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FINANCIAL RESOURCES AND MECHANISMS FOR SUSTAINABLE DEVELOPMENT: OVERVIEW OF CURRENT ISSUES AND DEVELOPMENTS

Background Paper No. 5*

Financing of Freshwater for Sustainable Development

SUMMARY

This paper is intended to serve as a challenging discussion paper that contains both conventional and less conventional views on the financing of freshwater that are not necessarily the views of the United Nations. It is hoped that this approach will stimulate the discussion and yield constructive proposals for implementing Agenda 21. The paper starts with a detailed discussion of the provision of water supply and sanitation services ("old agenda") and turns then to the need to address the rapid degradation of the aquatic environment, in particular in urban areas of low-income developing countries ("new agenda"). The paper then discusses the cost of providing services and how services are financed. In this context the paper addresses issues such as levels of public financing, relationship between costs and pricing and the question of subsidies. In its final part the paper analyses the conventional views of freshwater financing and elaborates in detail on less conventional approaches ("new view of sector financing"). The paper ends with a discussion of the financing of freshwater in the Agenda 21 context.

*This paper is based on a draft prepared by the World Bank. Funding was provided by both the United Nations Development Programme and the World Bank.

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Summary

This paper takes the point of view that "financing the freshwater activities of Agenda 21" is principally a challenge of developing appropriate institutional and financial arrangements. The essence of such arrangements is that they ensure that societies mobilize appropriate levels of resources for providing water-related environmental services and that these resources are used in the most efficient and effective way possible. Accordingly, the paper makes no attempt to produce a "bill for implementing Agenda 21". Indeed, the paper provides evidence that the top-down approach (which sets targets and standards and then computes the bills for implementing such targets) itself has played a counter-productive role.

The paper therefore attempts to describe, in some detail, the characteristics of a "sound" water sector. Because the elements of sound policies are similar in different sub-sectors, the paper does not deal with all water sub-sectors (agricultural development, most importantly, is not addressed), but illustrates the general case by focusing heavily on the provision of water supply and sanitation services, sustainable urban development and water resources management.

The water supply and sanitation sector in developing countries faces two great challenges. The first is to complete the "old agenda", which is (appropriately) heavily focused on the provision of water supply and household sanitation services. Although considerable progress has been made, major challenges remain in, first, serving the 1 billion who do not have an adequate supply of water and the 1.7 billion who do not have adequate sanitation facilities, and, second, improving the reliability and quality of service to those who do currently have access. A major constraint in providing more people with better services has been the inefficiency and inequity with which existing public financing has been used. Accordingly, an indispensable ingredient in rising to this challenge is ensuring that water and sanitation supply organizations pay much greater attention to consumers' demands, and are structured in such a way that they are self-financed, efficient and accountable to users.

As a consequence, in part, of the progress made in delivering water, sanitation and sewerage services, the quantities of wastewater generated in developing countries have increased rapidly, and the quality of the aquatic environment has become severely degraded, especially in urban areas and especially in low-income countries. This degradation poses a major threat to the health and well-being of urban residents in developing countries. Accordingly, the "emerging new agenda" involves going beyond the household service level, and improving the quality of the aquatic environment.

The good news is that a remarkable consensus has emerged in recent years on the water resources management principles which have proved to be effective in industrialized and developing countries. These principles have been most clearly stated in the pre-UNCED International Conference on Environment and Development, with the "Dublin Statement" laying particular stress on "treating water as an economic good" and "managing at the lowest appropriate level, with involvement of stakeholders in all levels of management".

The bad news is that improving the quality of freshwater resources is a complex and exceedingly expensive business. The experience of many industrialized countries reveals massive and costly mistakes in the mobilization and allocation of resources for improving the quality of the aquatic environment. The experience from those (in developed and developing countries) who have met this challenge more efficiently shows that the key is the development of sound, integrated institutional and financial arrangements at different levels (ranging from the neighborhood to the river basin to the nation). The essence of the effective arrangements at all levels is that stakeholders decide on how much they wish to spend on improving environmental quality at that level, and that available resources be allocated to those investments which bring the greatest environmental benefit.

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Introduction

This paper is prepared at the request of the United Nations Commission on Sustainable Development, as a background paper for the ad hoc Working Group on Financing. The paper assesses the financing challenges which have to be met by developing countries if water resources are to be managed efficiently, if the quality of the aquatic environment is to be improved, and if water-related services are to be delivered in a responsive, efficient and equitable way.

