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FOREIGN AID, THE WORLD BANK AND FINANCING OF WATER SUPPLY AND SEWERAGE PROJECTS[1/]

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I. INTRODUCTION

The subject of this paper was originally limited to "The World Bank's Criteria for Financing Water Supply and Sewerage Projects." However, since the program of this seminar provides sufficient opportunity for detailed discussions of specific technical, financial and other aspects of water supply and sanitation, and since I seem to be the only speaker affiliated with a multilateral lending institution, it might be worthwhile to first present a few facts and considerations, related to "foreign aid" and to the World Bank, and to multilateral and bilateral financing, in general. I should confess, however, that my contribution, if any, to this paper is very small; I have largely drawn from many important and thoughtful articles and books written by others, speeches made by others, and statistics compiled by others. My attempt is, to present in a comprehensive form, and to bring into perspective, what has become a complex subject: the relationship between foreign aid, the World Bank and sanitary engineering projects.

II. BILATERAL AND MULTILATERAL AID

I would like to start out by referring to an important recent analysis on foreign aid, the so-called "Pearson Report" 2/ which had been commissioned and sponsored by, but carried out independently from, the World Bank. Table 1 shows the total annual average and the regional distribution of "Net Official Assistance" from bilateral and multilateral sources. While these averages refer only to financial assistance under "concessional" terms, cover only a relatively short period of four years (1964-67), and do not include the most recent developments, they should still adequately reflect the proportions in which "official foreign aid" is being distributed and allocated, and the relative emphasis which is given by different donor countries and lending agencies to different regions. Attention is drawn to the following highlights:

(i) Multilateral aid represents only 14 percent of the total.

1/ Paper prepared for Water Supply and Sanitation Seminar in Bangkok from January 19-23, 1970, sponsored by the U.S. Trade Center Bangkok and the U.S. Department of Commerce.

2/ "Partners in Development", Report of the Commission on International Development, Chairman Lester B. Pearson, September 1969.

(ii) The U.S. has contributed more than half (53 percent); France, U.K., Germany, Japan and Canada together have provided more that a quarter (28 percent), and the remaining donor countries (Belgium, Netherlands, Italy, Australia, Sweden, Austria, Denmark and Switzerland) about 5 percent, of the total.

(iii) The U.S. is the most important donor in all regions, except in Africa, where France has been contributing slightly more.

(iv) Most donor countries have allocated the largest share of their aid to Asia (highest Japan with 98 percent), but a few have given more to Africa, especially Belgium (99 percent) and France (92 percent).

(v) Of the multilateral aid, 43 percent has been for Asia, 32 percent for the Western Hemisphere and 25 percent for Africa. The comparatively high proportion for the Western Hemisphere reflects the important contribution of the Inter-American Development Bank to this region.

With respect to the regional distribution of aid and its allocation to specific countries, the Pearson Report makes some interesting comments:

"If aid had been distributed according to any economic criteria, the distribution would certainly have been very different from what has occured over the last 15 years. ...There is also a general bias in aid allocation against large nations, which regularly received smaller amounts of aid on a per capita basis. ... It is absurd, but true that India would have received more aid in the past if she had split into several independent countries."

Concerning the role of the multilateral agencies the Report goes on to say:

"Since some bilateral donors will continue to give high priority to political, humanitarian and cultural considerations, distribution of additional aid primarily according to performance can be ensured only if multilateral agencies try to fill gaps left by bilateral preferences. This is one of the strongest arguments which developing countries have been making over the past two decades in favor of expansion of multilateral aid. ... The most important advantage of multilateral process is the fact that it is mutual. It gives recipients an opportunity to monitor donors and donors to monitor other donors, as to the performance of their commitments, the quality and terms of proffered aid, the criteria of performance, and the ties and strings attached to aid."

I would like to close this introductory chapter on "foreign aid" in general, with a final quote from the Pearson Report:

"The real economic burden of foreign aid to wealthy nations is often considerably exaggerated. It is not uncommon to hear the total flow of resources to developing countries referred to as something which the rich countries "give" to the poor. Nothing could be further from the truth, or more misleading. ... The flow of private capital and

> official credits undertaken for commercial reasons have no more the character of "aid", when they flow to developing countries than when they flow between industrialized countries. ... If there is reason to believe that goods devoted to foreign aid would otherwise have gone to waste, their real cost to the supplier would be nil. ... In view of the fact that most bilateral aid is tied to purchases in the supplying country and helps to promote more production and exports, the real burden of aid must be less than the face value of the resources which are transferred. ... It is doubtful whether transfers directed primarily to military purposes and only secondary to long terms development, should be thought of as an aid burden at all. In the same vein, suppliers, who expect economic returns from general aid programs in terms of a foothold in future markets can hardly maintain that aid is a burden equal to its face amount. In short, the real burden of aid clearly runs below the dollar value of all resources transferred from the developed to the developing countries. This fact deserves to be more widely known."

Obviously, the Pearson Report does not want to minimize the importance of commercial foreign aid programs, but it wants to stress that foreign aid should be considered under a new light and that the developed and the developing countries should become more aware of their common role: to be "Partners in Development", as is the appropriate title of the Report. In this respect, the multilateral agencies, such as the World Bank, in which both "donors" and "recipients" are represented, are probably the best vehicle to promote this partnership, and to make it operative.

III. MULTILATERAL AID AND THE WORLD BANK GROUP

Table 2 illustrates the amount of lending by the different multilateral agencies for each year from 1960 to 1968. During this period, the number of multilateral agencies has increased from 4 to 9. While the World Bank (IBRD) is still the largest among these agencies, its share in the total multilateral operations (which has tripled) has decreased from 70 to 40 percent. The International Development Association (IDA) and the Inter-American Development Bank (IDB), which were founded in 1960 and 1961 respectively, have provided an increasing share of the total, reaching 14 and 15 percent respectively in 1968. The share of the UN institutions, which have mainly financed project preparation, not implementation, has been fairly uniform with 20 to 25 percent. The new regional development banks, namely the Asian Development Bank (ADB) and the African Development Bank (AfDB) have started operations only in 1968, but are expected to quickly accelerate their lending volume in the coming years.

The World Bank Group (IBRD, IDA, IFC) will probably continue to be the leader among the multilateral agencies. Furthermore, although the volume of multilateral aid will probably always remain small compared with the volume of bilateral aid, the World Bank has an important role as coordinator of multilateral and bilateral aid through the increasing number of consultative groups for specific countries or regions, and through joint financing arrangements. This means that the World Bank has a special responsibility in establishing and applying its criteria for development financing, and it is understandable that these criteria are the target of special interest, and sometimes criticism. But before explaining these criteria, it is necessary to explain briefly, what the World Bank Group is and what it does.

IV. THE WORLD BANK GROUP - ORIGIN, NATURE AND FUNCTIONS

The World Bank Group consists of three international financial institutions, the World Bank itself, formally the International Bank for Reconstruction and Development (IBRD or, in short, 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. The Bank, the senior institution of the three, was established in 1944 together with the International Monetary Fund. It makes loans to governments, or with a government guarantee, at conventional rates of interest. By June 30, 1969, the Bank had 110 members and had lent a total of nearly US$12,600 million 1/ to 85 countries.

The International Development Association (IDA) was created in 1960 and has 102 members (only a few Bank members are not members of IDA). It finances the same general type of projects as the Bank, selected according to the same standards, but on terms which place a much 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 (currently, a GNP of US$300 per capita or less determines the eligibility of a country for IDA funds) and which cannot meet all their external capital requirements on the basis of borrowing on conventional terms. At the end of June 1969, credits amounting to about US$2,170 million had been extended by IDA to 51 countries.

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. By December 31, 1968, IFC had 90 members and has made net commitments totaling US$289 million to private companies in 39 countries. (For the purpose of this paper, the operations of IFC are irrelevant and will not be further mentioned.)

In most major respects the operating policies of the Bank and IDA are identical. Both institutions lend only for projects or programs which are of high priority for the borrowing country's economic development, which are economically and technically sound, and which have satisfactory prospects of being carried out and operated successfully. The two institutions apply the same methods and standards in determining for what purposes loans or credits should be extended and in deciding what conditions need to be established to assure that these purposes will be achieved. The interrelationship between the Bank and IDA can be seen from the fact that of the 51 countries which have been receiving IDA funds, 32 have also received Bank loans. Some of these countries received these loans before IDA was established in 1960 and others became eligible for IDA funds as a result of a deterioration in their economic situation after that date; nevertheless, there are quite a few countries which have been and are receiving a "blend" of Bank loans and IDA credits.

1/ A substantial portion of Bank loans (US$2,300 million) has been sold to participating banks, investment companies, etc.

Sources of Funds

The fundamental differences between the Bank and IDA are in the sources of their funds, which in turn have a bearing on the terms under which these funds are being relent. The Bank started its operations with a paid-in portion of 10 percent of the subscriptions of its member countries amounting to about US$2,300 million. However, the most important source of its funds has become borrowing in the international capital markets (total outstanding US$4,300 million), mainly the US (outstanding US$2,800 million) and Europe, especially Germany (outstanding US$1,100 million). The Bank's bond issues are secured by the total uncalled capital (90 percent of the members' subscriptions), which is worth US$20,700 million. It is partly because of this large security - and partly because of the Bank's general credit rating as an efficient and profitable organization - that it has been able to borrow, and consequently relend, funds at premium terms. For the borrowing countries, this is the most apparent tangible benefit from the Bank, namely, that it can provide funds at better terms than they would normally be able to obtain by borrowing directly in the same capital markets. To illustrate this point, the total amount of bond issues placed by developing countries in the international capital market from 1964 to 1968 has been a significant US$1,800 million, but US$1,400 of this total were placed by 5 out of 26 countries namely Argentina, Israel, Mexico, Portugal, Spain. During the same period the Bank placed bonds for US$2,400 million. Nevertheless, because of the increasing cost of the Bank's own borrowing and in spite of its desire to hold its interest rates as low as possible, these rates have increased from less than 4 percent in the first years of Bank operations, to at present 7 percent.

In contrast, IDA credits (the terms "loan" for Bank and "credit" for IDA are normally used to make a distinction between the two operations) are interest free, and carry only a low service charge of currently 3/4 percent. The repayment period is much longer, normally 50 years, compared with 15 to 25 years for Bank loans. These favorable terms are possible only because the major source of funds for IDA credits are grants or interest free loans from in total 18 (the so-called part I countries), of the Bank and IDA members. The original contributions to IDA in 1960 totalled US$780 million; since then they have been twice replenished, in amounts of US$750 million and US$1,190 million respectively. Also, the Bank has transferred US$385 million from its net earnings to IDA. However, it has been far more difficult for IDA to assure adequate and timely replenishment of its resources than for the Bank to obtain additional funds through borrowing in the capital markets.

Purposes and Regional Distribution of Bank Loans and IDA Credits (Tables 3 & 4)

In the past, Bank loans have mainly been made for Electric Power (33 percent) Transportation (31 percent) and Industry (15 percent); whereas IDA credits have mainly been for Transportation (34 percent), General Development Programs (25 percent) and Agriculture (18 percent). Water Supply and Sewerage Projects account for only a small fraction (less than 1 percent of Bank loans and less than 2 percent of IDA credits) of the Bank Group's operations. We shall return to this phenomena later.

There are also marked differences in the regional distribution between Bank loans and IDA credits: While the former are more evenly distributed (Asia & Middle East 38 percent, Latin America 29 percent, Europe 19

percent, Africa 14 percent), the bulk of the IDA funds (72 percent) went to Asia & Middle East, leaving 18 percent for Africa, 6 percent for Latin America, and 4 percent for Europe.

V. GENERAL CRITERIA FOR PROJECT APPRAISAL BY THE BANK AND IDA

Before any particular project is appraised, which has been presented to the Bank or IDA for financing, the "creditworthiness" of the country is being assessed to ensure, in the interest of not only the Bank/IDA but of the prospective borrowing country, that the terms and amounts of the loan (or credit) are within the limits which the country can reasonably be expected to service, taking into account all existing and prospective future foreign debts. The appraisal of the project itself usually involves six different aspects: economic, technical, commercial, financial, institutional, organizational and managerial aspects.

The objective of the appraisal of the economic aspects is to determine (i) whether the sector involved is of priority for the economic development of the country concerned, and (ii) whether the project is of sufficiently high priority in this sector to justify investment in it. The relative financial return of different projects is frequently not a sufficient test of their relative contribution to a country's development. In many cases basic investments are required before other investments in more immediately profitable activities can be undertaken. The benefits properly attributable to these basic investments may be very great even though the direct earnings, at least in the short run, are not high or may even be non-existent.

The economic appraisal involves an investigation of the demand for the goods or services which the project is expected to produce. This study may be of varying scope, ranging from a narrowly localized study, as in the case of a municipal water supply project, to one that is nationwide, as in the case of a national railway project. In some instances the investigations may need to be world-wide; for example, in the case of a project to develop a source of iron ore for export. Another question which will normally be investigated during the economic appraisal includes the relative merits of alternative ways to provide the goods and services required.

The appraisal of the technical aspects of a project involves an investigation of the detailed engineering plan for its construction and operation, including the proposed scale of the project, the types of process or equipment to be used, the location, layout and design. The technical staff available to the borrower, both for carrying out the project and for operating it, is evaluated and a judgment is reached whether outside help is required. When, in the Bank's opinion, consulting engineers or other experts should be brought in, the Bank often assists the borrower to prepare terms of reference. The choice of consultant is made by the borrower, but the Bank satisfies itself that the consultant chosen is suitably qualified; it believes that a selection should be made on the basis of qualification to perform the work, not on price.

An important part of the technical appraisal of a project is an investigation of the assumptions on which the cost estimates have been calculated. Cost estimates should include adequate contingencies and provisions for interest during construction, and for initial working capital.

The commercial aspects of project appraisal entail a review of all arrangements for buying and selling. In the construction phase, this involves the arrangements for buying the materials needed to construct the project. The Bank is concerned that the borrower shall obtain the best value for the money spent - an objective normally attained by requiring international competitive bidding. For the operating phase, it involves the proposed arrangements for obtaining the raw materials, power and labor needed to operate the project, and for marketing its product.

The appraisal of the financial aspects of a project usually falls into two sections: that concerned with the amount of money required to bring the project into operation and with the sources from which it is to be obtained, and that concerned with operating costs and revenue and prospective liquidity in the operating phase.

Since the Bank and IDA finance only a part of the project cost, it is necessary to ensure that funds from other sources are available on reasonable terms to meet the balance.

Financial projections must also be calculated for the operating period and are necessary, for example, for a revenue-earning project to estimate the financial return on the investment and to determine whether the borrower is likely to have sufficient working capital. In the light of these projections, a judgement has to be made about the soundness of the financing plan.

The institutions are also concerned with the organization proposed for the execution of a project, both during the construction and operating phases. In the case of some projects, the Bank has conditioned its assistance upon the creation of an autonomous operating authority insulated from political pressures and rigidities of government administrative procedures.

The Bank and IDA place particular stress upon the assurance of adequate management for a project. In cases where adequate local management is not available, the borrowing country, or the enterprise, concerned is asked to look for organizations or individuals qualified to assist in running the enterprise, at least during the initial stages, and to provide appropriate management training to local personnel.

It would seem that all these criteria are reasonable and ought to be applied not only by a lending institution such as the Bank or IDA, but by any authority which is involved in programming, preparing or implementing a project, regardless whether it is located in a developing or in a developed country, and regardless whether outside financing is involved or not. Yet, as Mr. Shoaib, one of the Bank's Vice Presidents, stated at the 1967 Water for Peace Conference in Washington, "looking back after two decades, it is easy to see that any country in a position to meet such apparently routine requirements without help could hardly be classified as underdeveloped." However, the conclusion to be reached is not that the requirements are too rigid, but that most of the developing countries need assistance in meeting - gradually - these requirements. This distinguishes the Bank Group (and the other multilateral agencies) from most normal lending institutions: It acts

increasingly - as advisor and counsel for its poorer members and not as a lender who is only interested in protecting its investment.

The key question and the area of potential controversy is, of course, how the Bank and IDA apply their general policies in specific cases. In the following chapters, I shall try to describe and explain this with respect to water supply and sewerage projects, and to add some general comments, where this appears useful or where the Bank's criteria are commonly misunderstood.

VI. FINANCING OF WATER SUPPLY AND SEWERAGE PROJECTS

A. Background

The World Bank is not a prime lender for water supply and sewerage (henceforth WS&S 1/) projects, nor does it claim to be an authority in financing such projects. Certainly, it is far from becoming, what Professor Mehta 2/ once suggested as a desirable vehicle for promoting these projects, namely an "International Water Supply Bank." If any institution deserves such a title, it would be the Inter-American Development Bank (IDB), but its operations are limited to Latin America. Latin America is indeed very fortunate to have not only the IDB but also the Pan American Health Organization (PAHO) preparing projects in the sanitary engineering field, and assisting in their implementation. The following table - although showing the status as of 1966/67 only - may illustrate this fact better than words:

Lending for WS&S Projects	Million US$	% of Worldwide	% of Latin America
Worldwide	486	100	
Latin America	303	62	100
IDB	229	47	76

A comparison between the operations of IDB and the World Bank with respect to WS&S project lending is interesting in several other respects (Table 5). Two points should be highlighted:

(i) Compared with only 1-2 percent of all Bank/IDA lending the IDB lending for WS&S projects was almost 20 percent.

