

STRATEGIES FOR FINANCING WATER AND SANITATION PROJECTS¹

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The United Nations has designated the 1980s the International Drinking Water Supply and Sanitation Decade. This article reviews key circumstances that need to be considered in drawing up plans to meet that decade's goals.

Introduction

The 1976 World Health Statistics Report³ reviewed the progress that 75 countries made in providing water and sanitation services⁴ during the period 1970-1975. Subsequently, over the years 1977-1980, survey teams provided through a cooperative WHO-World Bank program have conducted in-depth studies of the situation in certain of these countries. With few exceptions, the accumulated data show that the countries making the most progress in supplying their people with water and sanitation facilities over the past 10 years had several things in common. Each had a better-than-average supply of trained and experienced personnel. Each had a recognized national policy directed at achieving certain objectives by the end of the planning period. Each had budgeted increased amounts of money for this task. And each had established financial policies and strategies that encouraged funding from a number of sources. This article concerns itself with those elements relating to financial policies and strategies.

In general, a few basic observations about financial strategies appear reasonably valid for most Latin American and Caribbean countries. These are as follows:

1) Any project requiring construction of facilities will take a minimum of 5 years and commonly 10 from initial planning to completion.

2) In most countries, any additional funds allotted to water and sanitation programs from national or state budgets, over and above those now provided, will generally have to come at the expense of another sector—i.e. from transportation, education, defense, tourism, and so forth.

3) Most of the funds for water and sanitation improvements must come from within the country itself and not from outside sources.

4) The most likely sources of funds—aside from loans and grants from national, state, and local budgets and external sources—are fees charged to beneficiaries. Therefore, the extent to which cities are able to recover the full costs of supplying water from those who benefit, and the extent to which rural communities can be convinced to recover something more than the costs of operation and maintenance, will determine the extent to which many countries can substantially increase the pace of their construction.

5) Even if a sound financing plan and strategy are established, and even if funds are provided in time to meet requirements, there is little chance that established goals can be met, and even less chance that the benefits of the investments will be fully realized, if the trained workers needed to operate and maintain the new facilities and to manage the systems are not available or are not paid at levels that will ensure their full-time dedication and continuing involvement. Already, certain agencies that provide external funding are expressing reservations about the ability of some developing countries to absorb more funds for water and

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³*World Health Statistics Annual*, Vol. 29, No. 10, 1976.

⁴The term "water supply," as used in this article, means urban and rural water supply for drinking, commercial, and industrial uses. The term "sanitation" includes urban and rural sewerage and excreta disposal which may involve both public and private systems. In some countries it will also include solid waste disposal, bathing, and laundry facilities.

sanitation projects; and many countries are not currently able to implement projects for which funds have already been provided.

Financing Immediate Actions

Development of an immediate-action strategy is an urgent matter. The aim must be to begin project preparation with all possible speed and through application of all available resources. Carrying out sector studies, developing plans, analyzing alternate goals, studying manpower needs, and so on, all takes time. If such studies have not already been done they should get underway soon; but this important effort should *not* be allowed to interfere with the immediate, top-priority task of getting a substantial number of projects ready for financing and construction. In this vein, countries that need help in developing the ability to identify projects should request PAHO assistance, because this is not a type of work suited to use of consulting firms.

Project Identification

The work of project identification (the process of deciding which projects are most urgent and which should have top priority) should be financed at all levels through the normal operating budgets of each country's water and sanitation agencies. If possible, external funding should be avoided, and the project identification task should be performed as part of the normal planning duties and responsibilities of national water and sanitation agencies.

Project Preparation

This job will commonly require funds besides those budgeted for normal operations. Projects may need special studies; organizational, managerial, or financial details may require specialized attention; and unusual technical problems may demand consultant assistance. All of these services are usually expensive; they may also require foreign exchange if foreign experts are involved.

Information now available indicates that, of all the actions requiring money to meet the objectives of the International Drinking Water Supply and Sanitation Decade, none will have so much support from bilateral sources as the funding of project preparation. These funds will be devoted to paying for the services of engineering, management, and financial consultants. Within this context, it appears that the best strategy for the Latin American countries would be first to identify projects planned for the next 5 to 10 years that are likely to require foreign consulting services, and then to ask the bilateral agencies if they are willing to help finance such services. The United Nations Development Program (UNDP) has been a continuing source of financial assistance for project development. PAHO/WHO, which has usually been the executing agency for such projects, can assist countries in the preparation of requests for UNDP financing.