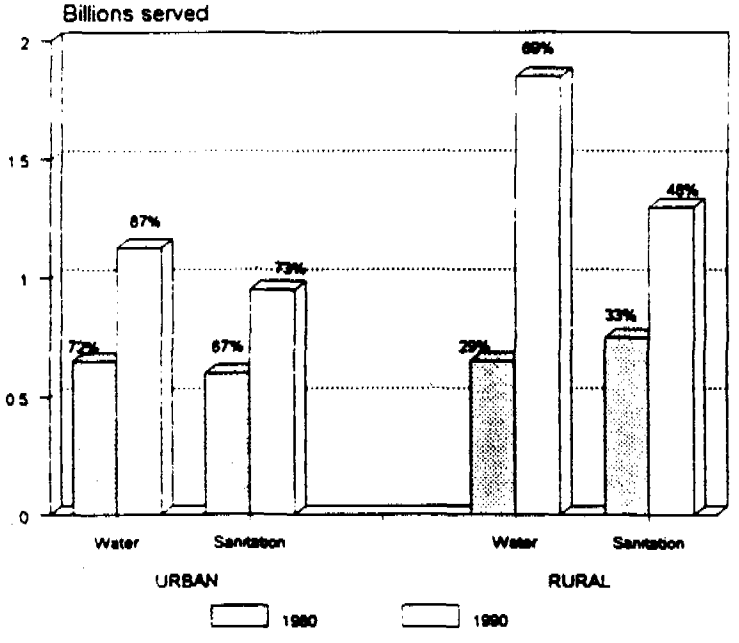
The chapter on Freshwater in Agenda 21 deals with the following "programme areas": A -- integrated water resources development and management, B – Water resources assessment; C -- Protection of water resources, water quality and aquatic ecosystems; D – Drinking water supply and sanitation; E – Water and sustainable urban development; F – Water for sustainable food production and rural development and G – Impacts of climate change on water resources. This paper takes the position that attaching "price tags" to these activities – as was tentatively done in Agenda 21 -- is a misguided approach and that what is needed is articulation of clear principles which should underpin the financing of freshwater investments. To illustrate the approach the paper focuses heavily on the water supply and sanitation sector, sustainable urban development and water resources management, (which together comprise about 75% of the indicative financing specified in Agenda 21). The paper does not address the important area of water for sustainable food production. However, the principles articulated in the paper are applicable to this important area as well.

The State of the Sector, Part I: Services, impacts and environmental quality

The incomplete "old" agenda

Both the number and proportion of people in developing countries who have access to adequate water and sanitation facilities has increased dramatically. Figure 1 shows, for instance, that the number of urban people with access to adequate water supply increased by about 80% in the 1980s, and the number of urban people with adequate sanitation facilities increased by about 50%.

Figure 1: Access to safe water and adequate sanitation in developing countries in 1980 and 1990



These achievements notwithstanding, very large numbers of people remain unserved -- an estimated 1 billion do not have access to clean water and 1.7 billion do not have access to sanitation. And an estimated 2 million children die and billions are sick (see Table 1) each year because of inadequate water and sanitation facilities.

Furthermore, those who are not served often pay high costs, especially the poor in urban areas who often rely on vendors who typically charge $2 to $3 for a cubic meter of water, which is at 10 or more times the price which the served pay for water from a tap in their houses.

Table 1: Effects of improved water and sanitation on sickness

Disease	*Millions affected by illness*	*Median reduction attributable improveme (percent)*
Diarrhea	900*	22
Roundworm	900	28
Guinea worm	4	76
Schistosomiasis	200	73

* refers to number of episodes in a year

The emerging "new agenda"

While the "old" agenda, focused on household services still poses very large financial, technical and institutional challenges, a "new", broader agenda which considers both the provision of services and environmental quality has emerged forcefully in recent years.

The quality of the aquatic environment is a global concern. The situation in cities in developing countries is especially acute. Over the course of the International Drinking Water Supply and Sanitation Decade (1981-1990) the number of urban inhabitants without access to adequate sanitation actually increased by about 70 million. And even in middle income countries little sewage -- just 2 per cent in Latin America, for instance -- is treated. As shown in Figure 2, water quality is far worse in developing countries than in industrialized countries. Furthermore, while environmental quality in industrialized countries improved over the 1980s, it did not improve in middle-income countries, and declined sharply in low-income countries.