(ii) The average Bank/IDA loan for WS&S projects was about US$7 million (Bank US$10 million and IDA US$3 million) which is somewhat higher than the average IDB loan for WS&S of US$5 million. However, while the IDB average is clearly in line with the average of all its loans, the overall average of Bank loans (US$20 million) and IDA credits (US$13 million) is considerably higher than the respective average for WS&S projects.

These facts have no special significance as such, but they give some indication of the different type and scale of operations. But WS&S is not the only area of Bank/IDA lending, where the average loan amount is usually below "normal"; for example, the same is true for Education Projects. Also, the number of loans made in the past and their size are by

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1/ This refers to water supply or sewerage projects, or a combination of both.

2/ Central Public Health Engineering Research Institute in Nagpur, India.

no means an indication of the current, nor of the expected future, preference of the Bank Group for specific types and sizes of projects, nor is there a "bias" against WS&S projects. This is demonstrated in the Bank's Annual Report 1969: "Water Supply and Sewerage is a relatively new area of Bank Operations, and the Bank Group expects to expand its lending for water supply and sewerage during the next five years. Borrowers frequently need special help in the implementation of these projects; this may include assistance in institution building and detailed supervision of operations for some time after the completion of the physical construction work involved. As a result each loan takes up a proportionately greater amount of time than it might in a sector where the borrower is more experienced. Project identification and preparation in this field also present special problems."

Hence, the problem is mainly that - except in Latin America, which is relatively well assisted by the IDB and others, including the Bank Group - there are not enough suitable WS&S projects ready for financing. In many countries, Water Supply and Sewerage is not even recognized as a matter of national concern. Consequently, the investment programs prepared by the national planning offices of these countries have often no, or only inadequate, provisions for this sector. Usually only the capital cities are able to attract sufficient attention to their needs in water supply and sewerage. In fact, with a few exceptions, most Bank/IDA lending for WS&S has been for capital cities. Of course, there are also strong economic arguments for placing a high priority on WS&S projects in large urban areas (there the greatest number of people can benefit from the minimum expenditure of money, manpower and other resources), compared with smaller cities and rural areas. But the Bank Group is aware that, so far, the projects for which financing has been requested and was provided, were more selected by "default" than based on sound, balanced and comprehensive country-wide sector studies. This leads to the basic question of the "economic justification" for WS&S projects in general.

B. Economic Aspects

One of the elements on which the economic appraisal of a WS&S project is based, are demand projections. These should be as detailed as possible and should take into account not only projected population growth, increase in per-capita demand, different requirements and consumption patterns of different consumer groups (domestic commercial, industrial, public), but also the "elasticity" of water demand, as for example, affected by price, rate structure and metering. Textbooks are not always the best guide in establishing demand estimates, and the per-capita consumption in some developed countries is more an example for water waste than an indication of high economic development. Most important is a realistic estimate of the amount of unaccounted water, or more general "water losses", which in many cases have been found to be far above any acceptable level, sometimes unknown even to the engineers responsible for the system.

The techniques to analyse projects from an economic point of view, and to quantify the merits of different projects, can only briefly be mentioned here, they are: Cost-Benefit Analysis, Internal (or incremental) Rate of Return Calculations, Discounted Cash Flow, Present Worth Analysis, etc. In all these different but interrelated types of analysis, the sources

and terms of financing are immaterial. In other words, the results are the same if a project is financed without, with limited or with a large amount of foreign funds; nor are they affected by the proportion between borrowed funds, funds generated from operations and others. Economically, all these funds are capital, which has a "price", also called the "opportunity cost of capital". This cost is different from country to country, but is always above the actual lending rates: Nobody would borrow money unless he expects to earn from investing it more than the amount needed to service his debt. Similarly, any country should be careful in investing its scarce financial resources (whether own or borrowed)in projects which have an economic return below the respective "opportunity cost of capital".

Accordingly, the key factor in analysing the economic efficiency of any project is the measurement of cost and benefits in economic, not financial terms. While the "cost" of WS&S projects can normally be defined without too many difficulties, there is considerable discussion among economists what should be considered the "benefits". The easiest solution would be to define such benefits as the "maximum consumers would be prepared to pay for successive quantities of water or for successively better sewerage service." There are, however, two more types of benefits, normally referred to as "social benefits", which are above those realized by individual consumers. The first is related to the collective nature of water use like, for instance, street cleaning and public gardens watering, in short, the contribution to the aesthetics of urban life; the second - more important - are the "external" effects of water use, namely eradication or reduction of water-borne diseases, resulting in reduced disability, morbidity and death rates, in lower medical expenses and in increased productivity of the labor force. Further benefits are reduced fire losses, and, in turn, sometimes a reduction in fire insurance premiums.

Unfortunately, the efforts spent by many talented people to quantify these "social benefits"have not yet resulted in formulas which have been generally accepted or could be generally applied. Moreover, there is a wide gap between those who consider even a discussion of the desirability to quantify such benefits as "immoral", or at least strange, and those who suggest (i) that from an economic point of view some of these benefits - especially population growth - are no benefits at all, but rather unfavorable side effects of improved water supply; or (ii) that "social infrastructure" such as water supply, sewerage, housing is normally productive only in the long but not in the short run, and can, therefore, not be considered a precondition for, but rather a "fruit" from, development; or (iii) that improvements in urban WS&S are likely to accelerate migration from the rural areas into the cities and thus worsen the urban problems. The truth, as always, is probably somewhere between these extreme positions. On one hand there are undoubtedly intangible benefits of water supply, which cannot be quantified but are important for the improvement of human life and of living conditions. On the other hand, admittedly, social infrastructure is not a means by itself, but its development should be programmed in balance with other basic investments in the economy. There are quite a few examples, where an originally sound policy of placing priority on productive investments has led to an impasse for further development when there was an overcapacity in, say, electric power and industrial facilities, but a severe backlog in other essential services, such as water supply for industrial and domestic use. As to the "urban" argument: migration from the rural into the urban areas will take place (and has taken place) even if the social infrastructure is deficient: Urban areas are, and will increasingly become the essential dynamos for progress in all industrializing countries.

In this connection, I should mention the World Bank's increasing awareness of urban problems and its concern about the deteriorating conditions in many cities in the developing world. Mr. McNamara said this in his recent address to the Bank's Board of Governors at the Annual Meeting 1969: "The phenomenon of urban decay is a plague creeping over every continent, but its corrosive effects are critical in the poorer nations. The resources required to provide minimal services and infrastructure for urban populations, which in the year 2000 may be 500% higher than today, are staggering. Our knowledge of how to best deal with the whole issue of urbanization remains primitive. But one point is clear: the problem must be dealt with on a comprehensive national basis." And with these remarks from the President of the World Bank Group, we are back at the fundamental obstacle for more WS&S project lending: The lack of sound national investment programs and sector studies for water supply and sewerage, which analyse the present situation, realistically estimate future requirements, and define priorities.

C. Technical Aspects

As pointed out earlier, preparation for Bank lending for WS&S projects has required proportionately much time and effort. The reasons are not so much deficiencies in detailed engineering but unsatisfactory planning. This refers to the identification and analysis of alternative ways of staging long range master plans, and of alternative schemes for the proposed initial stage; obviously these tasks are closely related with the economic analysis and justification of projects. In most cases, when the Bank/IDA eventually approved the loan, the project was very different from the time when it had first been presented for financing; changes had been made (i) in the scale of the project (and contrary to some beliefs, there are also cases where the Bank encouraged much larger schemes than had been proposed), (ii) in the basic supply alternative (e.g. groundwater instead of surface water and vice versa), or (iii) in the emphasis on various project elements (often the possibilities of reducing water losses by rehabilitating the distribution system are not sufficiently explored; sometimes additional supply would mostly feed water leaks, and be lost for actual consumption, especially where supply had been intermittent and supply hours increase as a result of the project). Of particular concern in preparing WS&S projects in developing countries are the design criteria. Criteria, which have proven to be adequate or may even be prescribed in "rich" countries with a shortage of labor and with a sophisticated technology, should be carefully reviewed, and if necessary modified, before applying them to projects under different climatological, social and economic environments. This subject will certainly be discussed in more detail in the course of the Seminar. Only one more point: In preparing specifications for bidding, engineers should leave as wide a range of options as possible for different, but equivalent equipment (e.g. pipe materials, pump sizes, meter types) unless there are justified constraints, such as a reasonable degree of standardization; this can result in important savings in cost.

In summary, based on the Bank's past experience with WS&S projects, it must be said that there is much room for improvement in the approach to, and in the preparation of these projects, from the preliminary feasibility study to the detailed bidding documents. Not only planning engineers from the developing countries, but especially the consulting engineers from the developed countries assisting them in project preparation, should be aware

of the fact that the product of their work is in competition with many other proposals for investment in the countries concerned and that it depends, among other things, on the quality of this product whether or not more WS&S projects will be implemented in the future. Professional enthusiam alone is not sufficient, and the desire to design a technically perfect scheme, using the most advanced techniques and employing sophisticated devices, normally leads into the wrong direction.

D. Commercial Aspects

Under "General Criteria for Project Appraisal" it was stated that these aspects refer to all arrangements for buying and selling, not only during the construction but also during the operating phase. The "selling" aspect is often neglected by agencies responsible for WS&S services; this is understandable, because in most cases the backlog and shortages are so great that it seems hardly possible that there would ever be a need to "advertise" for customers. Nevertheless, in cases, where a project provides new facilities in an area which had previously no community WS&S service, or where this service was only available to certain sections of the community (and where consequently the public was forced and able, and later accustomed, to use their own facilities) it has sometimes proven difficult to attract and to connect the projected number of customers to the new facilities. Special legislation may be needed, but may not be easy to obtain, to ensure an adequate support of the new system.

Naturally, during the stage of project preparation and implementation the "buying" aspect is of much more immediate concern. The Bank/IDA has issued "Procurement Guidelines", which normally become part of its agreements with the borrowers. These Guidelines explain specific steps to be followed by the project authority with respect to advertising, preparing specifications, and other bidding documents, bid opening and evaluation procedures, and to general contract provisions. The basic requirement is that - with a few exceptions - borrowers are expected to open procurement for all contracts related to the project to "international competitive bidding". The term "international" is qualified in the sense that, while bidding should be open to all Bank member countries (and Switzerland, which is not a member but has a special relationship with the Bank), no procurement should be made from non-member countries. When, in exceptional cases, the Bank agrees to reserve certain contracts to local procurement, these contracts are normally excluded from the package of works regarded as the "Project" financed under the loan; this has no implications when the loan is only made for foreign exchange expenditures, but it may be important, if the loan amount is determined as a percentage of the total "project" cost.

The requirement of international competitive bidding is accepted by all Bank borrowers without difficulty, when procurement is for goods for which there is no competition from within the borrowing country. There is overwhelming, and sometimes dramatic, evidence from thousands of contracts procured under Bank/IDA financing, that such competition results in substantial savings, compared, for example, with "tied aid" as related to many of the bilateral assistance programs. However, international competition is more controversial when the goods and services involved are also available from within the borrowing country. The Bank Group's two basic objectives, namely (i) to ensure - through wide competition - that borrowers obtain the best value for their money and that all member countries have the opportunity to participate

in such bidding, and (ii) to provide a reasonable degree of protection to the domestic industry of developing countries, thereby stimulating industrialization and economic growth, seem to be difficult to reconcile. In practice, the question is, of course, how to compare bids from foreign and from local suppliers, and how to determine the "lowest evaluated bidder" to whom the contract should be awarded. In the past, the Bank has in appropriate cases and at the request of the borrowers agreed to a certain degree of "preference" for local suppliers (normally 15%, or the amount of custom duties on the CIF price of the lowest foreign bidder, whatever is lower). Obviously, such an across-the-board formula is simple but, depending on each case, it may or may not provide an acceptable and adequate degree of protection for local suppliers. This is especially true, if the locally produced goods themselves have a large import component. Therefore, from an economic point of view a formula based on "value added" (to the import component) would be preferable, but such a formula is more difficult to design and more so to apply.

With respect to WS&S projects - as in most other projects - the ability of local firms to compete with foreign suppliers varies from country to country. In general, however, it is for civil works, later in the manufacture of pipes (especially concrete pipes), and then in the production of mechanical equipment (pumps, motors, and sometimes water meters), where local firms become increasingly competitive in the various stages of economic development of the respective country.

E. Financial Aspects

The need to have sufficient funds available to cover the cost of a proposed project would seem to be a generally accepted fact. It is all the more surprising that there are cases, as in a number of the Bank/IDA's WS&S projects, where it has taken a long time, after the Bank/IDA loan was in principle assured, to obtain evidence that the balance of the funds was available from local sources (the project authority itself, the Government, local financing agencies or others).

However, it is with respect to the financial criteria for the "operating", not for the "project construction" phase, where the Bank/IDA is most commonly criticized as being too rigid and following a hard line. The principal scape-goat is the concept of the "financial rate of return", or more general "profit", which the Bank applies to all revenue earning projects, and specifically to public utility projects (electric power, telephones, water supply). The financial rate of return is defined as the "Net Income" plus Financing Charges (Interest but not Amortization) expressed as a percentage of the "Net Fixed Assets in Operation" (Rate Base). "Net Income" means Gross Income (from water sales, sewerage service charges, etc.) minus the sum of (i) Operating Costs (salaries, supplies, etc.), (ii) the amount added to the reserve for Depreciation and (iii) Financing Charges. "Net Fixed Assets in Operation" or "Rate Base" means the realistic (if necessary revalued) present value of all fixed assets (plants, pipelines, reservoirs, distribution system - but not inventories and other current assets), except work in progress, minus accumulated depreciation (which in turn must be based on a realistic present value of these assets). It is important to stress that for the purpose of calculating the Net Income, amortization is not a cost; it is, of course, an expenditure to be taken into account in cash flow forecasts. "Capitalized" Operating Costs (e.g. salaries of

staff directly engaged in project preparation and supervision) and Capitalized Interest (interest or loans for projects during the construction period of such projects) have to be deducted from the totals before entering the amounts into the calculation; these capitalized costs become, of course, part of the project cost and thus of the "rate base".

Arguments brought forward against the "rate of return concept" are both "qualitative" (namely on the principle of using this concept for WS&S projects) and "quantitative" (on the size of the return requested by the Bank). As to the concept, which in simple terms requires a WS&S company to earn enough money to cover not only its current expenditures but to accumulate certain amounts for future expenditures, I would like to quote from Barbara Ward, the well-known British economist, who can hardly be accused of being a "capitalist"; she wrote, in 1962: "A developing government should aim its policies at ensuring the quickest rate of capital accumulation. Profits should be strongly encouraged, in public as in private enterprise, and tax systems arranged so that all the incentives are towards their reinvestment. This does not always arouse much enthusiasm among planners brought up to believe in the inherent immorality of profits and ready to run essential public services on a 'no profit, no loss' basis. But profits are one of the chief means by which resources can be put at the disposal of society, and, as is little known, are a major source of investment in Soviet Russia."

As to the size of the return, the Bank is aware of the fact that water supply companies and even more so sewerage services, have normally to recover from a substantial backlog in investments and cannot be expected to immediately generate as high returns as would be desirable. Therefore, as is reflected in most of the Bank/IDA loan agreements for WS&S projects, borrowers are given a certain period of initially low, but increasing returns to achieve the desirable target; the target itself depends on the situation, but is normally around 8 percent to 10 percent. In practical terms, the rate of return concept, coupled with the projections on actual cash requirements (which sometimes demonstrate the need for more funds than would be necessary to achieve the agreed-upon rate of return), has a direct bearing on the charges which have to be levied on the water and sewerage customers. It is here where economic and financial "theory" ends, and where practical and pragmatic, and too often political, considerations begin.

In this connection, it is sometimes argued that it is irrelevant, and the Bank should not be concerned about, how the total amount of the necessary funds is being generated. However, in the Bank's view, the most equitable way of charging for water, and the least conducive to waste, is to relate water charges as closely as possible to actual consumption; this requires, of course, metering of all connections, and can normally only be achieved in stages. Nevertheless, in the financial appraisal the Bank/IDA is concerned about any proposal, and wishes to be satisfied about the need, for charging for water on any other basis than consumption (e.g. property value, fixed amounts with minimum consumption allowance) or for giving water "free" to certain consumer groups (hospitals, schools, government). It is, however, accepted in certain cases that the Government or the municipality pay, or subsidises payment for water consumption of a consumer group, which they wish to assist.

