot operation of 1965/66 in Mexico, as described in Chapter VII. Experience under the 1968 efforts has been much better.

4.05 Table 17.9 summarizes the terms of supplier credits committed under the first and second Joint Financing schemes in Mexico and under the Colom-

bian schemes of 1968. The table indicates that the credits have generally had amortization periods of 10 years and, in the original Mexican program, more. Interest rates have been fairly standard for commercial credits, but in a few instances, particularly in the case of the credits for the ISA Transmission project in Colombia, substantial premia have been charged in the form of insurance fees.

4.06 Parallel Financing has actually been provided in a much greater number of cases but, as indicated, the IBRD is less closely involved in the arrangements. As regards the companies studied in this review it has been provided, for instance, in connection with the Mexican loan of 1962, the last loan to SEGBA and the last two loans to NEB of Malaysia, in the form of supplier credits, as well as with the loans to VRA of Ghana, principally in the form of long-term bilateral aid loans. Larger amounts of financing have been raised in this manner, both in total and in individual cases since, even with the 50/50 split under Joint Financing, the Bank generally covers much more than 50% of total foreign exchange contracts due to the ineligibility of certain contracts for Joint Financing and the fact that contracts are sometimes won by suppliers from countries other than the ten major equipment-supplying countries participating in the schemes.

4.07 Only in one case has the Bank attempted formally to sponsor Parallel Financing involving supplier credits. This was in 1969/70, for the Chivor hydroelectric project in Colombia, discussed in Chapter XIII.

The borrower (ISA) initially desired to continue with joint financing as experienced in the preceding Transmission project, but this proved impracticable for various reasons, particularly the impossibility of dealing with the very major civil works component of the project in this way. Hence the Bank proposed financing the civil works only itself, leaving the countries whose suppliers won equipment bids to provide parallel export credits to cover such equipment. The Bank suggested that appropriate terms for such credits would be 12 years with 100% of the foreign exchange covered by the credit (i.e. no down-payment by the borrower), which was easier than Berne Union standard terms for such credits (10 years with 90% covered). The supplier countries rejected the Bank's proposal. The Bank countered with a suggestion of 10 years with 100% covered. Again the supplier countries rejected this, not wishing to exceed 90% coverage. Fortunately the company has since been able to obtain the requisite financing, in the amount of \$ 34 million, from the Inter-American Development Bank at much easier terms of 20 years maturity with 5-1/2 years grace.

4.08 Although Joint Financing has permitted fuller use of international competitive bidding, and perhaps resultant lower prices, than possible with other ways of using supplier credits, it has also involved considerable administrative complications. Problems have arisen as a result of restrictions on goods that could be covered by some of the credits, multiplicity of agencies involved in each lending country, differing reporting requirements of the various countries' lending agencies, differing legal practices and standard contract provisions of the countries

Table 17.9

Terms of Loans Provided under Some Joint Financing Schemes

Source	Amount (\$ equiv.)	Interest Rate (%)	Commit- ment Fee (%)	Credit ^{a/} Insurance (%)	Amort- ization (years)
<u>Mexican Program (1965-66) of December 1965</u>					
IBRD	110.0	5.5	0.38	none	20
France (c) ^{b/}	10.0	5.75	n.a.	n.a.	10
Italy (IMI)	10.0	6.0	n.a.	n.a.	15
Japan (EXIM)	10.0	6.0	n.a.	n.a.	15
Canada	5.0	6.0	n.a.	n.a.	15
<u>Mexican Program (1968-70) of August 1968</u>					
IBRD	90.0	6.25	0.75	none	20
Belgium	10.0	n.a.	n.a.	n.a.	n.a.
Canada (transfer) ^{c/}	4.2	6.0	n.a.	n.a.	15
France	n.a.	5.7	n.a.	n.a.	10
Germany	3.3	7.0	n.a.	none	10
Italy (transfer) ^{c/}	10.0	6.0	n.a.	n.a.	12
Japan	n.a.	6.75	0.75	n.a.	12
Spain	n.a.	5.0	n.a.	n.a.	10
Switzerland	7.0	6.75	n.a.	n.a.	10
U. K.	n.a.	5.5	n.a.	n.a.	9
U. S.	5.0	6.0	n.a.	n.a.	9
<u>Colombia EEEB Program (Canoas & El Colegio) of June 1968</u>					
IBRD	18.0	6.25	0.75	none	20
Japan (EXIM)	3.0	6.75	0.75	none	10
Italy (IMI)	2.9	6	none	1.5 ^{d/}	10
Germany (KfW)	2.0	7	0.25	none	10
U. S. (EXIM)	2.0	6	0.5	none	8
<u>Colombia ISA Program (230 kv Transmission) of December 1968</u>					
IBRD	18.0	6.5	0.75	none	25
Italy (IMI)	2.4	6	1.5	4.96	10
France (c) ^{b/}	2.2	5.95	0.3	3.1	10
Switzerland (c) ^{b/}	1.3	6.75	none	4.0	9-1/2
Japan (EXIM)	0.6	6.75	0.75	none	10