Alternatively, when construction loans are requested, the request can include funds needed for preparation of new projects scheduled for the next planning period. Since these funds will be provided through loans that will have to be paid back at varying rates of interest, each country should evaluate whether bilateral financing should be employed for continuing needs, or whether the loan approach to consultant financing will produce the best results.

Development and Approval of "Decade" Plans

By now some countries have prepared a plan for the 1980s and set their goals; and some of these plans have already been approved by the responsible planning and finance ministries, thereby creating a blueprint for the decade. However, other countries have not fully completed these processes, and it is to their staffs that the following general information is directed. Ideally, of course, development of a decade plan should precede all project activities. However, preparation and ap-

proval of such a plan takes considerable time. Therefore, since work must proceed, people must be served, and time is short, the decade plan should be given less priority than project preparation for the sake of expediency.

Planning and finance ministries need to know with some certainty how much any proposal is to cost before reaching a decision about whether to support it. The task of those responsible for preparing a decade plan for water supply and sanitation is to show the estimated funds required each year throughout the decade and to explain how each estimate was reached. This means that separate subsector plans for urban water, urban sewerage, rural water, rural excreta disposal, and any other subsector activities will have to be prepared and then consolidated. This process will usually require an interministerial or inter-agency task force.

The funding for the programs should be broken down into local money and foreign exchange requirements, basing the foreign exchange needs on estimates of the imported items required. Such estimates can be very rough. Local funding sources should be identified, and the amounts required from each should be quantified. These amounts should include budgeted funds from loans and grants, funds needed from state and local sources, and prospective funds to be generated by operations. One of the important aspects of the decade plan should be a statement of financial policies which need to be applied and for which governmental decision and endorsement are required.

It is prudent for each subsector agency and the overall planners to develop and present proposals aimed at several alternate goals, one of which should be continuation of the program at present funding levels. Such alternative proposals permit the decision-makers at the top to understand the implications of their decisions; and few things can demonstrate actual needs more convincingly than a projection showing the effect, in 1990, of funding the existing programs at present levels.

An up-to-date statement should be pre-

pared showing where the country is now, what it has done over the past 10 years, what the major past and present problems are, and what has to be done before all people, urban and rural, can enjoy the benefits of access to safe water and improved sanitary facilities and services. Major policy problems and solutions should also be noted.

The information required for these purposes can be collected and consolidated in several ways—one being through the assistance of teams from the WHO-World Bank Cooperative Program. Examples of relevant studies—including data analysis—performed with the assistance of such teams are presented in sector study reports done in Bolivia, Ecuador, and Mexico.

For countries where no such work has been performed, one of the first actions recommended is completion of a sector study and analysis. If needed, assistance is likely to be available from the WHO-World Bank Cooperative Program Staff.⁵

Financing Construction

The decade plan for financing will necessarily show what major allocations are required to cover the costs of constructing new facilities. In addition, the plan ought to be accompanied by policy proposals which, if followed, would ensure its viability.

Some elements of most projects will require foreign goods and services. Bilateral lending sources, multilateral investment sources, and some private banks are all prepared to make loans covering such costs. In addition, financing provided by the supplier is another major source of funds for purchase of supplies and equipment, and some sources may provide grant financing, particularly for rural works. Obviously, not all these sources will have the same repayment requirements, and so coun-

⁵Further information about such assistance can be obtained from the chief of PAHO's Division of Environmental Health at PAHO Headquarters in Washington, D.C.

tries should be aware of which arrangements are best suited to their needs. Joint financing, as well as mixes of bank and supplier financing, all have their place.

Rural construction is frequently subsidized, at least in part, with national and state funds. It is also common to borrow funds abroad for such projects, including funds to cover some local currency requirements. In countries that have a policy of providing major concessions to local communities for repayment of debt on water and sanitation facilities, or that make no effort to collect the full costs from those who benefit from the facilities, it should be asked whether borrowing foreign funds (on which substantial interest is charged) makes good sense.

On the one hand, it can be argued that, for a given investment over a 15 to 20 year period, a country would build more rural systems with its own money than it would with borrowed money by an amount equivalent to the interest paid. And if it obtains, say, a 5 per cent twenty-year loan, it will pay \$1.6 million in interest for every \$1 million of principal received.