Financial management of a WS&S company, or of any other public utility, requires an efficient and business-like accounting system. Accounts should regularly be audited by independent auditors. Billing and collection,

budget control and budget programming are important areas of financial management. The quality and effectiveness of a public utility company, as of any other business or government can always best be assessed from the way it is handling its financial affairs.

F. Institutional, Organizational and Managerial Aspects

It has sometimes been said that if there is a single most important objective of the Bank Group's operations, besides providing funds for financing projects and programs, it is to help the developing countries building institutions which provide the necessary organizational and administrative framework for planning and implementing public and private investments. The need for such assistance is especially great in the WS&S sector and involves the institutional set-up at the national government level, the local organizations responsible for constructing and operating WS&S schemes, and the recruitment of competent managers, experienced professionals and skilled labor to staff such organizations. Unfortunately, there are no textbooks or formulas which provide a tool for defining or for measuring the best solution in a given case. Neither does the Bank have a ready-made solution. WS&S has some peculiar features: On one hand, and in physical terms, WS&S services are mostly "local", seldom regional, and almost never national (in the sense of nationally interconnected systems of roads, railways, or electric power lines). On the other hand, while the supply of good and sufficient water is essential for almost any economic activity, the demand for industrial, and even less for potable, water represents normally but a small percentage of all available water resources in a country and normally most of these resources are used for other purposes (especially hydropower generation and irrigation).

Not surprisingly, therefore, one can find a variety of ways how different countries have assigned the responsiblity for WS&S and for "water" in general to various departments at the national government level. For the purpose of water resources allocation and from the point of view of WS&S, most of these arrangements can be adequate, as long as it is assured that sufficient quantities of water are reserved for water supply. However, in-spite - or possibly because - of the proportionately small quantities of water involved, this requirement is sometimes overlooked and in some national water programs there is "no water left" for community water supply.

More important from an institutional point of view, is the question how to organize and exercise at the national government level regulatory functions related to WS&S services, such as developing and administrating rate policies, monitoring financial performance, setting technical standards, etc. Considering the difficulties of most WS&S services in developing countries, the need for such coordination and central assistance is obvious. Therefore, while the Bank does not necessarily suggest or support the establishment of a national water authority, it strongly recommends instituting and enforcing sound national public utility policies (not limited to WS&S) and giving support to the operating agencies in following such policies.

As to the responsibility for constructing and even more for operating WS&S services, the Bank/IDA's experience indicates that this should normally be left, or delegated, as close as possible to the local level.

However, regardless of whether the operating authority is established at the municipal, regional or national level, it should be organized and operated as a revenue-earning utility, should be separated from normal government bureaucracy, and should not be subject to political interference in its normal affairs. For example, it should be able to independently set water rates in accordance with sound financial criteria and within the limits of generally accepted rate policies in the country. It is in this respect that the Bank/IDA is sometimes requiring the setting-up of a new autonomous authority, (before approving a loan for a public utility project). This authority may be fully or partly owned by the public and may have a board in which the political councils are represented.

Even where such an autonomous authority cannot, or not immediately, be established the Bank/IDA expects that the WS&S service is organized as a separate department within the general structure of the respective local or national government. This refers especially to keeping WS&S accounts separate from the general books in order to clearly allocate income and expenditures, and determine the financial performance, of the WS&S service.

The organizational structure of a WS&S service should be functional and should define lines of responsibility in such a way that management can effectively delegate authority without losing control over the operations. This requires the installation of effective management reporting systems and of general communications systems within the organizations. In this respect, a WS&S service should not be different from any other commercial firm. Experience shows, however, that the principle of operating revenue-earning public enterprises in a business-like manner, is least developed at the municipal level and, in turn, seldom adopted for WS&S services.

The best institutional framework and the most perfect organizational structure are useless, if there are no men to staff the key positions on the top and at the supporting levels of these organizations. Without any doubt, and this is the case not only in many developing but also in a number of developed countries, WS&S companies are not very glamorous; they have usually great difficulties to attract qualified staff, and even to compete with other public enterprises, in recruiting competent people, especially for the top management position. In many countries, where career opportunities for engineers in top government positions are scarce, management of WS&S companies is usually "reserved" for civil or public health engineers. While there may be many good reasons for this policy, it fails to recognize that management is an art on its own, and no professional group - engineers, accountants, lawyers, etc. - can claim to offer the best or exclusive qualification for management.

Quality of management and of staff at any level of an organization is always closely related to the salaries and salary incentives, and to the job security which this organization can offer. Public enterprises can seldom compete with salaries in private industry and thus, job security is often their main attraction. If even this element is absent, as it is for many top positions of politically influenced public services, it is hardly surprising that qualified people stay away from them, and if a Government employee is "deputed" to such an organization he is more likely to consider it a demotion than a possibility to expand his experience.

In a number of countries, there is not only a scarcity of good managers, but also of engineers with sufficient experience and expertise in the specific technical aspects of a WS&S service. In these cases, scholarships for training in well-established foreign water authorities or for graduate studies at specialized foreign universities may provide a solution, although not for the immediate future. Once a certain amount of experience has been accumulated in the country itself, and this process normally starts at the WS&S services of the larger cities, specialized courses at local universities and national training programs should be established. In this way experience can be handed down to the smaller cities and to the rural areas. This is a long process, and the absence of sufficient and sufficiently trained staff can be the strongest argument in favor of establishing a national water authority responsible for all aspects of WS&S, including operating the systems, where the local authorities cannot provide the necessary support of personnel.

The foregoing notes show that the solution of the management problem is first of all a question of manpower and second of education and training. Outside assistance can help to resolve the latter problem, but very little to overcome the first, which will always remain the responsibility of government at all levels in the country concerned. Management consultants can be of great help, and employment of such consultants may be one of the conditions for a Bank/IDA loan. However, they should primarily be advisors to local executives and should be given executive responsibilities only in exceptional circumstances and for a limited period. This does not mean that their task is limited to designing manuals and giving lectures in advanced techniques of business administration; they should not only make sure that the new manuals are understood by the people concerned and can be made operative under the specific circumstances, but must - especially in the early phases of their assignment - actively participate, when necessary, in the routine of the organization.

VII. LOAN ADMINISTRATION AND PROJECT SUPERVISION

Project preparation and appraisal is only one step in the Bank/IDA's involvement with a specific project. It is normally preceded by a history of Bank/IDA lending for other projects, and of continuous review of the economic situation, in the country. Once a project has been appraised and in principle accepted by the "Loan Committee" in the Bank/IDA, representatives of the respective government, the borrower, and of the project authority (which may be identical) are invited for negotiations. After negotiations the legal documents are finalized and the loan/credit proposal is presented to the Bank/IDA's Board of Executive Directors, which represent the member countries. After the Board's approval, the loan is signed and - provided certain steps are taken by the borrower - becomes effective.

It is at that time, when the second major phase of the Bank/IDA's involvement with a particular project begins: Supervision. On the average, each "active" project is visited at least once ("problem" projects more often) per year. The great importance, which the Bank/IDA attaches to project supervision can be seen from the fact that there are as many supervision missions every year as there are project identification, preparation or appraisal missions.

In addition, the Bank requests its borrowers to prepare and submit periodic progress reports (monthly, quarterly, annual), covering all important aspects of project construction and of operations. These progress reports are designed not only to provide the Bank with information, but to serve as part of the borrower's internal management reporting system.

In principle, supervision of WS&S projects is the same as for any other type of projects. However, similarly as with respect to project preparation and appraisal, WS&S projects require much more attention than the "average" Bank project, and the number of WS&S projects, which are on the "Problem Project List" is proportionately far above the average.

VIII. CONCLUSIONS AND OUTLOOK

Water Supply and Sewerage (WS&S) projects have required a much greater amount of time and effort, for preparation, appraisal and supervision, than is reflected in the relatively small amount of Bank/IDA lending for, or in the number of, such projects (for details of Bank/IDA lending for WS&S projects see Table 6). Certainly the Bank/IDA's experience with, and its interest in, such projects is considerably larger than what the past record would suggest. For example, the number of WS&S projects which are currently under consideration by the Bank/IDA and are expected to result in actual loans or credits within the next two years is almost twice as large as the number of projects financed since the early sixties, when the Bank/IDA started lending for WS&S (see Table 7).

In general, it is expected that the Bank will become more and more involved in financing not only large and "easy"projects, like for electric power and transportation, but projects in more "difficult" sectors like agriculture, education, population planning, and - last but not least - urban development. It is with respect to this last point that I foresee specially in the long run, a substantial increase in financing of water supply and sewerage projects, not in isolation, but as an integral part of comprehensive urban development plans, which in turn are based on balanced nationwide economic programs.

I hope this paper can contribute to explain some of the considerations on which such financing, whether by the Bank/IDA or by others, should be based.

TABLE 1

REGIONAL ANNUAL DISTRIBUTION OF NET OFFICIAL ASSISTANCE 1/

FROM BILATERAL (DAC) AND MULTILATERAL AGENCIES

1964-1967 Average

(amounts in million US$ and percentages) 3/

	Africa		Asia		Western Hemisphere		Total		% of Total Bilateral & Multilateral
US	418		2,009	(66)	576		3,003		53
FRANCE	445	(92)	28		15		488		9
UK	198	(50)	175	(44)	23		396		7
GERMANY	94		232	(63)	38		364		6
JAPAN	1		221	(98)	6		228		4
CANADA	14		106	(80)	11		131		2
Others 2/	178	(62)	92		16		286		5
Total Bilateral	1,348	(28)	2,863	(58)	685	(14)	4,896	(100)	86
Total Multilateral	194	(25)	334	(43)	256	(32)	784	(100)	14
Total Bilateral and Multilateral	1,542	(27)	3,197	(56)	941	(17)	5,680	(100)	100

Source: "Pearson Report" 1969

1/ Includes only assistance with concessional terms, e.g. IDA but not IBRD

2/ Others:

	Total
Belgium	77
Netherlands	70
Italy	51
Australia	33
Sweden	22
Austria	18
Denmark	6
Switzerland	5
	286

3/ Figures in parenthesis are percentages of country's total official assistance.

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TABLE 2

GROSS DISBURSEMENTS BY MULTILATERAL AGENCIES TO LESS-DEVELOPED COUNTRIES, 1960-68

(amounts in million US$)

Agency	1960	1961	1962	1963	1964	1965	1966	1967	1968	%	Total 1960-68	%
World Bank (IBRD)	341	321	409	462	464	474	564	561	605	39	4,201	43
Internatl. Dev. Association (IDA)	-	1	25	105	148	277	273	368	215	14	1,412	16
Internatl. Finance Corporation (IFC)	13	8	18	12	16	19	30	26	31	2	173	2
Sub-total World Bank Group	354	330	452	579	628	770	867	955	851	55	5,786	61
Inter-American Dev. Bank	-	5	37	75	131	109	142	183	233	15	915	10
Asian Dev. Bank	-	-	-	-	-	-	-	-	20	1	20	-
African Dev. Bank	-	-	-	-	-	-	-	-	2	-	2	-
European Eco. Comm-European Dev. Fund	4	17	54	67	85	104	112	105	121	8	669	7
European Eco. Comm-European Invest. Bank	-	-	-	-	6	12	28	39	10	1	95	1
U.N. Institutions	125	197	182	229	263	252	272	207	300	20	2,027	21
Total 1/	483	549	725	950	1113	1247	1421	1489	1537	100	9,514	100

Source: "Pearson Report" 1969

1/ This total should not be confused with the flow of multilateral "development assistance". These figures include, in addition to official contributions ($661 million), funds raised on private capital markets and repayments on previous loans which are lent at near commercial terms.

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TABLE 3

IBRD LOANS AND IDA CREDITS BY PURPOSES AND REGIONS

As of June 30, 1969

(amounts in million US$)

	Africa	Asia & Middle East	Europe	Western Hemisphere	IFC	Total
Electric Power	515	1,064	667	2,033	-	4,279
Transportation	952	2,140	546	963		4,601
Industry	224	1,032	552	170		1,978
Agriculture	215	735	132	426		1,508
General Development	40	992	100	-		1,132
Reconstruction	-	-	497	-		497
Communications	28	177	-	95		300
WATER SUPPLY	21	75	4	43		143
Education	123	65	-	55		243
Project Preparation & Technical Assistance	3	9	-	-		12
International Finance Corporation	-	-	-	-	100	100
Total	2,121	6,289 1/	2,498	3,785	100	14,793
IBRD	1,734	4,730	2,405	3,653	100	12,623
IDA	387	1,559	93	132	-	2,170
In % Total	14.3	42.5	16.9	25.6	0.7	100
IBRD	13.7	37.5	19.1	28.9	0.8	100
IDA	17.8	71.8	4.3	6.1	-	100
Number of Countries Having Received						
IBRD Loans only	11	12	17	10		50
IBRD Loans and IDA Credits	17	6	1	11		35
IDA Credits only	11	5	-	-		16
	39	23	18	21		101

Source: World Bank/International Development Association, Annual Report 1969

1/ Including Australia (US$417 million) and New Zealand (US$97 million).

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TABLE 4

IBRD LOANS AND IDA CREDITS BY PURPOSES

As of November 30, 1969

(amounts in million US$)[1/]

	IBRD		IDA		IBRD+IDA	
	amount	%	amount	%	amount	%
Electric Power	4,234	32.9	143	6.2	4,377	28.9
Transportation	3,993	31.1	784	34.2	4,777	31.5
Industry	1,964	15.3	46	2.0	2,010	13.3
Agriculture	1,216	9.5	406	17.7	1,622	10.7
General Development and Program	552	4.3	580	25.3	1,132	7.5
Reconstruction	497	3.9	-	-	497	3.3
Communications	187	1.5	120	5.2	307	2.0
WATER SUPPLY	109	.8	38	1.7	147	1.0
Education	97	.7	162	7.1	259	1.7
Project Preparation & Technical Assistance	1	-	12	.5	13	.1
Subtotal	12,850	100.0	2,291	100.0	15,141	100.0
International Finance Corporation	100				100	
TOTAL	12,950				15,241	

Source: IBRD/IDA Information and Public Affairs Department
"Facts about the World Bank and the International Development Association" (November 30, 1969)

1/ Net of cancellations, terminations and refunds

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TABLE 5

Comparison between the Interamerican Development Bank and the World Bank with respect to Financing of Water Supply and Sewerage Projects

(amounts in million US$)

	All Loans	Loans for WS&S	% of all Loans
IDB (as of December 1966)			
Number	387	68	18
Amount - Total	1,915	353	18
- Average	4.9	5.2	-
IBRD (Bank) (as of June 1969)			
Number	636	11	2
Amount - Total	12,622	107	1
- Average	19.8	9.7	-
IDA (as of June 1969)			
Number	165	8	5
Amount - Total	2,170	24 1/	1
- Average	13.2	3.0	-
Bank and IDA (as of June 1969)			
Number	821	19	1
Amount - Total	14,792	131	1
- Average	18.0	6.9	-

Source: "Financing Water Projects in Latin America, IDB - 1967" and "Annual Report - World Bank 1969"

1/ Net of cancellations

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TABLE 6

IBRD LOANS AND IDA CREDITS FOR WATER SUPPLY AND SEWERAGE PROJECTS

As of November 30, 1969

(amounts in million US$)

Fiscal Year	Country	City	WS 1/ or S	Total Project Cost	Foreign Financing			% of total project cost	Cancellation and Refunding	% Disbursed
					IBRD	IDA	Joint Loans			
1962	CHINA	Taipei	WS	9.7	-	4.4	-	45	.4	100
	ICELAND	Reykjavik (hot)	WS	6.2	2.0	-	-	32	-	100
	JORDAN	Amman	WS	2.9	-	2.0	-	69	.5	100
				18.8	2.0	6.4	-		.9	
1963	NICARAGUA	Managua	WS	4.8	-	3.0	-		-	100
1964	PAKISTAN	Dacca	WS&S	50.1	-	26.0	-	52	12.8	16 2/
	PAKISTAN	Chittagong	WS&S	43.0	-	24.0	-	56	17.0	30 2/
	JORDAN	Various Cities	WS	5.0	-	3.5	-	70	1.0	100
				98.1	-	53.5	-		30.8	
1965	PHILIPPINES	Manila	WS	48.2	20.2	-	-	42		86
	SINGAPORE	I	WS	13.7	6.8	-	-	50		100
				61.9	27.0	-	-			
1966	BURUNDI	Bujumbura	WS	1.6	-	1.1		69		68
	VENEZUELA	Caracas	WS	54.1	21.3	-		39		79
				55.7	21.3	1.1				
1967	PAKISTAN	Lahore	WS&S	5.6	-	1.8	1.7 (Sweden)			35
1968	SINGAPORE	II	WS	16.0	8.0	-		50		43
	COLOMBIA	Bogota	WS	35.3	14.0	-	3.0 (US & Germany)	48		33
	JAMAICA	Kingston	WS	9.1	5.0	-	-	55		1
				60.4	27.0	-	3.0			
1969	SINGAPORE		S	22.4	6.0	-	-	27		10
	MALAYSIA	Kuala Lumpur	WS	7.7	3.6	-	-	47		2
	TUNISIA	Tunis & Others	WS	32.8	15.0	-	5.0 (Sweden)	61		1
	CAMEROUN	Yaounde Duala	WS	6.7	5.0	-	1.4 (France)	96		-
				69.6	29.6	-	6.4			
1970	GHANA	Accra-Tema	WS&S	5.9	-	3.5	-	59		-
	TOTAL (As of November 30, 1969)		15 WS 4 WS&S 1 S	380.8	106.9 (11 Loans)	59.3 (9 Credits)	11.1	49		

1/ WS = Water Supply
S = Sewerage

2/ Of remaining credit after partial cancellation.