^{a/} A single once-for-all payment, and shown here only when payable by borrowers (rather than supplier).

^{b/} (c) means commercial, or private sources.

^{c/} Transfer of an undisbursed balance from commitment under first program.

^{d/} This was a flat commission fee, not actually an insurance item.

involved, uncertainties as to who would finance sub-contracts placed in third countries by the winning prime supplier, and late increases in the amounts of financing to be provided by particular countries as a result of delayed bidding on individual items. Moreover, by use of insurance premia and other such devices, the lending countries could sometimes make the terms of the credits quite hard, even while abiding by their commitment to offer the most favorable terms available on similar credits; in the negotiations on these terms the borrowers were in a relatively weak position since they were bound under the agreement with the Bank to award the contract to the lowest responsive bidder (without taking financing terms into account in bid comparison), and also to obtain the Joint Financing from agencies in his country. The high premia charged on some of the credits made available to Colombia were noted in Table 17.9. The considerable administrative complexities have given rise to delays in the progress of projects both before and after signature of the Bank loans. Many of the problems have been reduced since the first pilot operation in Mexico in 1965-66 by better planning and coordination among all concerned and by more awareness of the problems that can arise. Nevertheless the procedures remain inherently rather clumsy.

4.09 In certain respects -- particularly that of mobilizing financing from private or semi-private sources for Bank-sponsored projects -- Joint Financing fulfils the same purposes as another much older technique employed by the Bank, sale of participations in its own loans. Since the earliest days of its operations the Bank has sold portions of many of its

loans, generally some of the earlier maturities, to private financial institutions. This procedure obviously has marked advantages to the Bank and more especially to the borrowers in terms of lesser administrative complexity; standard Bank procurement rules can be applied and the borrower has to deal only with one lender, the Bank, with terms and conditions of the loan agreed beforehand. Over the years participations in some of the loans to every one of the borrowers covered in this review have been sold. However the proportion of total lending to them which has been sold in the form of participations has steadily declined, as the following table shows.

Table 17.10

Sales of Participations in Loans to the Companies Reviewed
(years are calendar years; amounts are U.S. dollar millions)

<u>Period a/</u>	<u>IBRD Loans Committed b/</u>	<u>Participations Sold</u>	<u>Participations as % of Commitments</u>
1949-53	57.3	7.0	12.2
1954-58	149.9	8.5	5.7
1959-63	474.3	18.6	3.9
1964-68	521.8	10.8	2.1
1969-70	<u>346.1</u>	<u>0.2</u>	0.06
	1,549.4	45.1	2.9

a/ Periods are five years, except for the last.

b/ Before cancellations

The very sharp decline in 1969-70 to an almost negligible amount is presumably a temporary phenomenon related to the fact that the Bank has been

lending at an interest rate below market rates for similar securities. Even leaving this aside, it is clear that the amount raised by sale of participations has been small in absolute terms, and even smaller relative to the Bank loans involved, than the amount raised by Joint Financing (compare Table 17.8). Joint Financing in fact takes advantage of the institutional arrangements that industrialized countries have made to promote their exports, while sale of participations benefits little from any such incentive element, for the relationship between such purchases and promotion of a particular country's exports is rather distant. Nevertheless, in view of the considerably greater administrative ease for all concerned, it would seem highly desirable to pursue the possibility of raising the sale of participations towards the percentage level attained earlier.

4.10 In practice the Bank has tended to move away from Joint Financing, partly because of its administrative complexity and the comparatively smaller amount of resources that can be raised in this way, towards increasing promotion of Parallel Financing. It seems likely, for instance, that the next power loan to Mexico will involve Parallel Financing rather than Joint Financing. With either technique there appears in fact to be only a rather limited amount that the Bank can do to improve the terms of the supplier credits provided. The Bank can exhort the lenders, and it may be that the maturities of the joint loans to Colombia were somewhat longer than they would otherwise have been (since the individual orders were small), as indicated earlier. Nevertheless it appears that not all lenders adhered to the agreed minimum maturity of ten years. And, in

the Chivor discussions, the potential lenders simply rejected the Bank's proposal. It appears that borrowing countries may in fact be able to negotiate better terms on a bilateral basis than with the intervention of the Bank. For instance, in a semi-public forum such as the Chivor discussions, the supplying countries would be inclined to take a stand on Berne Union terms, which they would be much more ready to infringe in bilateral negotiations where other elements also come into play.