On the other hand, it can be argued that systems will get constructed earlier with borrowed money, and so the anticipated improvements in public health and living standards will be realized almost immediately.

Irrespective of the course finally taken, the evident need that more funds be applied for meeting rural requirements should cause every country to generate the maximum possible funds from water supply and sanitation operations—and to borrow as little as possible. In this vein, financial policy questions that must be decided in preparing a decade plan for rural water and sanitation services include the following:

- What financial policy will be applied to rural water and sanitation projects regarding recovery not only of operating and maintenance costs, but of capital as well?
- Will similar facilities and designs be provided in each community, or will each community be allowed to decide what it wants on the basis of what it is willing to pay?

- How much should be charged, and on what basis, where house connections are provided?

- Will latrine units be provided to private owners at a cost covering all expenses, or will such units be subsidized—and if so, how? Will the same policy for providing (or not providing) subsidies apply to septic tank systems or pit latrines?

- What financial policies should be applied to cover the costs of public sewer operation and maintenance and to recover the initial capital investment?

- Will separate policies be applied to certain regions or states, or to certain income groups, or should these policies be uniform?

Of course, these are only some of the financial policy questions to be asked. Many others must be resolved and used to prepare the decade plan if the water and sanitation agencies are to have a reasonable expectation of meeting the established goals. Most of the decisions pertaining to these questions have to be made outside the agencies themselves, and most have strong political implications. Therefore, it should be kept in mind that ministries of health are in a position to endorse policies which, in the long run, will promote achievement of national water and sanitation goals. Among other things, they can help educate the public to the need for accepting tough but fair policies—providing those policies lead to creation of the facilities and benefits desired.

Finally, it must be recognized that there is simply not enough “free” money to pay for meeting greatly expanded goals. That is, it is unlikely that grant funds, whether from inside or outside the country involved, will be available in sufficient amounts during the coming decade to greatly ease the financing problem. Therefore, the strategy finally arrived at should take realistic account of this state of affairs.

Financing Operation and Maintenance

A rather common rule of thumb for water systems is that about half their production costs can be ascribed to operation and maintenance activities. This fact should leave no doubt that every community, from the largest city to the smallest rural settlement, must

generate revenue covering at least the full cost of operation and maintenance from the sale of water and services.

Irrespective of the government's social policies, without adequate and continually available funds for operation and maintenance of a system, the investment in that system will prove unsound. This is true because the full benefits of a water supply system or any other facility are realized only when the facility is available for people to use all of the time. Intermittent operation intended, say, to conserve fuel and stay within a monthly funding allowance, reduces benefits while creating costs associated with contamination of water in the distribution network when pressure is reduced. Systems which should operate for 25 to 30 years with good routine maintenance have commonly become inoperable after less than five years. This has been a particular hallmark of rural systems. The most common reasons for poor maintenance have been lack of funds, lack of spare parts, and lack of trained personnel.

Financial strategies for the decade must take account of the need for funds to operate and maintain systems. Within this context, any strategy that ignores full community involvement, including full payment of operation and maintenance costs and at least partial repayment of capital costs, is headed for trouble.

Financing Replacements, Repairs, and Reconstruction

It is probably correct to say that most cost estimates prepared worldwide for the decade program have overlooked the investments that will be needed for major repairs and replacements. In every country, the plan prepared ought to take these items into account and, depending on past and current maintenance policies, should make provision for meeting annual requirements with the necessary funds.

At the municipal level, well-run water organizations can usually provide financing for

some major items that wear out through reserves generated by operations. As a rule of thumb, overall depreciation of a water system is commonly estimated at 1.5 to 3 per cent of the facility's cost. Most international financing agencies recommend that charges for water cover depreciation or debt service, whichever is larger, along with the operation and maintenance costs.

When the organizations responsible for providing water and sanitation services are following sound financial policies, it will normally be possible to absorb occasional large expenditures from built-up reserves. However, if past policies have led those responsible for developing the financing plan to believe that substantial amounts will be needed during the 1980s for purchase of replacements and to make major repairs, the financial plan for the decade program should reflect these needs. Most international financing institutions are willing to consider projects specifically directed at rehabilitation of many systems or projects, including loan components directed at filling this need.