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TABLE 7

WORLD BANK AND IDA
NUMBER OF PROJECTS UNDER SUPERVISION, 1/ NEGOTIATION AND IDENTIFICATION

(as of November 1969)

	Supervision	Negotiation	Identification
Electric Power	82	14	20
Transportation	124	36	62
Agriculture	94	54	121
Reconstruction	-	-	-
Communication	14	6	13
WATER SUPPLY	13	5	17
Education	31	14	29
Population	-	-	-
Tourism	-	1	9
	358	130	271

Source: IBRD/IDA Office of the Director, Projects

1/ Excluding industry, special projects, general development and project preparation.

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Financing of Water Supply and Sewerage Projects*

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APR-JUN, 1970

1. BACKGROUND

The World Bank is not a prime lender for water supply and sewerage (henceforth WS & S**) projects, nor does it claim to be an authority in financing such projects. Certainly, it is far from becoming, what Professor Mehta*** once suggested as a desirable vehicle for promoting these projects, namely an "International Water Supply Bank." If any institution deserves such a title, it would be the Inter-American Development Bank (IDB), but its operations are limited to Latin America. Latin America is indeed very fortunate to have not only the IDB but also the Pan American Health Organization (PAHO) preparing projects in the sanitary engineering field, and assisting in their implementation. The following table – although showing the status as of 1966/67 only – may illustrate this fact better than words:

Lending for WS & S Projects	Million US$	% of World-wide	% of Latin America
Worldwide	486	100	
Latin America	303	62	100
IDB	229	47	76

A comparison between the operations of IDB and the World Bank with respect to WS & S project lending is interesting in several other respects (*Table A*).

TABLE A

COMPARISON BETWEEN THE INTERAMERICAN DEVELOPMENT BANK AND THE WORLD BANK WITH RESPECT TO FINANCING OF WATER SUPPLY AND SEWERAGE PROJECTS

(amounts in million US$)

	All Loans	Loans for WS & S	% of all Loans
IDB (as of December 1966)			
Number	387	68	18
Amount—Total	1,915	353	18
—Average	4.9	5.2	—
IBRD (Bank) (as of June 1969)			
Number	636	11	2
Amount—Total	12,622	107	1
—Average	19.8	9.7	—
IDA (as of June 1969)			
Number	165	8	5
Amount—Total	2,170	24*	1
—Average	13.2	3.0	—
Bank and IDA (as of June 1969)			
Number	821	19	1
Amount—Total	14,792	131	1
—Average	18.0	6.9	—

Source: "Financing Water Projects in Latin America, IDB—1967" and "Annual Report—World Bank 1969"

*Net of cancellations

Two points should be highlighted:

(i) Compared with only 1–2 percent of all Bank/IDA lending the IDB lending for WS & S projects was almost 20 percent.

(ii) The average Bank/IDA loan for WS & S projects was about US$7

* Paper presented by the author at the second Annual Convention of I.W.W.A. on JAN. 25, 1970. It forms a part of the paper prepared for Water Supply and Sanitation Seminar held in BANGKOK on JAN. 19-23, 1970.

** This refers to water supply or sewerage projects, or a combination of both.

*** Central Public Health Engineering Research Institute in Nagpur, India.

million (Bank US$10 million and IDA US$3 million) which is somewhat higher than the average IDB loan for WS & S of US $5 million. However, while the IDB average is clearly in line with the average of all its loans, the overall average of Bank loans (US$20 million) and IDA credits (US$13 million) is considerably higher than the respective average for WS & S projects.

These facts have no special significance as such, but they give some indication of the different type and scale of operations. But WS & S is not the only area of Bank/IDA lending, where the average loan amount is usually below "normal"; for example, the same is true for Education Projects. Also, the number of loans made in the past and their size are by no means an indication of the current, nor of the expected future, preference of the Bank Group for specific types and sizes of projects, nor is there a "bias" against WS & S projects. This is demonstrated in the Bank's Annual Report 1969: "Water Supply and Sewerage is a relatively new area of Bank Operations, and the Bank Group expects to expand its lending for water supply and sewerage during the next five years. Borrowers frequently need special help in the implementation of these projects; this may include assistance in institution building and detailed supervision of operations for some time after the completion of the physical construction work involved. As a result each loan takes up a proportionately greater amount of time than it might in a sector where the borrower is more experienced. Project identification and preparation in this field also present special problems."

Hence, the problem is mainly that — except in Latin America, which is relatively well assisted by the IDB and others, including the Bank Group — there are not enough suitable WS & S projects ready for financing. In many countries, Water Supply and Sewerage is not even recognized as a matter of national concern. Consequently, the investment programs prepared by the national planning offices of these countries have often no, or only inadequate, provisions for this sector. Usually only the capital cities are able to attract sufficient attention to their needs in water supply and sewerage. In fact, with a few exceptions, most Bank/IDA lending for WS & S has been for capital cities. Of course, there are also strong economic arguments for placing a high priority on WS & S projects in large urban areas (there the greatest number of people can benefit from the minimum expenditure of money, manpower and other resources), compared with smaller cities and rural areas. But the Bank Group is aware that, so far, the projects for which financing has been requested and was provided, were more selected by "default" than based on sound, balanced and comprehensive country-wide sector studies. This leads to the basic question of the "economic justification" for WS & S projects in general.

2. ECONOMIC ASPECTS

One of the elements on which the economic appraisal of a WS & S project is based, are demand projections. These should be as detailed as possible and should take into account not only projected population growth, increase in per-capita demand, different requirements and consumption patterns of different consumer groups (domestic, commercial, industrial, public), but also the "elasticity" of water demand, as for example, affected by price, rate structure and metering. Textbooks are not always the best guide in establishing demand estimates, and the per-capita consumption in some developed countries is more an example for water waste than an indication of high economic development. Most important is a realistic estimate of the amount of unaccounted water, or more general "water losses", which in many cases have been found to be far above any acceptable level, sometimes unknown even to the engineers responsible for the system.

The techniques to analyse projects from an economic point of view, and to quantify the merits of different projects, can only briefly be mentioned here, they are: Cost-Benefit Analysis, Internal (or incremental) Rate of Return Calculations, Discounted Cash Flow, Present Worth Analysis, etc. In all these different but interrelated types of analysis, the sources and terms of financing are immaterial. In other words, the results are the same if a project is financed without, with limited or with a large amount of foreign funds; nor are they affected by the proportion between borrowed funds, funds generated from operations and others. Economically, all these funds are capital, which has a "price", also called the "opportunity cost of capital". This cost is different from country to country, but is always above the actual lending rates: Nobody would borrow money unless he expects to earn from investing it more than the amount needed to service his debt. Similarly, any country should be careful in investing its scarce financial resources (whether own or borrowed) in projects which have an economic return below the respective "opportunity cost of capital".

Accordingly, the key factor in analysing the economic efficiency of any project is the measurement of cost and benefits in economic, not financial terms. While the "cost" of WS & S projects can normally be defined without too many difficulties, there is considerable discussion among economists what should be considered the "benefits". The easiest solution would be to define such benefits as the "maximum consumers would be prepared to pay for successive quantities of water or for successively better sewerage service." There are, however, two more types of benefits, normally referred to as "social benefits", which are *above* those realized by individual consumers. The first is related to the collective nature of water use like, for instance, street cleaning and public gardens watering, in short, the contribution to the aesthetics of urban life; the second – more important – are the "external" effects of water use, namely eradication or reduction of water-borne diseases, resulting in reduced disability, morbidity and death rates, in lower medical expenses and in increased productivity of the labor force. Further benefits are reduced fire losses, and, in turn, sometimes a reduction in fire insurance premiums.

Unfortunately, the efforts spent by many talented people to quantify these "social benefits" have not yet resulted in formulas which have been generally accepted or could be generally applied. Moreover, there is a wide gap between those who consider even a discussion of the desirability to quantify such benefits as "immoral", or at least strange, and those who suggest (i) that from an economic point of view some of these benefits—especially population growth—are no benefits at all, but rather unfavourable side effects of improved water supply; or (ii) that "social infrastructure" such as water supply, sewerage, housing is normally productive only in the long but not in the short run, and can, therefore, not be considered a precondition for, but rather a "fruit" from, development; or (iii) that improvements in urban WS & S are likely to accelerate migration from the rural areas into the cities and thus worsen the urban problems. The truth, as always, is probably somewhere between these extreme positions. On one hand there are undoubtedly intangible benefits of water supply, which cannot be quantified but are important for the improvement of human life and of living conditions. On the other hand, admittedly, social infra-structure is not a means by itself, but its development should be programmed in balance with other basic investments in the economy. There are quite a few examples, where an originally sound policy of placing priority on productive investments has led to an impasse for further development when there was an overcapacity in, say, electric power and industrial facilities, but a severe backlog in other essential services, such as water

supply for industrial and domestic use. As to the "urban" argument: migration from the rural into the urban areas will take place (and has taken place) even if the social infrastructure is deficient: Urban areas are, and will increasingly become the essential dynamos for progress in all industrializing countries.

In this connection, I should mention the World Bank's increasing awareness of urban problems and its concern about the deteriorating conditions in many cities in the developing world. Mr. McNamara said this in his recent address to the Bank's Board of Governors at the Annual Meeting 1969: "The phenomenon of urban decay is a plague creeping over every continent, but its corrosive effects are critical in the poorer nations. The resources required to provide minimal services and infrastructure for urban populations, which in the year 2000 may be 500% higher than today, are staggering. Our knowledge of how to best deal with the whole issue of urbanization remains primitive. But one point is clear: the problem must be dealt with on a comprehensive national basis." And with these remarks from the President of the World Bank Group, we are back at the fundamental obstacle for more WS & S project lending: The lack of sound national investment programs and sector studies for water supply and sewerage, which analyse the present situation, realistically estimate future requirements, and define priorities.

3. TECHNICAL ASPECTS

As pointed out earlier, preparation for Bank lending for WS & S projects has required proportionately much time and effort. The reasons are not so much deficiencies in detailed engineering but unsatisfactory planning. This refers to the identification and analysis of alternative ways of staging long range master plans, and of alternative schemes for the proposed initial stage; obviously these tasks are closely related with the economic analysis and justification of projects. In most cases, when the Bank/IDA eventually approved the loan, the project was very different from the time when it had first been presented for financing; changes had been made (i) in the scale of the project (and contrary to some beliefs, there are also cases where the Bank encouraged much larger schemes than had been proposed), (ii) in the basic supply alternative (e.g. groundwater instead of surface water and vice versa), or (iii) in the emphasis on various project elements (often the possibilities of reducing water losses by rehabilitating the distribution system are not sufficiently explored; sometimes additional supply would mostly feed water leaks, and be lost for actual consumption, especially where supply had been intermittent and supply hours increase as a result of the project). Of particular concern in preparing WS & S projects in developing countries are the design criteria. Criteria, which have proven to be adequate or may even be prescribed in "rich" countries with a shortage of labor and with a sophisticated technology, should be carefully reviewed, and if necessary modified, before applying them to projects under different climatological, social and economic environments. This subject will certainly be discussed in more detail in the course of the Seminar. Only one more point: In preparing specifications for bidding, engineers should leave as wide a range of options as possible for different, but equivalent equipment (e.g. pipe materials, pump, sizes, meter types) unless there are justified constraints, such as a reasonable degree of standardization; this can result in important savings in cost.

In summary, based on the Bank's past experience with WS & S projects, it must be said that there is much room for improvement in the approach to, and in the preparation of these projects, from the preliminary feasibility study to the detailed bidding documents. Not only planning engineers from the developing countries, but especially the consulting engineers from the developed countries assisting them in project preparation, should be aware of the fact that the product of their work is in competition with many other proposals for investment in

the countries concerned and that it depends, among other things, on the quality of this product whether or not more WS & S projects will be implemented in the future. Professional enthusiasm alone is not sufficient, and the desire to design a technically perfect scheme, using the most advanced techniques and employing sophisticated devices, normally leads into the wrong direction.

4. COMMERCIAL ASPECTS

Under "General Criteria for Project Appraisal" it was stated that these aspects refer to all arrangements for buying and selling, not only during the construction but also during the operating phase. The "selling" aspect is often neglected by agencies responsible for WS & S services; this is understandable, because in most cases the backlog and shortages are so great that it seems hardly possible that there would ever be a need to "advertise" for customers. Nevertheless, in cases, where a project provides new facilities in an area which had previously no community WS & S service, or where this service was only available to certain sections of the community (and where consequently the public was forced and able, and later accustomed, to use their own facilities) it has sometimes proven difficult to attract and to connect the projected number of customers to the new facilities. Special legislation may be needed, but may not be easy to obtain, to ensure an adequate support of the new system.

Naturally, during the stage of project preparation and implementation the "buying" aspect is of much more immediate concern. The Bank/IDA has issued "Procurement Guidelines", which normally become part of its agreements with the borrowers. These Guidelines explain specific steps to be followed by the project authority with respect to advertising, preparing specifications, and other bidding documents, bid opening and evaluation procedures, and to general contract provisions. The basic requirement is that —with a few exceptions—borrowers are expected to open procurement for all contracts related to the project to "international competitive bidding". The term "international" is qualified in the sense that, while bidding should be open to all Bank member countries (and Switzerland, which is not a member but has a special relationship with the Bank), no procurement should be made from non-member countries. When, in exceptional cases, the Bank agrees to reserve certain contracts to local procurement, these contracts are normally excluded from the package of works regarded as the "Project" financed under the loan; this has no implications when the loan is only made for foreign exchange expenditures, but it may be important, if the loan amount is determined as a percentage of the total "project" cost.

The requirement of international competitive bidding is accepted by all Bank borrowers without difficulty, when procurement is for goods for which there is no competition from within the borrowing country. There is overwhelming, and sometimes dramatic, evidence from thousands of contracts procured under Bank/IDA financing, that such competition results in substantial savings, compared, for example, with "tied aid" as related to many of the bilateral assistance programs. However, international competition is more controversial when the goods and services involved are also available from within the borrowing country. The Bank Group's two basic objectives, namely (i) to ensure—through wide competition—that borrowers obtain the best value for their money and that all member countries have the opportunity to participate in such bidding, and (ii) to provide a reasonable degree of protection to the domestic industry of developing countries, thereby stimulating industrialization and economic growth, seem to be difficult to reconcile. In practice, the question is, of course, how to compare bids from foreign and from local suppliers, and how to determine the "lowest evaluated bidder" to whom the contract should be awarded. In the past, the Bank has in appropriate cases and at the request of the borrowers agreed to a certain degree of "preference" for local suppliers (normally 15%, or the amount of

custom duties on the CIF price of the lowest foreign bidder, whatever is lower). Obviously, such an across-the-board formula is simple but, depending on each case, it may or may not provide an acceptable and adequate degree of protection for local suppliers. This is especially true, if the locally produced goods themselves have a large import component. Therefore, from an economic point of view a formula based on "value added" (to the import component) would be preferable, but such a formula is more difficult to design and more so to apply.

With respect to WS & S projects—as in most other projects—the ability of local firms to compete with foreign suppliers varies from country to country. In general, however, it is for civil works, later in the manufacture of pipes (especially concrete pipes), and then in the production of mechanical equipment (pumps, motors, and sometimes water meters), where local firms become increasingly competitive in the various stages of economic development of the respective country.

5. FINANCIAL ASPECTS

The need to have sufficient funds available to cover the cost of a proposed project would seem to be a generally accepted fact. It is all the more surprising that there are cases, as in a number of the Bank/IDA's WS & S projects, where it has taken a long time, after the Bank/IDA loan was in principle assured, to obtain evidence that the balance of the funds was available from local sources (the project authority itself, the Government, local financing agencies or others).