4.11 For this reason, and for the reason that supplier credits on improving terms will probably have to become an increasingly important means of covering the rapidly growing financial requirements of power system expansion in many countries, it appears that the most important measure that the Bank can take to help improve member countries' ability to expand power supply as necessary may be to assist the development of strong central institutions in each country which can coordinate available financing with actual requirements in the most efficient way. Financing may be available from many different countries on different terms, and each country tends to have comparative advantage, fluctuating over time, in supplying particular items of equipment. Matching the credits with the requirements in such a way as to minimize the total cost of procurement is a complex task, involving thorough knowledge of financial terms, technological developments, the supply situation in different countries and changes in these over time. In the early 1960s the Bank was asked to help the Colombian national power institution, Electraguas, prepare small power projects for submission to international competitive bidding (with

financing terms being taken into account), but unfortunately the Bank turned down the request -- apparently mainly for reasons of shortage of staff. The institution, and its successor ICEL, have remained rather weak, and it is doubtful whether it is capable of carrying out very effectively the complex task of preparing projects and matching available financing in an efficient way. On the other hand the Bank's action in insisting on Joint Financing for the recent power projects in which it has been involved in Colombia has had the advantage of introducing the authorities and the stronger power entities to the use of supplier credits for power. The Bogota Power Company recently raised supplier credits and other foreign financing on its own to finance a further expansion. With the growth in scale of the national power sector and increasing requirements, there may be increasingly important opportunities for economies from a well-organized central coordination of borrowing for power in Colombia, such as exists to some extent in Mexico in the form of CFE and in Malaysia in the form of NEB.

V. Conclusions

5.01 The Bank has been much the most important single institutional source of loan-financing for power expansion in the developing countries, and the sheer volume of its lending for power has been so large relative to that from other sources that it is hard to see how equivalent amounts of financing might have been provided and hence equivalent expansion accomplished had the Bank not existed. The principal substitute would have had to be supplier credits, which would have been on harder terms, mainly

with respect to amortization period, and would in some cases not have permitted as low contract prices as obtainable under Bank financing; but even supplier credits would probably not have been able to cover more than a part of the gap.

5.02 In some countries, whose financial and economic situation and prospects permit them to rely to a significant extent on supplier credits, the Bank has taken the initiative in trying to reduce the concentration of its own lending in power, not negatively, by simply refusing to lend for power, but positively, by encouraging greater use of medium-term credit from other sources, mainly supplier financing. The Bank has also tried to improve the terms on which such financing is made available. After initial difficulties, reasonably large amounts of this type of financing have been obtained and disbursed. The Bank's ability to improve the terms of such financing has been limited. And the arrangements have involved considerable administrative complexities. The Bank might usefully have given more attention to the possibilities of sales of participations in its own loans and to the need for strong centralized institutions in borrowing member countries which could make best use of supplier financing available for meeting the whole range of varied requirements in the capital-intensive power sector of the country. Another possibility might have been for the Bank to promote more foreign bond issues by its borrowers, perhaps with the help of its own guarantee powers, but it is not clear how much that might merely have reduced the market for the Bank's own bond issues.

5.03 There is every reason to expect that the demand for public util-

ity power supply in developing countries will continue to increase, as it has in the past, at a rapid rate and at a multiple of the growth of national income. The nature of the industry's technology is such that, even with growing domestic production of generation, transmission and distribution equipment, requirements for imported equipment are also likely to continue growing at a rapid rate. Yet many of the Bank's country lending programs seem to imply a reduction in Bank lending for power, on grounds that the Bank could have a greater impact on development in others sectors, but without indication of how the capital requirements of the power sector will be met without Bank financing. There would seem to be a need for more systematic review of the likely capital requirements of the electrical utility industry, and of alternative means of financing those requirements, not only on a country basis but also on a world-wide basis. Only in this way will the Bank be able to determine more explicitly and more adequately the size of the role that it should play in power in the future and the measures that it should take to encourage development of other sources of financing.