Special Approaches

Other financing techniques and approaches have been employed on occasion by some countries with varying degrees of success. A few that have attracted particular attention are as follows:

Project Packaging

Countries carrying out construction in several cities, or in a large number of rural communities of a given area or state, can find it advantageous to deal with this as one project rather than using a piecemeal approach. There are a number of ways this can be done, but the most important requirement in all cases is the availability of a sufficiently capable and numerous staff. Financial calculations for the total project can be based on a sufficiently accurate survey or on preliminary plans covering the first year's construction schedule in

the various places involved. Sufficiently accurate cost estimates should be provided, particularly if the plan is flexible with regard to the number of places to be served or the extent of the distribution systems to be completed in the first stage of the work. Projects of this type have been approved for financing in a number of countries including Brazil, Chile, Colombia, and Mexico in the Americas.

Revolving Funds

Revolving funds have been used by a number of projects in recent years. Such funds are usually created for specific purposes, but there is no reason why those purposes cannot be broadened if it seems desirable. Such funds can sometimes be observed at work in cities—where house connections are made available to residents, paid for from the revolving fund, and repaid over 5 to 10 years by the householder as part of his monthly water bill.

It is frequently suggested that revolving funds should be created for the purpose of financing projects, particularly rural water and sanitation projects. Such financing is provided in Brazil, where National Housing Bank (BNH) support of state water and sanitation programs is functioning as a mammoth national revolving fund. The major difference between the Brazilian approach and what is normally understood as a water/sanitation revolving fund is that the funds, after being repaid to BNH, do not necessarily find their way back out to other water and sanitation projects—because they may be used in a number of other sectors where BNH has interests.

Certain of the multilateral banks have funds for lending to developing countries on concessionary terms. This permits countries to repay at very low interest rates over a long time, usually fifty years. These loans are made to governments, which in turn pass the funds on to borrowers such as rural water agencies at something approximating conventional rates of interest and repayment times. The government repays the loan, usually beginning after 10 years and, of course, at lower interest rates

than those charged the project agency. Hence, as the water agency repays the funds, the revenue generated can go into the country's reserves for reinvestment in other productive projects not necessarily related to water supply or sanitation. In this way it can be said that a large revolving fund has been created.

In a few instances where concessionary loans have been granted for water supply and sanitation projects, governments have agreed to establish revolving funds limited to water supply and sanitation—and to permit the water agency to use its repayments to establish the fund. At the same time, however, the agency has had to assume the obligation of repaying the loan to the multilateral bank as it becomes due. While this device has not been widely used, there appears a reasonable chance that if the government concerned wishes to earmark its loan repayments for continued use in the water and sanitation sector, no serious objections would be raised. But the initiative for making such an arrangement would have to come from the country involved and, within the country, from the agency concerned with water and sanitation.

A major problem confronting most revolving funds is how to maintain their value in the face of inflation.

Another problem relates to the fund's inability, in most cases, to cover foreign exchange needs. In those instances where a foreign loan is to be channeled through a revolving fund to help finance local projects, the communities and cities involved should repay the amounts borrowed to the fund. These repayments are made in local currency, and the revolving fund, in turn, has to repay the foreign loan. If the government has arranged to make the necessary foreign exchange available, there will be no problem with that particular loan. However, on loans made entirely in local currency, obtaining the foreign exchange needed to import equipment can pose a major problem.

In general, there seem no major obstacles in the way of obtaining financing from most foreign lending agencies to establish revolving funds. It should be understood, however, that

such funds are not an easy answer to all the many problems confronting project financing in developing areas.

Special Water Funds

The 1959 World Health Assembly approved creation of a special water account to which donor countries could contribute. The purpose of this account was to serve as a source of financing for activities that had to be carried out in order to prepare countries for an expanded urban water supply program endorsed by a resolution of that assembly. Following this action, PAHO established its own fund and invited countries to contribute.

The amount of money contributed to the funds was quite limited, and for that reason none was made available for construction activities. However, with the birth of the Inter-American Development Bank (IDB) and creation of the International Development Association (IDA) shortly thereafter, construction money became available. The first loan made by the IDB after it opened its doors was for a water project in Arequipa, Peru, a project that PAHO helped to develop through staff activities financed in part through the aforementioned PAHO Special Water Fund. Whether efforts should be made to reactivate this water fund should probably depend large-

ly upon whether the PAHO Member Countries see a need for project development assistance not available from funds and resources provided by other sources.