However, it is with respect to the financial criteria for the "operating", not for the "project construction" phase, where the Bank/IDA is most commonly criticized as being too rigid and following a hard line. The principal scape-goat is the concept of the "financial rate of return", or more general "profit", which the Bank applies to all revenue earning projects, and specifically to public utility projects (electric power, telephones, water supply). The financial rate of return is defined as the "Net Income" *plus* Financing Charges (Interest but *not* Amortization) expressed as a percentage of the "Net Fixed Assets in Operation" (Rate Base). "Net Income" means Gross Income (from water sales, sewerage service charges, etc.) *minus* the sum of (i) Operating Costs (salaries, supplies, etc.), (ii) the amount added to the reserve for Depreciation and (iii) Financing Charges. "Net Fixed Assets in Operation" or "Rate Base" means the realistic (if necessary revalued) present value of all fixed assets (plants, pipelines, reservoirs, distribution system — but *not* inventories and other current assets), except work in progress, *minus* accumulated depreciation (which in turn must be based on a realistic present value of these assets). It is important to stress that for the purpose of calculating the Net Income, amortization is not a cost; it is, of course, an expenditure to be taken into account in income statements and cash flow forecasts. "Capitalized" Operating Costs (e.g. salaries of staff directly engaged in project preparation and supervision) and Capitalized Interest (interest on loans for projects during the construction period of such projects) have to be deducted from the totals before entering the amounts into the calculation; these capitalized costs become, of course, part of the project cost and thus of the "rate base".

Arguments brought forward against the "rate of return concept" are both "qualitative" (namely on the principle of using this concept for WS & S projects) and "quantitative" (on the size of the return requested by the Bank). As to the *concept*, which in simple terms requires a WS & S company to earn enough money to cover not only its current expenditures but to accumulate certain amounts for future expenditures, I would like to quote from Barbara Ward, the well-known British economist, who can hardly be accused of being a "capitalist"; she wrote, in 1962: "A developing government should aim its policies at ensuring the quickest rate

of capital accumulation. Profits should be strongly encouraged, in public as in private enterprise, and tax systems arranged so that all the incentives are towards their reinvestment. This does not always arouse much enthusiasm among planners brought up to believe in the inherent immorality of profits and ready to run essential public services on a 'no profit, no loss' basis. But profits are one of the chief means by which resources can be put at the disposal of society, and, as is little known, are a major source of investment in Soviet Russia."

As to the *size* of the return, the Bank is aware of the fact that water supply companies and even more so sewerage services, have normally to recover from a substantial backlog in investments and cannot be expected to immediately generate as high returns as would be desirable. Therefore, as is reflected in most of the Bank/IDA loan agreements for WS & S projects, borrowers are given a certain period of initially low, but increasing returns to achieve the desirable target; the target itself depends on the situation, but is normally around 8 percent to 10 percent. In practical terms, the rate of return concept, coupled with the projections on actual cash requirements (which sometimes demonstrate the need for more funds than would be necessary to achieve the agreed-upon rate of return), has a direct bearing on the charges which have to be levied on the water and sewerage customers. It is here where economic and financial "theory" ends, and where practical and pragmatic, and too often political, considerations begin.

In this connection, it is sometimes argued that it is irrelevant, and the Bank should not be concerned about, how the total amount of the necessary funds is being generated. However, in the Bank's view, the most equitable way of charging for water, and the least conducive to waste, is to relate water charges as closely as possible to actual consumption; this requires, of course, metering of all connections, and can normally only be achieved in stages. Nevertheless, in the financial appraisal the Bank/IDA is concerned about any proposal, and wishes to be satisfied about the need, for charging for water on any other basis than consumption (e.g. property value, fixed amounts with minimum consumption allowance) or for giving water "free" to certain consumer groups (hospitals, schools, government). It is, however, accepted in certain cases that the Government or the municipality pay, or subsidises payment for water consumption of a consumer group, which they wish to assist.

Financial management of a WS & S company, or of any other public utility, requires an efficient and business-like accounting system. Accounts should regularly be audited by independent auditors. Billing and collection, budget control and budget programming are important areas of financial management. The quality and effectiveness of a public utility company, as of any other business or government can always best be assessed from the way it is handling its financial affairs.

6. INSTITUTIONAL, ORGANIZATIONAL AND MANAGERIAL ASPECTS

It has sometimes been said that if there is a single most important objective of the Bank Group's operations, besides providing funds for financing projects and programs, it is to help the developing countries building institutions which provide the necessary organizational and administrative framework for planning and implementing public and private investments. The need for such assistance is especially great in the WS & S sector and involves the institutional set-up at the national government level, the local organizations responsible for constructing and operating WS & S schemes, and the recruitment of competent managers, experienced professionals and skilled labor to staff such organizations. Unfortunately, there are no textbooks or formulas which provide a tool for defining or for measuring the best solution in a given case. Neither does the Bank have a

ready-made solution. WS & S has some peculiar features: On one hand, and in physical terms, WS & S services are mostly "local", seldom regional, and almost never national (in the sense of nationally interconnected systems of roads, railways, or electric power lines). On the other hand, while the supply of good and sufficient water is essential for almost any economic activity, the demand for industrial, and even less for potable water represents normally but a small percentage of all available water resources in a country and normally most of these resources are used for other purposes (especially hydropower generation and irrigation).

Not surprisingly, therefore, one can find a variety of ways how different countries have assigned the responsibility for WS & S and for "water" in general to various departments at the national government level. For the purpose of water resources allocation and from the point of view of WS & S, most of these arrangements can be adequate, as long as it is assured that sufficient quantities of water are reserved for water supply. However, in spite – or possibly because – of the proportionately small quantities of water involved, this requirement is sometimes overlooked and in some national water programs there is "no water left" for community water supply.

More important from an institutional point of view, is the question how to organize and exercise at the national government level *regulatory functions* related to WS & S services, such as developing and administrating rate policies, monitoring financial performance, setting technical standards, etc. Considering the difficulties of most WS & S services in developing countries, the need for such coordination and central assistance is obvious. Therefore, while the Bank does not necessarily suggest or support the establishment of a national water authority, it strongly recommends instituting and enforcing sound national public utility policies (not limited to WS & S) and giving support to the operating agencies in following such policies.

As to the responsibility for *constructing* and even more for *operating* WS & S services, the Bank/IDA's experience indicates that this should normally be left, or delegated, as close as possible to the local level. However, regardless of whether the operating authority is established at the municipal, regional or national level, it should be organized and operated as a revenue-earning utility, should be separated from normal government bureaucracy, and should not be subject to political interference in its normal affairs. For example, it should be able to independently set water rates in accordance with sound financial criteria and within the limits of generally accepted rate policies in the country. It is in this respect that the Bank/IDA is sometimes requiring the setting-up of a new autonomous authority, (before approving a loan for a public utility project). This authority may be fully or partly owned by the public and may have a board in which the political councils are represented.

Even where such an autonomous authority cannot, or not immediately, be established the Bank/IDA expects that the WS & S service is organized as a separate department within the general structure of the respective local or national government. This refers especially to keeping WS & S accounts separate from the general books in order to clearly allocate income and expenditures, and determine the financial performance, of the WS & S service.

The *organizational structure* of a WS & S service should be functional and should define lines of responsibility in such a way that management can effectively delegate authority without losing control over the operations. This requires the installation of effective management reporting systems and of general communications systems within the organizations. In this respect, a WS & S service should not be different from any other commercial firm. Experience

shows, however, that the principle of operating revenue-earning public enterprises in a business-like manner, is least developed at the municipal level and, in turn, seldom adopted for WS & S services.

The best institutional framework and the most perfect organizational structure are useless, if there are no men to staff the key positions on the top and at the supporting levels of these organizations. Without any doubt, and this is the case not only in many developing but also in a number of developed countries, WS & S companies are not very glamorous; they have usually great difficulties to attract qualified staff, and even to compete with other public enterprises, in recruiting competent people, especially for the top management position. In many countries, where career opportunities for engineers in top government positions are scarce, management of WS & S companies is usually "reserved" for civil or public health engineers. While there may be many good reasons for this policy, it fails to recognize that management is an art on its own, and no professional group — engineers, accountants, lawyers, etc. — can claim to offer the best or exclusive qualification for management.

Quality of management and of staff at any level of an organization is always closely related to the salaries and salary incentives, and to the job security which this organization can offer. Public enterprises can seldom compete with salaries in private industry and thus, job security is often their main attraction. If even this element is absent, as it is for many top positions of politically influenced public services, it is hardly surprising that qualified people stay away from them, and if a Government employee is "deputed" to such an organization he is more likely to consider it a demotion than a possibility to expand his experience. In a number of countries, there is not only a scarcity of good managers, but also of engineers with sufficient experience and expertise in the specific technical aspects of a WS & S service. In these cases, scholarships for training in well-established foreign water authorities or for graduate studies at specialized foreign universities may provide a solution, although not for the immediate future. Once a certain amount of experience has been accumulated in the country itself, and and this process normally starts at the WS & S services of the larger cities, specialized courses at local universities and national training programmes should be established. In this way experience can be handed down to the smaller cities and to the rural areas. This is a long process, and the absence of sufficient and sufficiently trained staff can be the strongest argument in favour of establishing a national water authority responsible for all aspects of WS & S, including operating the systems, where the local authorities cannot provide the necessary support of personnel.

The foregoing notes show that the solution of the management problem is first of all a question of manpower and second of education and training. Outside assistance can help to resolve the latter problem, but very little to overcome the first, which will always remain the responsibility of government at all levels in the country concerned. Management consultants can be of great help, and employment of such consultants may be one of the conditions for a Bank/IDA loan. However, they should primarily be advisers to local executives and should be given executive responsibilities only in exceptional circumstances and for a limited period. This does not mean that their task is limited to designing manuals and giving lectures in advanced techniques of business administration; they should not only make sure that the new manuals are understood by the people concerned and can be made operative under the specific circumstances, but must — especially in the early phases of their assignment — actively participate, when necessary, in the routine of the organization.

7. LOAN ADMINISTRATION AND PROJECT SUPERVISION

Project preparation and appraisal is only one step in the Bank/IDA's involvement with a specific project. It is normally preceded by a history of Bank/IDA lending for other projects, and of continuous review of the economic situation, in the country. Once a project has been appraised and in principle accepted by the "Loan Committee" in the Bank/IDA, representatives of the respective government, the borrower, and of the project authority (which may be identical) are invited for negotiations. After negotiations the legal documents are finalized and the loan/credit proposal is presented to the Bank/IDA's Board of Executive Directors, which represent the member countries. After the Board's approval, the loan is signed and — provided certain steps are taken by the borrower — becomes effective.

It is at that time, when the second major phase of the Bank/IDA's involvement with a particular project begins: Supervision. On the average, each "active" project is visited at least once ("problem" projects more often) per year. The great importance, which the Bank/IDA attaches to project supervision can be seen from the fact that there are as many supervisions missions every year as there are project identification, preparation or appraisal missions. In addition, the Bank requests its borrowers to prepare and submit periodic progress reports (monthly, quarterly, annual), covering all important aspects of project construction and of operations. These progress reports are designed not only to provide the Bank with information, but to serve as part of the borrower's internal management reporting system.

In principle, supervision of WS & S projects is the same as for any other type of projects. However, similarly as with respect to project preparation and appraisal, WS & S projects require much more attention than the "average" Bank project, and the number of WS & S projects, which are on the "Problem Project List" is proportionately far above the average.

8. CONCLUSIONS AND OUTLOOK

Water Supply and Sewerage (WS & S) projects have required a much greater amount of time and effort, for preparation, appraisal and supervision, than is reflected in the relatively small amount of Bank/IDA lending for, or in the number of, such projects (for details of Bank/IDA lending for WS & S projects see Table B). Certainly the Bank/IDA's experience with, and its interest in, such projects is considerably larger than what the past record would suggest. For example, the number of WS & S projects which are currently under consideration by the Bank/IDA and are expected to result in actual loans or credits within the next two years is almost twice as large as the number of projects financed since the early sixties, when the Bank/IDA started lending for WS & S (see Table C).

TABLE C

WORLD BANK AND IDA
NUMBER OF PROJECTS UNDER SUPERVISION*, NEGOTIATION AND IDENTIFICATION

(as of November 1969)

	Supervision	Negotiation	Identification
Electric Power	82	14	20
Transportation	124	36	62
Agriculture	94	54	121
Reconstruction	—	—	—
Communication	14	6	13
WATER SUPPLY	13	5	17
Education	31	14	29
Population	—	—	—
Tourism	—	1	9
	358	130	271

Source: IBRD/IDA Office of the Director, Projects

*Excluding industry, special projects, general development and project preparation.

IBRD LOANS AND IDA CREDITS FOR WATER SUPPLY AND SEWERAGE PROJECTS

As of November 30, 1969 (amounts in million US$)

TABLE–B

Fiscal Year	Country	City	WS* or S	Total Project Cost	Foreign Financing				% of total project cost	Cancellation and Refunding	% Disbursed
					IBRD	IDA	Joint Loans				
1962	CHINA	Taipei	WS	9.7	–	4.4	–		45	.4	100
	ICELAND	Reykjavik (hot)	WS	6.2	2.0		–		32	–	100
	JORDAN	Amman	WS	2.9	–	2.0	–		69	.5	100
				18.8	2.0	6.4	–			.9	
1963	NICARAGUA	Managua	WS	4.8	–	3.0	–			–	100
1964	PAKISTAN	Dacca	WS&S	50.1	–	26.0	–		52	12.8	16**
	PAKISTAN	Chittagong	WS&S	43.0	–	24.0	–		56	17.0	30**
	JORDAN	Various Cities	WS	5.0	–	3.5	–		70	1.0	100
				98.1	–	53.5	–			30.8	
1965	PHILIPPINES	Manila	WS	48.2	20.2	–	–		42		86
	SINGAPORE	I	WS	13.7	6.8	–	–		50		100
				61.9	27.0	–	–				
1966	BURUNDI	Bujumbura	WS	1.6	–	1.1			69		68
	VENEZUELA	Caracas	WS	54.1	21.3	–			39		79
				55.7	21.3	1.1					
1967	PAKISTAN	Lahore	WS&S	5.6	–	1.8	1.7	(Sweden)			35
1968	SINGAPORE	II	WS	16.0	8.0	–			50		43
	COLOMBIA	Bogota	WS	35.3	14.0	–	3.0	(US & Germany)	48		33
	JAMAICA	Kingston	WS	9.1	5.0	–	–		55		1
				60.4	27.0	–	3.0				
1969	SINGAPORE		S	22.4	6.0	–	–		27		10
	MALAYSIA	Kuala Lumpur	WS	7.7	3.6	–	–		47		2
	TUNISIA	Tunis & Others	WS	32.8	15.0	–	5.0	(Sweden)	61		1
	CAMEROUN	Yaounde Duala	WS	6.7	5.0	–	1.4	(France)	96		–
				69.6	29.6	–	6.4				
1970	GHANA	Accra-Tema	WS&S	5.9	–	3.5	–		59		–
TOTAL (AS of November 30, 1969)			15 WS 4 WS&S 1 S	380.8	106.9	59.3	11.1		49		
					(11 Loans)	(9 Credits)					

* WS = Water Supply
S = Sewerage

** Of remaining credit after partial cancellation.

In general, it is expected that the Bank will become more and more involved in financing not only large and "easy" projects, like electric power and transportation, but projects in more "difficult" sectors like agriculture, education, population planning, and—last but not least—urban development. It is with respect to this last point that I foresee specially in the long run, a substantial increase in financing of water supply and sewerage projects, not in isolation, but as an integral part of comprehensive urban development plans, which in turn are based on balanced nationwide economic programmes.

I hope this paper can contribute to explain some of the considerations on which such financing, whether by the Bank/IDA or by others, should be based.

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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

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COLUMBIA UNIVERSITY SEMINAR ON POLLUTION AND WATER RESOURCES

"Financing of Water Supply and Sewerage Projects in Developing Countries"

by

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As an introduction to the seminar topic "Urban Water Supply and Sewerage Problems in Developing Countries", the objective of this paper 1/ is to explain the World Bank's criteria in selecting and appraising water supply, sewerage and other environmental sanitation projects. However, before dealing with this specific subject, it appears useful to summarize in the first chapters some recent discussions, and to analyse a few statistics, on foreign aid in general and on bilateral and multilateral development financing in particular, as well as to describe the World Bank Group's origin, nature and functions and the basic criteria, which it applies to the financing of any type of project.

I. BILATERAL AND MULTILATERAL AID

The best known and most comprehensive recent analysis of foreign aid is the "Pearson Report"2/ which was commissioned and sponsored by, but carried out independently from, the World Bank. Among other statistics, it includes comparisons of the magnitude and regional distribution of financial assistance to developing countries from the developed countries and from the various multilateral institutions during the past decade.

Table 1 shows the total annual average and the regional distribution of "Net Official Assistance" from bilateral and multilateral sources. While these averages refer only to financial assistance under "concessional" terms, cover only a relatively short period of four years (1964-67), and do not include the most recent developments, they reflect the proportions in which "foreign aid" has been allocated, and the relative emphasis which is given by different donor countries and lending agencies to different regions. Attention is drawn to the following:

(i) Multilateral aid represents only 14 percent of the total.

(ii) The U.S. has contributed more than half (53 percent); France, U.K., Germany, Japan and Canada together have provided more than a quarter (28 percent), and the remaining donor countries (Belgium, Netherlands, Italy, Australia, Sweden, Austria, Denmark and Switzerland, about 5 percent, of the total.

1/ This paper is based on, and has been updated from, the author's presentations in January 1970 at a Water Supply and Sewerage Seminar in Bangkok, Thailand (sponsored by the U.S. Trade Center, Bangkok, and the U.S. Department of Commerce) and at the Second Annual Convention of the Indian Water Supply Association in Bombay, India.

2/ "Partners in Development", Report of the Commission on International Development, Chairman Lester B. Pearson, September 1969.

(iii) The U.S. is the most important donor in all regions, except in Africa, where France has been contributing slightly more.

(iv) Most donor countries have allocated the largest share of their aid to Asia (highest Japan with 98 percent), but a few have given more to Africa, especially Belgium (99 percent) and France (92 percent).

(v) Of the multilateral aid, 43 percent has been for Asia, 32 percent for the Western Hemisphere and 25 percent for Africa. The comparatively high proportion for the Western Hemisphere reflects the important contribution of the Inter-American Development Bank to this region.

With respect to the regional distribution of aid and its allocation to specific countries, the Pearson Report makes some interesting general comments:

> "If aid had been distributed to any economic criteria, the distribution would certainly have been different from what has occurred over the past 15 years...There is also a general bias in aid allocation against large nations, which regularly received smaller amounts of aid on a per capita basis. ...It is absurd, but true that India would have received more aid in the past if she had split into several independent countries."

Concerning the role of the multilateral agencies the Report states:

> "Since some bilateral donors will continue to give high priority to political, humanitarian and cultural considerations, distribution of additional aid primarily according to performance can be ensured only if multilateral agencies try to fill gaps left by bilateral preferences. This is one of the strongest arguments which developing countries have been making over the past two decades in favor of expansion of multilateral aid. ...The most important advantage of multilateral process is the fact that it is mutual. It gives recipients an opportunity to monitor donors and donors to monitor other donors, as to the performance of their commitments, the quality and terms of proffered aid, the criteria of performance, and the ties and strings attached to aid."

Finally, the Pearson Report expresses some unusual and thought provoking views on "foreign aid" in general:

> "The real economic burden of foreign aid to wealthy nations is often considerably exaggerated. It is not uncommon to hear the total flow of resources to developing countries referred to as something which the rich countries "give" to the poor.

> Nothing could be further from the truth, or more misleading. ...The flow of private capital and official credits undertaken for commercial reasons have no more the character of "aid", when they flow to developing countries than when they flow between industrialized countries. ...If there is reason to believe that goods devoted to foreign aid would otherwise have gone to waste, their real cost to the supplier would be nil. ...In view of the fact that most bilateral aid is tied to purchases in the supplying country and helps to promote more production and exports, the real burden must be less than the face value of the resources which are transferred. ...It is doubtful whether transfers directed primarily to military purposes and only secondary to long term development should be thought of as an aid burden at all. In the same vein, suppliers who expect economic returns from general aid programs in terms of a foothold in future markets can hardly maintain that aid is a burden equal to its face amount. In short, the real burden of aid clearly runs below the dollar value of all resources transferred from the developed to the developing countries. This fact deserves to be more widely known."

The Pearson Report does not underestimate the importance of commercial foreign aid programs; what it wants to stress is that foreign aid should be considered under a new light and that the developed and the developing countries should become more aware of their common role: to be "Partners in Development", as is the appropriate title of the Report. In this respect, the multilateral agencies, such as the World Bank, in which both "donors" and "recipients" are represented, are probably the best vehicle to promote this partnership, and to make it operative.

II. MULTILATERAL AID AND THE WORLD BANK GROUP

Table 2 illustrates the amount of lending by the different multilateral agencies for each year from 1960 to 1968. During this period, the number of multilateral agencies increased from 4 to 9. While the World Bank (IBRD) is still the largest among these agencies, its share in the total multilateral operations (which has tripled) has decreased from 70 to 40 percent. The International Development Association (IDA) and the Inter-American Development Bank (IDB), which were founded in 1960 and 1961 respectively, have provided an increasing share of the total, reaching 14 and 15 percent respectively in 1968. The share of the UN institutions, which have mainly financed project preparation, not implementation, has been fairly uniform with 20 to 25 percent. The new regional development banks, namely the Asian Development Bank (ADB) and the African Development Bank (AfDB) have started operations only in 1968, but are expected to quickly accelerate their lending volume in the coming years.

The World Bank Group (IBRD, IDA, IFC) will probably continue to be the leader among the multilateral agencies. Furthermore, although the volume of multilateral aid will probably always remain small compared with the volume of bilateral aid, the World Bank has an important role as coordinator of multilateral and bilateral aid through the increasing number of consultative groups for specific countries or regions, and through joint financing arrangements. This means that the World Bank has a special responsibility in establishing and applying its criteria for development financing, and it is understandable that these criteria are the target of special interest, and sometimes criticism. But before explaining these criteria, it is necessary to explain briefly, what the World Bank Group is and what it does.

III. THE WORLD BANK GROUP - ORIGIN, NATURE AND FUNCTIONS

The World Bank Group consists of three international financial institutions, the World Bank itself, formally the International Bank for Reconstruction and Development (IBRD or, in short, 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.

The Bank, the senior institution of the three, was established in 1944 together with the International Monetary Fund. It makes loans to governments, or with a government guarantee, at conventional rates of interest. By June 30, 1970, the Bank had 113 members and had lent a total of nearly US$14,300 million 1/ to 87 countries.

The International Development Association (IDA) was created in 1960 and has 105 members (only a few Bank members are not members of IDA). 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 (currently, a GNP of US$300 per capita or less determines the eligibility of a country for IDA funds), and which cannot meet all their external capital requirements on the basis of borrowing on conventional terms. At the end of June, 1970, credits amounting to about US$2,800 million had been extended by IDA to 55 countries.

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. By June 30, 1970, IFC had 94 members and has made net commitments totaling US$450 million to private companies in 43 countries. (For the purpose of this paper, the operations of IFC are irrelevant and will not be further mentioned).

1/ A substantial portion of Bank loans (US$2,300 million) has been sold to participating banks, investment companies, etc.

In most major respects the operating policies of the Bank and IDA are identical. Both institutions lend only for projects or programs which are of high priority for the borrowing country's economic development, which are economically and technically sound and which have satisfactory prospects of being carried out and operated successfully. The two institutions apply the same methods and standards in determining for what purposes loans or credits should be extended and in deciding what conditions need to be established to assure that these purposes will be achieved. The interrelationship between the Bank and IDA can be seen from the fact that of the 55 countries which have been receiving IDA funds, 36 have also received Bank loans. Some of these countries received these loans before IDA was established in 1960, and others became eligible for IDA funds as a result of a deterioration in their economic situation after that date; nevertheless, there are quite a few countries which have received and are receiving a "blend" of Bank loans and IDA credits.

Source of Funds

The fundamental differences between the Bank and IDA are in the sources of their funds, which in turn have a bearing on the terms under which these funds are being relent.

The Bank started its operations with a paid-in portion of 10 percent of the subscriptions of its member countries amounting to about US$2,300 million. However, the most important source of its funds has become borrowing in the international capital markets (total outstanding US$4,600 million), mainly the U.S. (outstanding US$2,900 million) and Europe, especially Germany (outstanding US$1,100 million). The Bank's bond issues are secured by the total uncalled capital (90 percent of the members' subscriptions), which is worth US$20,850 million. It is partly because of this large security - and partly because of the Bank's general credit rating as an efficient and profitable organization - that it has been able to borrow, and consequently relend, funds at premium terms. For the borrowing countries, this is the most apparent tangible benefit from the Bank, namely, that it can provide funds at better terms than they would normally be able to obtain by borrowing directly in the capital markets. To illustrate this point, the total amount of bond issues placed by developing countries in the international capital market from 1964 to 1968 has been a significant US$1,800 million, but US$1,400 of this total were placed by 5 out of 26 countries, namely, Argentina, Israel, Mexico, Portugal, Spain. During the same period the Bank placed bonds for US$2,400 million. Nevertheless, because of the increasing cost of the Bank's own borrowings and in spite of its desire to hold its interest rate as low as possible, these rates have increased from less than 4 percent in the first years of Bank operations, to at present 7 1/4 percent.

In contrast IDA credits (the terms "loan" for Bank and "credit" for IDA are normally used to make a distinction between the two operations) are interest free, and carry only a low service charge of currently 3/4 percent. The repayment period is much longer, normally 50 years, compared with 15 to 25 years for Bank loans. These favorable terms are possible only because the major source of funds for IDA credits are grants or interest free loans from in total 18 (the so-called Part 1 countries), of the Bank and IDA members. However, it has been far more difficult for IDA to assure adequate and timely replenishment of its resources than for the Bank to obtain additional funds through borrowing in the capital markets. The original contributions to IDA in 1960 totaled US$780 million; since then they have been twice replenished, in amounts of US$750 million and US$1,200 million respectively. Also, the Bank has transferred US$385 million from its net earnings to IDA.

Purposes and Regional Distribution of Bank Loans and IDA Credits (Table 3)

In the past, Bank loans have mainly been made for Electric Power (33 percent), Transportation (31 percent) and Industry (15 percent); whereas IDA credits have mainly been for Transportation (31 percent) General Development Programs (24 percent) and Agriculture (23 percent). Water Supply and Sewerage Projects account for only a small fraction (less than 1 percent of Bank loans and less than 2 percent of IDA credits) of the Bank Group's operations; this phenomena is discussed later in this paper.

There are also marked differences in the regional distribution between Bank loans and IDA credits: While the former are more evenly distributed (Asia & Middle East 36 percent, Latin America 39 percent, Europe 18 percent, Africa 14 percent), the bulk of IDA funds (72 percent) went to Asia & Middle East, leaving 20 percent for Africa, 5 percent for Latin America and 3 percent for Europe.

IV. GENERAL CRITERIA FOR PROJECT APPRAISAL BY THE BANK AND IDA

Before any particular project is appraised, which has been presented to the Bank or IDA for financing, the "creditworthiness" of the country is being assessed to ensure, in the interest of not only the Bank/IDA but of the prospective borrowing country, that the terms and amounts of the loan (or credit) are within the limits which the country can reasonably be expected to service, taking into accounts all existing and prospective future foreign debts. The appraisal of the project itself usually involves six different aspects: economic, technical, commercial, financial, institutional, organizational and managerial aspects.

The objective of the appraisal of the economic aspects is to determine (i) whether the sector involved is of priority for the economic development of the country concerned, and (ii) whether the project is of sufficiently high priority in this sector to justify investment in it. The relative financial return of different projects is frequently not a sufficient test of their relative contribution to a country's development. In many cases, basic investments are required before other investments in more immediately profitable activities can be undertaken.

The benefits properly attributable to these basic investments may be very great even though the direct earnings, at least in the short run, are not high or may even be non-existent.

The economic appraisal involves an investigation of the demand for the goods or services which the project is expected to produce. This study may be of varying scope, ranging from a narrowly localized study, as in the case of a municipal water supply project, to one that is nationwide, as in the case of a national railway project. In some instances, the investigations may need to be world-wide; for example, in the case of a project to develop a source of iron ore for export. An important question which will normally be investigated during the economic appraisal includes the relative merits of alternative ways to provide the goods and services required.

The appraisal of the technical aspects of a project involves an investigation of the detailed engineering plan for its construction and operation, including the proposed scale of the project, the type of process or equipment to be used, the location, layout and design of the various elements. The technical staff available to the borrower, both for carrying out the project and for operating it, is evaluated and a judgement is reached whether outside help is required. When, in the Bank's opinion, consulting engineers or other experts should be brought in, the Bank often assists the borrower to prepare terms of reference. The choice of consultant is made by the borrower, but the Bank satisfies itself that the consultant chosen is suitably qualified; it believes that a selection should be made on the basis of qualification to perform the work, not on price.

An important part of the technical appraisal of a project is an investigation of the assumptions on which the cost estimates have been calculated. Cost estimates should include adequate contingencies and provisions for interest during construction, and for initial working capital.

The commercial aspects of project appraisal entail a review of all arrangements for buying and selling. In the construction phase, this involves the arrangements for buying the materials needed to construct the project. The Bank is concerned that the borrower shall obtain the best value for the money spent - an objective normally attained by requiring international competitive bidding. For the operating phase, it involves the proposed arrangements for obtaining the raw materials, power and labor needed to operate the project, and for marketing its product.

The appraisal of the financial aspects of a project usually falls into two sections: that concerned with the amount of money required to bring the project into operation and with the sources from which it is to be obtained, and that concerned with operating costs and revenue and prospective liquidity in the operating phase.

Since the Bank and IDA finance only a part of the project cost, it is necessary to ensure that funds from other sources are available on reasonable terms to meet the balance.

Financial projections must also be calculated for the operating period and are necessary, for example, for a revenue-earning project to estimate the financial return on the investment and to determine whether the borrower is likely to have sufficient working capital. In the light of these projections, a judgement has to be made about the soundness of the financing plan.

The institutions are also concerned with the organization proposed for the execution of a project, both during the construction and operating phases. In the case of some projects, the Bank has conditioned its assistance upon the creation of an autonomous operating authority insulated from political pressures and rigidities of government administrative procedures.

The Bank and IDA place particular stress upon the assurance of adequate management for a project. In cases where adequate local management is not available, the borrowing country, or the enterprise concerned is asked to look for organizations or individuals qualified to assist in running the enterprise, at least during the initial stages, and to provide appropriate management training to local personnel.

It would seem that all these criteria are reasonable and ought to be applied not only by a lending institution such as the Bank or IDA, but by any authority which is involved in programming, preparing or implementing a project, regardless whether it is located in a developing or in a developed country, and regardless whether outside financing is involved or not. Yet, as Mr. Shoaib, one of the Bank's Vice Presidents, stated at the 1967 Water for Peace Conference in Washington, "looking back after two decades, it is easy to see that any country in a position to meet such apparently routine requirements without help could hardly be classified as underdeveloped". However, the conclusion to be reached is not that the requirements are too rigid, but that most of the developing countries need assistance in meeting - gradually - these requirements. This distinguishes the Bank Group (and the other multilateral agencies) from most normal lending institutions: It acts increasingly - as advisor and counsel for its poorer members and not as a lender who is only interested in protecting his investment.

The key question and the area of potential controversy is, of course, how the Bank and IDA apply their general policies and criteria to specific cases. In the following chapters, this is explained with respect to water supply and sewerage projects.

V. FINANCING OF WATER SUPPLY AND SEWERAGE PROJECTS

A. Background

The World Bank is not a prime lender for water supply and sewerage (henceforth WS&S 1/) projects, nor does it claim to be an authority in financing such projects. Certainly, it is far from becoming, what Professor Mehta 2/ once suggested as a desirable vehicle for promoting these projects, namely an "International Water Supply Bank". If any institution deserves such a title, it would be the Inter-American Development Bank (IDB), but its operations are limited to Latin America. Latin America is indeed fortunate to have not only the IDB but also the Pan American Health Organization (PAHO) preparing projects in the sanitary engineering field, and assisting in their implementation. The following table - showing the status as of 1969 - may illustrate this fact better than words:

Lending for WS&S Projects	Million US$	% of Worldwide	% of Latin America
Worldwide	895	100	
Latin America	557	62	100
IDB	399	45	72

A comparison between the operations of IDB and the World Bank with respect to WS&S project lending is interesting in several other respects (Table 4). Two points should be highlighted:

(i) Compared with only 1-2 percent of all Bank/IDA lending, IDB loans for WS&S projects represent more than 15 percent of all IDB lending.

(ii) The average Bank/IDA loan for WS&S projects was about US$7-8 million (Bank US$10 million and IDA US$4 million) which is somewhat higher than the average IDB loan for WS&S of US$5 million. However, while the average IDB loan for WS&S has been about the same as the average amount of all IDB loans (US$6 million), the overall averages of Bank loans (US$20 million) and IDA credits (US$13 million) are two to three times higher than the respective averages for WS&S projects.

These comparisons give an indication of the different type and scale of operations of the respective institutions. But WS&S is not the only area of Bank/IDA lending, where the average loan amount is below "normal"; the same is true, for example, in the case of Education Projects.

1/ This refers to water supply or sewerage projects, or a combination of both.

2/ Central Public Health Engineering Research Institute in Nagpur, India.