Concluding Remarks

Before closing, it may be well to note the fragmentation that exists within the sector. This makes it necessary to recognize that an urban water supply strategy will probably not be suited to urban sewerage, and that one suited to urban water will probably be inappropriate for attacking rural problems.

It seems evident that the supply of money will be quite limited in the 1980s, so that in most countries those agencies obtaining increased allocations will have to earn the increase by pursuing well-conceived strategies that take account of past experiences. It is also true, however, that designation of the 1980s as the International Drinking Water Supply and Sanitation Decade may provide the additional impetus needed to move governments to greater commitments. Those in positions to promote better water supply and sanitation must not lose this opportunity. External financing agencies appear to be serious about supporting such activities, so the main question is whether the countries themselves will rise to the occasion.

SUMMARY

Several basic observations about financing water supply and sanitation projects in Latin America and the Caribbean appear reasonably valid in most cases. In essence, these are that (1) any project requiring construction of facilities will take at least five years to complete; (2) funds allotted for water supply and sanitation that exceed the amounts currently allotted by national or state budgets will probably have to come at the expense of some other government sector; (3) most of the funds must come from within the country, not from international or foreign sources; (4) the most likely source of funding is revenue garnered from fees charged to beneficiaries; and (5) without enough trained workers and managers to effectively operate, maintain, and

administer new facilities, there is little chance that the goals established for the 1980s can be met.

Because of the time-lags required to complete projects, those needed immediately should receive priority attention, even if no long-term plans for the 1980s, designated the International Drinking Water Supply and Sanitation Decade, have been produced. The work required to identify priority projects of this kind should be funded out of water and sanitation agencies' normal operating budgets. Further preparatory steps (special studies; specialized planning of organizational, managerial, or financial matters; or resolution of special technical problems) will probably require funds beyond those available from normal operating budgets. How-

ever, extensive outside funding (including bilateral funding) is available for such "project preparation."

Regarding preparation of a "decade" plan for financing, the aim of such a plan—containing separate subsector plans for urban water, urban sewerage, rural water, and rural excreta disposal—is to accurately estimate the funds needed each year to attain the desired goals. More specifically, it should show what major allocations are required to cover the costs of constructing new facilities, operating and maintaining existing facilities, and providing major repairs and replacements for old facilities.

For new construction, the foreign exchange needed to buy foreign goods and services can often be covered by loans from bilateral lending sources, multilateral investment sources, and private banks, or through financing provided by the suppliers.

For construction in rural areas, it has been common to subsidize such work with national or state funds, and also to borrow funds abroad. This, combined with the difficulty of recovering the costs of investment in rural works, makes it important to ask careful questions about whether these and related costs will be recovered, and if so, how.

It should also be recognized that there is simply not enough "free" money to pay for meeting great-

ly expanded goals. Therefore, the strategy finally arrived at should take account of this state of affairs. Among other things, it seems evident that every community served, from city to hamlet, must recover at least the full cost of system operation and maintenance from the sale of water and sanitary services.

In addition, there has been a pronounced tendency for "decade" plans to overlook investments needed for major repairs and replacements. Well-run municipal organizations can often provide financing for some major items that wear out; but rather than rely on this "hit or miss" approach, it is important that plans for the decade reflect key repair and replacement needs.

Overall, funds will probably be in short supply in the 1980s, and so agencies wishing increased allocations will have to earn the increase by pursuing sound strategies that take account of past experiences. However, the U.N.'s designation of the 1980s as the International Drinking Water Supply and Sanitation Decade may well provide part of the impetus needed to get greater government commitments in this field, and so those in a position to promote better water supply and sanitation should seek to take advantage of the opportunity this act affords.

RABIES IN CANADA

Rabies in Canadian wildlife continues to pose a significant risk to both humans and domestic animals. A total of 1,716 animal rabies cases were identified in 1979—43 per cent in foxes, 25 per cent in skunks, 16 per cent in cattle, and 8 per cent in dogs or cats.

Regarding human exposure to rabies, nearly 1,300 people received post-exposure treatment in 1979. Dogs and cats were responsible for 55 per cent of these human exposures and cattle were responsible for 15 per cent. However, human rabies remains a rare disease in Canada. Only two human cases occurred in the period 1970-1980, one in 1970 and another (a suspected case) in 1977. [Source: *Canada Diseases Weekly Report*, Vol. 7, No. 14, 1981.]