Also, the number of loans made in the past and their size are by no means an indication of a preference of the Bank Group for specific types and sizes of projects, and there is no "bias" against WS&S projects. The Bank's position and experience with WS&S projects is reflected as follows in the Annual Report - 1970:

> "Water supply projects provide valuable benefits to the population of areas in which they are located, but there are often serious problems involved in setting up sound projects for this purpose. The need for such projects is usually greatest in the rapidly growing cities of the developing world; all too often, however, these cities do not charge or collect adequate tariffs, and are dependent on their countries' already overburdened national budgets for urgently needed funds.
>
> This situation, which often leads to the unavailability of sufficient funds to carry out projects, underlines the desirability of adequate levels of charges which will provide the funds to enable the water authority to work effectively.
>
> The Bank Group is also concerned that the water authority has, or can develop, the ability to execute and operate the project in a reasonably effective manner. This often requires a large measure of institution building. The Bank's concern with rate levels and institution building is part of its overall policy of taking every possible step to see that the projects it assists provide a soundly based, economical and self-sustaining service to the community for whose benefit they were established.
>
> Notwithstanding the real difficulties involved in establishing and expanding properly managed water supply systems, the Bank hopes it may be able to support further projects during the coming years in this area of urgent need. It encourages and assists in the preparation of suitable projects and examines with special interest UNDP pre-investment studies in this field being carried out by the World Health Organization (WHO)."

Hence, the problem has been mainly that - except in Latin America, which is relatively well assisted by the IDB and others, including the Bank Group - there are not enough suitable WS&S projects ready for financing. In many countries, Water Supply and Sewerage is not even recognized as a matter of national concern. Consequently, the investment programs prepared by the national planning offices of these countries have often no, or only inadequate, provisions for this sector. Usually only the capital cities are able to attract sufficient attention to their needs in water supply and sewerage.

In fact, with a few exceptions, most Bank/IDA lending for WS&S has been for capital cities (see Table 5). There are certain economic arguments for placing a high priority on WS&S projects in large urban areas (there the greatest number of people can benefit from the minimum expenditure of money, manpower and other resources), compared with smaller cities and rural areas. But the Bank Group is aware that, so far, the projects for which financing has been requested and was provided, were not selected on the basis of balanced and comprehensive country-wide sector studies. This leads to the question of what is the "economic justification" for WS&S projects.

B. Economic Aspects

One of the elements on which the economic appraisal of a WS&S project is based, are demand projections. These should be as detailed as possible and should take into account not only projected population growth, increase in per-capita demand, different requirements and consumption patterns of different consumer groups (domestic, commercial, industrial, public), but also the "elasticity" of water demand, as for example, affected by price, rate structure and metering. Textbooks are not always the best guide in establishing demand estimates, and the per-capita consumption in some developed countries is more an example of water waste than an indication of high economic development. Most important is a realistic estimate of the amount of unaccounted water, or more general "water losses", which in many cases have been found to be far above any acceptable level, sometimes unknown even to the engineers responsible for the system.

The techniques to analyse projects from an economic point of view, and to quantify the merits of different projects, can only briefly be mentioned here, they are: Cost-Benefit Analysis, Internal (or incremental) Rate of Return Calculations, Discounted Cash flow, Present Worth Analysis, etc. In all these different but interrelated types of analysis, the sources and terms of financing are immaterial. In other words, the results are the same if a project is financed without, with limited or with a large amount of foreign funds; nor are they affected by the proportion between borrowed funds, funds generated from operations and others. Economically, all these funds are capital, which has a "price", sometimes called the "opportunity cost of capital". The "price" is different from country to country, but is always above the actual lending rates: Nobody would borrow money unless he expects to earn from investing it more than the amount needed to service his debt. Similarly, any country should be careful in investing its scarce financial resources (whether own or borrowed) in projects which have an economic return below the respective "opportunity cost of capital".

Accordingly, the key factor in analysing the economic efficiency of any project is the measurement of cost and benefits in economic, not financial terms. While the "cost" of WS&S projects can normally be defined without too many difficulties, there is considerable discussion among economists on what should be considered the "benefits". The easiest solution would be to define such benefits as the "maximum consumers would be prepared to pay for successive quantities of water or for successively better sewerage service." There are, however, two more types of benefits, normally referred to as "social benefits", which are <u>above</u> those realized by individual customers.

The first is related to the collective nature of water use like, for instance, street cleaning and public gardens watering, in short, the contribution to the aesthetics of urban life; the second - more important - are the "external" effects of water use, namely eradication or reduction of water-borne diseases, resulting in reduced disability, morbidity and death rates, in lower medical expenses and in increased productivity of the labor force. Further benefits are reduced fire losses, and, in turn, sometimes a reduction in fire insurance premiums.

Unfortunately, the efforts spent by many talented people to quantify these "social benefits" have not yet resulted in formulas which have been generally accepted or could be generally applied. Moreover, there is a wide gap between those who consider even a discussion of the desirability to quantify such benefits as "immoral", or at least strange, and those who suggest that (i) from an economic point of view some of these benefits - especially population growth - are no benefits at all, but rather unfavorable side effects of improved water supply; or (ii) "social infrastructure" such as water supply, sewerage, housing is normally productive only in the long run, and cannot be considered a precondition for, but rather a "fruit" from, development; or (iii) improvements in urban WS&S are likely to accelerate migration from the rural areas into the cities and thus worsen the urban problems.

The truth, as always, is probably somewhere between these extreme positions. On the one hand, there are intangible benefits of water supply which cannot be quantified but are important for the improvement of human life and of living conditions. On the other hand, social infrastructure is not a means by itself, but its development should be programmed in balance with other basic investments in the economy. There are quite a few examples, where an originally sound policy of placing priority on productive investments has led to an impasse for further development when there was an overcapacity in, say, electric power and industrial facilities, but a severe backlog in other essential services, such as water supply for industrial and domestic use.

As to the "urban" argument: Migration from the rural into the urban areas will take place (and has taken place) even if the social infrastructure is deficient, because urban areas are, and will increasingly become the essential dynamos for progress in all industrializing countries. The World Bank has become increasingly aware of urban problems and it is concerned about the deteriorating conditions in many cities in the developing world. This has been expressed in Mr. McNamara's address to the Bank's Board of Governors at the Annual Meeting in 1969: "The phenomenon of urban decay is a plague creeping over every continent, but its corrosive effects are critical in the poorer nations. The resources required to provide minimal services and infrastructure for urban populations, which in the year 2000 may be 500% higher than today, are staggering. Our knowledge of how to best deal with the whole issue of urbanization remains primitive. But one point is clear: the problem must be dealt with on a comprehensive national basis".

C. Technical Aspects

As pointed out earlier, preparation of WS&S projects for Bank lending has required proportionately much time and effort. In most cases, the reasons were not so much deficiencies in detailed engineering but unsatisfactory planning. This refers mainly to the identification and analysis of alternatives of staging long range master plans, and of alternative schemes for the proposed initial stage, and is closely related to the economic analysis and justification of projects. In many cases, when the Bank/IDA eventually approved a loan, the project had changed substantially from the time when it had first been presented for financing. Changes had been made,

(i) in the scale of the project: and contrary to some beliefs, there have also been cases where the Bank has encouraged much larger schemes than had been proposed;

(ii) in the basic supply alternative: e.g. groundwater instead of surface water and vice versa;

(iii) in the emphasis on various project elements: often the possibilities of reducing water losses by rehabilitating the distribution system had not been sufficiently explored; additional supply would have largely fed water leaks, and would have been lost for actual consumption. This problem is of special importance where supply had been intermittent and supply hours are expected to increase as a result of the project.

Of particular concern in preparing WS&S projects in developing countries are the design criteria. Criteria, which have proven to be adequate or may even be standards in "rich" countries with a shortage of labor and with a sophisticated technology, should be carefully reviewed and if necessary modified, before being applied to projects under different climatological, social and economic conditions. Important savings in cost can be made if, in preparing specifications for bidding, engineers leave as wide a range of options as possible for different, but equivalent equipment (e.g. pipe materials, pump sizes, meter types). The desire to maintain a reasonable degree of standardization is, of course, an acceptable constraint.

In summary, based on the Bank's past experience, there is much room for improvement in the preparation of WS&S projects. Planning engineers from the developing countries, and consulting engineers from the developed countries assisting them in project preparation, should be aware that the product of their work is in competition with many other proposals for investment in the countries concerned and that it depends, among other things, on the quality of this product whether or not more WS&S projects will be implemented in the future.

Professional enthusiasm alone is not sufficient, and the desire to design a technically perfect scheme, using the most advanced techniques and employing sophisticated devices, often leads into the wrong direction.

D. Commercial Aspects

Under "General Criteria for Project Appraisal" it was stated that these aspects refer to all arrangements for buying and selling, during the construction and during the operating phase.

The "selling" aspect is frequently neglected by agencies responsible for WS&S services; this is understandable, because in most cases the backlog and shortages are so great that it seems hardly possible that there would ever be a problem of finding a market for water. However, there have been cases where it has proven difficult to attract and to connect the projected number of customers to the new facilities. This problem is likely to occur where the project provides new facilities in an area which had previously no or only partial community WS&S service, and where consequently the public was forced and able, and later accustomed, to using private facilities. Special legislation may be needed, but may not be easy to obtain, to ensure an adequate support of the new system.

Naturally, during the stage of project preparation and implementation the "buying" aspect is of much more immediate concern. The Bank/IDA has issued "Procurement Guidelines" which normally become part of its agreements with the borrowers. These Guidelines suggest specific steps to the project authority with respect to preparation of bidding documents, bid advertisement, bid opening, bid analysis, and to general contract provisions. The basic requirement is that - with a few exceptions - borrowers are expected to assure "international competitive bidding" on all contracts related to the project. The term "international" is qualified in the sense that bidding must be open but is limited to all Bank member countries (and Switzerland, which is not a member but has a special relationship with the Bank). In exceptional cases, the Bank may agree to reserve certain contracts for local procurement; however, these contracts may be excluded from the package of works regarded as the "Project" financed under the loan; this has no implications when the loan is only made for foreign exchange expenditures, but it may be important, if the loan amount is determined as a percentage of the total "project" cost.

The requirement of international competitive bidding is accepted by all Bank borrowers without difficulty, when procurement is for goods for which there is no competition from within the borrowing country. There is overwhelming, and sometimes dramatic, evidence from thousands of contracts procured under Bank/IDA financing, that such competition results in substantial savings, compared, for example, with the "tied aid" of many bilateral assistance programs. However, international competition is more controversial when the goods and services involved are also available from within the borrowing country.

The Bank Group's two basic objectives, namely (i) to ensure - through wide competition - that borrowers obtain the best value for their money and that all member countries have the opportunity to participate in such bidding, and (ii) to provide a reasonable degree of protection to the domestic industry of developing countries, thereby stimulating industrialization and economic growth, seem to be difficult to reconcile. In practice, the question is how to compare bids from foreign and local suppliers, and how to determine the "lowest evaluated bidder" to whom the contract should be awarded. In the past, the Bank has, in appropriate cases, and at the request of the borrowers agreed to a certain degree of "preference" for local suppliers, normally 15%, or the amount of custom duties on the CIF price of the lowest foreign bidder, whatever is lower. Such an across-the-board formula is simple but, depending on each case, it may or may not provide an acceptable and adequate degree of protection for local suppliers. This is especially true, if the locally produced goods themselves have a large import component. Therefore, from an economic point of view a formula based on "value added" (to the import component) would be preferable, but is more difficult to design and more so to apply.

With respect to WS&S projects - as in most other projects - the ability of local firms to compete with foreign suppliers varies from country to country and depends on the stage of development: It is first for civil works, later in the manufacture of pipes (especially concrete pipes), and then in the production of mechanical equipment (pumps, motors, and sometimes water meters), where local firms become increasingly competitive.

E. Financial Aspects

The need to have sufficient funds available to cover the cost of construction of a proposed project would seem to be a generally accepted fact. It is all the more surprising that in some of the Bank/IDA's WS&S projects, it has taken a long time after the loan/credit was in principle assured, to obtain evidence that the balance of the funds was available from local sources (the project authority, the Government, local financing agencies or others).

However, it is with respect to the financial criteria for the "operating phase", not for "project construction", where the Bank/IDA is most commonly criticized as being too rigid and following a hard line. The principal scapegoat is the concept of the "financial rate of return", or more general "profit", which the Bank applies to all revenue earning projects, and specifically to public utility projects (electric power, telephones, water supply).

The financial Rate of Return (in %) for a given year is defined as: $\frac{A + B}{C \times 100}$

Whereby:

A = Net Income	= Gross Income (from Water Sales, Sewerage Service charges, etc.)	minus	the sum of (i) Operating Costs (Salaries, supplies, etc.) (ii) Amount added to reserves for depreciation. (iii) Financing Charges (see B).
B = Financing Charges	= Interest (but not Amortization		
C = Net Fixed Assets	= The realistic present value of all fixed assets (excluding inventories and other current assets) except work in progress.	minus	Accumulated depreciation (based on realistic present value of the fixed assets).

It is important to stress that for the purpose of calculating the Net Income, amortization is not a cost; it is, of course, an expenditure to be taken into account in cash flow forecasts. "Capitalized" Operating Costs (e.g. salaries of staff directly engaged in project preparation and supervision) and Capitalized Interest (interest or loans for projects during the construction period of such projects) have to be deducted from the totals before entering the amounts into the calculation; these capitalized costs become part of the project cost and thus of the "Rate Base".

Arguments brought forward against the "rate of return concept" are both "qualitative" (namely on the principle of using this concept for WS&S projects) and "quantitative" (on the size of the return requested by the Bank). As to the concept, which in simple terms requires a WS&S company to earn enough money to cover not only its current expenditures but to accumulate certain amounts for future expenditures, Barbara Ward, the well-known British economist, who can hardly be accused of being a "capitalist", wrote in 1962:

> "A developing country should aim its policies at ensuring the quickest rate of capital accumulation. Profits should be strongly encouraged, in public as in private enterprise, and tax systems arranged so that all the incentives are towards their reinvestment. This does not always arouse much enthusiasm among planners brought up to believe in the inherent immorality of profits and ready to run essential public services on a 'no profit, no loss' basis. But profits are one of the chief means by which resources can be put at the disposal of society, and, as is little known, are a major source of investment in Soviet Russia."

As to the size of the return, the Bank is aware of the fact that water supply and even more so sewerage authorities, have normally to recover from a substantial backlog in investments and cannot be expected to immediately generate as high returns as would be desirable.

Therefore, as is reflected in most of the Bank/IDA loan agreements for WS&S projects, borrowers are given a certain period of initially low, but increasing returns to achieve the desirable target; the target itself depends on each case, but is normally between 8 to 10 percent. In practical terms, the rate of return concept, coupled with the projections on actual cash requirements (which sometimes demonstrate the need for more funds than would be necessary to achieve the agreed-upon rate of return, has a direct bearing on the charges which have to be levied on the water and sewerage customers. This is where economic and financial "theory" ends, and where practical and often political considerations begin.

It is sometimes argued that it is irrelevant, and the Bank should not be concerned about how the total amount of the necessary funds for WS&S services is being generated. However, in the Bank's view, the most equitable way of charging for water, and the least conducive to waste, is to relate water charges as closely as possible to actual consumption; this requires metering of preferably all connections which can normally only be achieved in stages. Proposals to charge for water on any other basis than consumption (e.g. property value, fixed amounts with minimum consumption allowance) or to give water "free" to certain consumer groups (hospitals, schools, government) are therefore carefully reviewed during financial appraisal of a WS&S project. It has sometimes been accepted that the Government or the municipality pay, or subsidize payment, for water consumption of certain economically weak consumer groups which they wish to assist.

Financial management of a WS&S company, or of any other public utility, requires an efficient and business-like accounting system. Billing and collection, budget control and budget programming are important areas of financial management. Accounts should regularly be audited by independent auditors. The quality and effectiveness of a public utility company, as of any other business or government, can always best be assessed from the way it is handling its financial affairs.

F. Institutional, Organizational and Managerial Aspects

If there is a single most important objective of the Bank Group's operations, besides providing funds for financing projects and programs, it is to help the developing countries building institutions which provide the necessary organizational and administrative framework for planning and implementing public and private investments. The need for such assistance is especially great in the WS&S sector. It involves the institutional set-up at the national government level, the local organizations responsible for constructing and operating WS&S schemes, and the recruitment of competent managers, experienced professionals and skilled labor to staff such organizations. However, there are no textbooks or formulas which provide a tool for defining the best proposal or for measuring the success in a given case. Neither does the Bank have ready-made solutions.

WS&S has some peculiar features: One one hand, WS&S services are mostly "local", seldom regional, and almost never national (in the sense of nationally interconnected systems).

On the other hand, while the supply of good and sufficient water is essential for almost any economic activity, the demand for industrial, and even less for potable water represents normally but a small percentage of all available water resources in a country; most of these resources are used for other purposes (especially hydropower generation and irrigation). Therefore, one can find a variety of institutional solutions in different countries with respect to the allocation of responsibility for WS&S, and for "water" in general. For the purpose of water resources allocation and from the point of view of WS&S, most of these arrangements can be adequate, as long as it is assured that sufficient quantities of water are reserved for water supply. However, in spite - or possibly because - of the proportionately small quantities of water involved, this requirement is sometimes overlooked and in some national water programs there is "no water left" for community water supply.

More important from an institutional point of view, is the question how to organize and exercise at the national government level regulatory functions related to WS&S services, such as developing and administrating rate policies, monitoring financial performance, setting technical standards, etc. Considering the difficulties of most WS&S services in developing countries, the need for such coordination and central assistance is obvious. Therefore, while the Bank does not necessarily suggest or support the establishment of a national water authority, it strongly recommends instituting and enforcing sound national public utility policies (not limited to WS&S) and giving support to the operating agencies in following such policies.

As to the responsibility for constructing and even more for operating WS&S services, the Bank/IDA's experience indicates that this should normally be left, or delegated, as close as possible to the local level. However, regardless of whether the authority is established at the municipal, regional or national level, it should be organized and operated as a revenue-earning utility, separated from normal government bureaucracy, and not be subject to political interference in its normal affairs. It should be able to independently set water rates in accordance with sound financial criteria and within the limits of generally accepted rate policies in the country. It is in this respect that the Bank/IDA has a preference for setting-up of a new autonomous authority, before approving a loan for a public utility project. Of course, this authority will normally be owned by the public and it may have a board in which the political councils are represented.

Even where such an autonomous authority cannot, or not immediately, be established, the Bank/IDA suggests that the WS&S service is organized as a separate department within the general structure of the respective local or national government. This refers especially to keeping WS&S accounts separate from the general books in order to clearly allocate income and expenditures, and determine the financial performance, of the WS&S service.

The organizational structure of a WS&S service should be functional and should define lines of responsibility in such a way that management can effectively delegate authority without losing control over the operations. This requires the installation of effective management reporting systems and of general communications systems within the organizations.

In this respect, a WS&S service should not be different from any other commercial firm. Experience shows, however, that the principle of operating revenue-earning public enterprises in a business-like manner, is least developed at the municipal level and, in turn, seldom adopted for WS&S services.

The best institutional framework and the most perfect organizational structure are useless, if there are no men to staff the key positions on the top and at the supporting levels of these organizations. Without any doubt, and this is the case not only in many developing but also in a number of developed countries, WS&S companies are not very glamorous; they have usually great difficulties to attract qualified staff, and even to compete with other public enterprises in recruiting competent people, especially for the top management positions. In many countries, where career opportunities for engineers in top government positions are scarce, management of WS&S companies is usually "reserved" for civil or public health engineers. While there may be many good reasons for this policy, it fails to recognize that management is an art on its own, and no professional group - engineers, accountants, lawyers, etc. - can claim to offer the best or exclusive qualification for management.

Quality of management and of staff at any level of an organization is always closely related to the salaries and salary incentives, and to the job security which this organization can offer. Public enterprises can seldom compete with salaries in private industry and thus, job security is often their main attraction. If even this element is absent, as it is for many top positions of politically influenced public services, it is hardly surprising that qualified people stay away from them, and if a Government employee is "deputed" to such an organization he is more likely to consider it a demotion than a possibility to expand his experience.

In a number of countries, there is not only a scarcity of good managers, but also of engineers with sufficient experience and expertise in the specific technical aspects of a WS&S service. In these cases, scholarships for training in well-established foreign water authorities or for graduate studies at specialized foreign universities may provide a solution, although not for the immediate future. Once a certain amount of experience has been accumulated in the country itself, and this process normally starts at the WS&S services of the larger cities, specialized courses at local universities and national training programs should be established. In this way, experience can be handed down to the smaller cities and to the rural areas. This is a long process, and the absence of sufficient and sufficiently trained staff can be a strong argument in favor of establishing a national water authority responsible for all aspects of WS&S, including operation of certain systems, where the local authorities cannot provide the necessary support of personnel.

The foregoing notes show that the solution of the management problem is first of all a question of manpower and second of education and training. Outside assistance can help to resolve the latter problem, but very little to overcome the first, which will always remain the responsibility of government at all levels in the country concerned. Management consultants can be of great help, and employment of such consultants may be one of the conditions for a Bank/IDA loan. However, they should primarily be advisors to local executives and should be given executive responsibilities only in exceptional circumstances and for a limited period. This does not mean that their task is limited to designing manuals and giving lectures in advanced techniques of business administration; on the contrary, they should not only make sure that the new manuals are understood by the people concerned and can be made operative under the specific circumstances but should - especially in the early phases of their assignment - actively participate, when necessary, in the day-to-day of the organization.

VI. LOAN ADMINISTRATION AND PROJECT SUPERVISION

Project selection, preparation and appraisal are only the initial steps in the Bank/IDA's involvement with a specific project. Once a project has been appraised and in principle accepted by the "Loan Committee" in the Bank/IDA, representatives of the respective government, the borrower, and of the project authority (which may be identical) are invited for negotiations. After negotiations, the legal documents are finalized and the loan/credit proposal is presented to the Bank/IDA's Board of Executive Directors, who represent the member countries. After the Board's approval, the loan is signed and - provided certain steps are taken by the borrower - becomes effective.

It is at this time, when the second major phase of the Bank/IDA's involvement with a particular project begins: Supervision. On the average, each "active" project is visited at least once a year ("problem" projects more often). The great importance, which the Bank/IDA attaches to project supervision can be seen from the fact that there are as many supervision missions every year as there are project identification, preparation or appraisal missions. In addition, the Bank requests its borrowers to prepare and submit periodic progress reports (monthly, quarterly, annual), covering all important aspects of project construction and of operations. These progress reports are designed not only to provide the Bank with information, but to serve as part of the borrower's internal management reporting system. Supervision of Bank financed WS&S projects is essentially the same as for any other type of projects. However, as was mentioned in connection with preparation and appraisal, WS&S projects have required much more attention than the "average" Bank project.

VII. OUTLOOK

The Bank/IDA's experience with, and its interest in Water Supply and Sewerage (WS&S) projects is considerably larger than what the relatively small number of past Bank/IDA lending for such projects would suggest.

The number of WS&S projects which are currently under consideration by the Bank/IDA and are expected to result in loans or credits within the next two years is almost twice as large as the total number of WS&S projects financed since the early sixties, when the Bank/IDA started lending in this sector.

This increased emphasis in WS&S projects is in line with the Bank's growing interest in urban rehabilitation and development problems and with the trend of expansion of the Bank's activities into other "difficult" sectors like education and population planning.

TABLE 1

REGIONAL ANNUAL DISTRIBUTION OF NET OFFICIAL ASSISTANCE 1/

FROM BILATERAL (DAC) AND MULTILATERAL AGENCIES

1964-1967 Average

(Amounts in million US$ and percentage) 3/

	Africa		Asia		Western Hemisphere		Total		% of Total Bilateral & Multilateral
US	418		2,009	(66)	576		3,003		53
FRANCE	445	(92)	28		15		488		9
UK	198	(50)	175	(44)	23		396		7
GERMANY	94		232	(63)	38		364		6
JAPAN	1		221	(98)	6		228		4
CANADA	14		106	(80)	11		131		2
Others 2/	178	(62)	92		16		286		5
Total Bilateral	1,348	(28)	2,863	(58)	685	(14)	4,896	(100)	86
Total Multilateral	194	(25)	334	(43)	256	(32)	784	(100)	14
Total Bilateral and Multilateral	1,542	(27)	3,197	(56)	941	(17)	5,680		100

Source: "Pearson Report" 1969

1/ Includes only assistance with concessional terms, e.g. IDA but not IBRD

2/ Others:

	Total
Belgium	77
Netherlands	80
Italy	51
Australia	33
Sweden	22
Austria	18
Denmark	6
Switzerland	5
	286

3/ Figures in parenthesis are percentages of country's total official assistance.

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TABLE 2

GROSS DISBURSEMENTS OF MULTILATERAL AGENCIES TO LESS-DEVELOPED COUNTRIES, 1960-68

(amounts in million US$)

Agency	1960	1961	1962	1963	1964	1965	1966	1967	1968	%	1960-68	%
World Bank (IBRD)	341	321	409	462	464	474	564	561	605	39	4,201	43
Internatl. Dev. Association (IDA)	-	1	25	105	148	277	273	368	215	14	1,412	16
Internatl. Finance Corporation (IFC)	13	8	18	12	16	19	30	26	31	2	173	2
Sub-Total World Bank Group	354	330	452	579	628	770	867	955	851	55	5,786	61
Inter-American Dev. Bank	-	5	37	75	131	109	142	183	233	15	915	10
Asian Development Bank	-	-	-	-	-	-	-	-	20	1	20	-
African Development Bank	-	-	-	-	-	-	-	-	2	-	2	-
European Eco. Comm-European Dev. Fund	4	17	54	67	85	104	112	105	121	8	669	7
European Eco.Comm-European Invest. Bank	-	-	-	-	6	12	28	39	10	1	95	1
U.N. Institutions	125	197	182	229	263	252	272	207	300	20	2,027	21
Total 1/	483	549	725	950	1113	1247	1421	1489	1537	100	9,514	100

Source: "Pearson Report" 1969.

1/ This total should not be confused with the flow of multilateral "development assistance". These figures include, in addition to official contributions ($661 million), funds raised on private capital markets and repayments on previous loans which are lent at near commercial terms.

2/ For comparison, the following are the gross disbursements of the World Bank Group to all its member countries (Source: Annual Reports IBRD/IDA and IFC, 1970):

	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
IBRD	398	485	620	559	606	668	790	772	762	772
IDA	-	12	56	124	222	267	342	319	256	143
IFC	10	12	16	16	16	22	25	33	33	85
Total World Bank Group	408	509	692	699	844	957	1157	1124	1051	1000

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IBRD LOANS AND IDA CREDITS BY PURPOSES AND REGIONS

As of June 30, 1970

(amounts in million US$)

TABLE 3

	Africa	Asia and 1/ Middle East	Europe	Western Hemisphere	IFC	Total IBRD/IDA	Total IBRD	Total IDA	Percentage Total IBRD/IDA	Percentage Total IBRD	Percentage Total IDA
Transportation	1,183	2,310	586	1,173	-	5,251	4,405	846	30.8	30.9	30.5
Electric Power	528	1,194	672	2,411	-	4,805	4,642	163	28.2	32.5	5.9
Industry	254	1,206	590	220	-	2,270	2,166	104	12.3	15.2	3.8
Agriculture, Forestry & Fishing	319	987	157	456	-	1,919	1,294	625	11.3	9.1	22.5
General Development & Program Loans	40	1,067	100	-	-	1,207	552	655	7.1	3.8	23.6
Post-War Reconstruction	-	-	497	-	-	497	497	-	2.9	3.5	-
Telecommunications	38	200	40	101	-	380	244	136	2.2	1.7	4.9
Education	159	82	12	70	-	324	145	179	1.9	1.0	6.5
WATER SYSTEMS	35	74	4	62	-	175	127	48	1.0	.9	1.7
Project Preparation & Technical Assistance	7	11	-	-	-	18	1	17	.1	-	.6
Family Planning	-	-	-	2	-	2	2	-	-	-	-
Financing Loan (IFC)	-	-	-	-	200	200	200	-	1.2	1.4	-
TOTAL IBRD/IDA	2,563	7,132	2,658	4,495	200	17,048	14,278	2,773	100%		
IBRD	2,015	5,143	2,565	4,352	200	14,275	14,275	-		100%	
IDA	548	1,989	93	143	-	2,773	-	2,773	-		100%
PERCENTAGE IBRD/IDA	15.0	41.8	15.6	26.4	1.2	100%					
IBRD	14.1	36.0	18.0	30.5	1.4	100%					
IDA	19.8	71.7	3.3	5.2	-	100%					

Source: World Bank/International Development Association, Annual Report 1970.

1/ Including US$515 million for Australasia (Australia & New Zealand)

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TABLE 4

Comparison between the World Bank and the Interamerican Development Bank with respect to Financing of Water Supply and Sewerage Projects
(amounts in million US$)

	All Loans	Loans for Water Supply & Sewerage	% of all Loans
IDB (as of December 1969)			
Number	565	86	15.2
Amount - Total	3,429	457	13.3
- Average	6.1	5.3	
IBRD (Bank) (as of June 1970)			
Number	706	12	1.7
Amount - Total	14,275	125	.9
- Average	20.2	10.4	
IDA (as of June 1970)			
Number	221	10	4.5
Amount - Total	2,773	38 1/	1.4
- Average	12.5	3.8	
Bank and IDA (as of June 1970)			
Number	927	22	2.4
Amount - Total	17,047	163	1.0
- Average	18.4	7.4	

Source: "Annual Report - World Bank 1970" and
"Annual Report - IDB, 1969".

1/ Net of cancellations

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TABLE 5

IBRD LOANS AND IDA CREDITS FOR WATER SUPPLY AND SEWERAGE PROJECTS

(As of August 31, 1970.

(amounts in million US$)

Fiscal Years	Country	Loan or Credit No.	City	WS or S	Total Project Cost	Foreign Financing: IBRD	Foreign Financing: IDA	Foreign Financing: Joint Loans	Total Project Cost	Cancellation and Refunding	% Disbursed
1962	CHINA	9	Taipei	WS	9.7	-	4.4		45	.4	100
	ICELAND	311	Reykjavik (hot)	WS	6.2	2.0	-		32	-	100
	JORDAN	18	Amman	WS	2.9	-	2.0		69	.5	100
					18.8	2.0	6.4			.9	
1963	NICARAGUA	26	Managua	WS	4.8	-	3.0				100
1964	PAKISTAN	61	Dacca	WS&S	50.1	-	26.0		52	12.8	31 2/
	PAKISTAN	42	Chittagong	WS&S	43.0	-	24.0		56	17.0	39 2/
	JORDAN	63	Various Cities	WS	5.0	-	3.5		70	1.0	100
					98.1	-	53.5			30.8	
1965	PHILIPPINES	386	Manila	WS	48.2	20.2	-		42	.6	100
	SINGAPORE	405	I	WS	13.7	6.8	-		50		100
					61.9	27.0	-				
1966	BURUNDI	85	Bujumbura	WS	1.6	-	1.1		69		77
	VENEZUELA	444	Caracas	WS	54.1	21.3	-		39		80
					55.7	21.3	1.1				
1967	PAKISTAN	106	Lahore	WS&S	5.6	-	1.8	1.7 (Sweden)			70
1968	SINGAPORE	503	II	WS	16.0	8.0	-		50		50
	COLOMBIA	536	Bogota	WS	35.3	14.0	-	3.0 (US & Germany)	48		45
	JAMAICA	598	Kingston	WS	9.1	5.0	-	-	55		1
					60.4	27.0	-	3.0			
1969	SINGAPORE	547	III	S	22.4	6.0	-	-	27		19
	MALAYSIA	561	Kuala Lumpur	WS	7.7	3.6	-	-	47		3
	TUNISIA	581	Tunis & Others I	WS	32.8	15.0	-	5.0 (Sweden)	61		3
	CAMEROUN	604	Yaounde Duala	WS	6.7	5.0	-	1.4 (France)	96		36
					69.6	29.6	-	6.4			
1970	GHANA	160	Accra-Tema	WS&S	5.9	-	3.5		59		1
	COLOMBIA	682	Cali	WS&S	37.5	18.5	-	-	49		-
	TUNISIA	209	Tunis & Others II	WS&S	19.2	-	10.5	3.5 (Sweden)	73		-
					62.6	18.5	14.5	3.5			
	TOTAL (As of August 31, 1970)		15	WS							
			6	WS&S							
			1	S							
			22		437.5	125.4	69.8	14.6	48		
						(12 Loans)	(10 Credits)				

Source: "Statement of Loans and Credits," as of August 31, 1970.

1/ WS = Water Supply
S = Sewerage

2/ Of remaining credit after partial cancellation.

JKrombach IBRD
September, 1970

Columbia University
306 Dodge
New York, N. Y. 10027
UNIVERSITY SEMINARS

Columbia University in the City of New York | New York, N.Y. 10027
400 West 118th Street
UNIVERSITY SEMINARS
on Pollution and Water
Resources (U.S.495-496)

March 12, 1971

To: Members of the University Seminars on Pollution and Water Resources

The next meeting will be held on Wednesday evening, April 14,1971

Mr. Juergen Krombach, Senior Sanitary Engineer, International Bank for Reconstruction and Development, Washington, D.C. will have his lecture:

"Financing of Water Supply and Sewerage Projects in Developing Countries"

We shall convene at 6:45 P.M. in the Men's Faculty Club of Columbia University, located on the corner of Morningside Drive and 117th Street, Columbia University Campus, New York City. Parking facilities are secured on "College Walk" of the Campus (116th Street between Broadway and Amsterdam Ave from 6:oo P.M. to 11:oo P.M. on the above mentioned day). At 7:oo P.M. dinner will be served, after which the lecturer takes place, followed by discussion. The meeting will be adjourned at 9:3o P.M.

Ocean Eng. Seminar E8101y (U.S.496A) will have its meetings: March 24 - on Salt Water Intrusion (Dr.G.Halasi-Kun), April 28 - on Thermal Pollution and the Growing Demand to Establish Nuclear Power Stations (Dr.K.Widmer).

Please return the attached slip to me by return mail. I am looking forward to seeing you.

George J. Halasi-Kun

George J. Halasi-Kun
Chairman