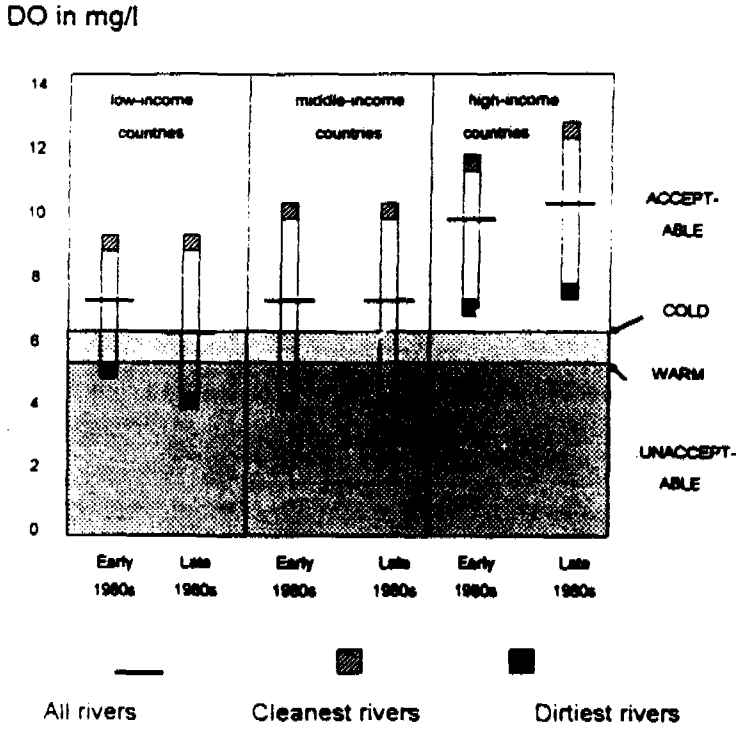
In considering this nexus of service and environmental issues, it is instructive to consider the sequence in which people demand water supply and sanitation services. Consider, for instance, a family which migrates into a shantytown. Their first environmental priority is to secure an adequate water supply at reasonable cost. This is followed shortly by the need to secure a private, convenient and sanitary place for defecation. Families show a high willingness to pay for these household or private services (in part because the alternatives as described earlier, are so unsatisfactory and so costly). It is natural and appropriate, therefore, that they put substantial pressure on local and national governments to provide such services. And it is, accordingly, natural and appropriate that the bulk of external assistance in the early stages of development goes to meeting the strong demand for these services. The very success in meeting these primary needs, however, gives rise to a second generation of demands, namely for removal of wastewater from the household, then the neighborhood and then the city. And, success in this important endeavor, too, gives rise to another problem, namely the protection of the environment from the degrading effects of large amounts of waste.

There are a number of implications emanating from this description. It means that the historic "bias" in favor of water (at the expense of sanitation and sewerage) is probably not only not wrong (as is currently often implied) but actually right. The historic experience of industrialized countries, and the contemporary experience of developing countries demonstrates clearly that it is only when the first challenge (service provision) has been substantially met that households and the societies aggregating them pay attention to the "higher-order" challenges of environmental protection. And it is thus neither surprising, nor incorrect[1], that the portfolio of external assistance agencies has focused heavily on the provision of water supply. For

[1] For a more detailed discussion of this point, see pages 95ff of the World Bank's World Development Report 1993 'Investing in Health'

example, of World Bank lending for water and sanitation over the past 30 years, only about 15% has been for sanitation and sewerage, with most of this spent on sewage collection and only a small fraction spent on treatment. Boxes 1 (on the Orangi Pilot Project in Karachi) and 2 (on the provision of sewerage services to the periphery of Sao Paulo, Brazil) demonstrate graphically how forcefully poor people demand environmental services, once the primary needs for water supply is met. (These examples also illustrate many other points which will be referred to later in this report.)

Figure 2: Dissolved oxygen levels in rivers in developing and developed countries



Box 1: How and when poor people demand sanitation services, and how to meet these: The case of the Orangi Pilot Project in Karachi

In the early 1980s, Akhter Hameed Khan, a world-renowned community organizer, began working in the slums of Karachi. He asked what problem he could help resolve. People in this area had a relatively satisfactory supply of water but now faced "streets that were filled with excreta and waste water, making movement difficult and creating enormous health hazards". What did the people want, and how did they intend to get it, he asked. What they wanted was clear -- "people aspired to a traditional sewerage system... it would be difficult to get them to finance anything else." And how they would get it, too, was clear -- they would have Dr. Khan persuade the Karachi Development Authority (KDA) to provide it for free as it did (or so they perceived) to the richer areas of the city.

Dr. Khan then spent months going with representatives from the community petitioning the KDA to provide the service. Once it was clear that this would never happen, Dr. Khan was ready to work with the community in finding alternatives. (He would later describe this first step as the most important thing he did in Orangi -- liberating, as he put it, the people from the demobilizing myths of government promises.)

With a small amount of core external funding the Orangi Pilot Project (OPP) was started. The services that people wanted were clear; the task was to reduce the costs so that these were affordable and to develop organizations that could provide and operate the systems. On the technical side, the achievements of the OPP architects and engineers were remarkable and innovative. Coupled with an elimination of corruption, and the provision of labor by community members, the costs (in-house sanitary latrine and house sewer on the plot, and underground sewers in the lanes and streets) are less than $100 per household.

The (related) organizational achievements are equally impressive. The OPP staff has played a catalytic role -- they explain the benefits of sanitation and the technical possibilities to residents and conduct research and provide technical assistance. The OPP staff never handled the community's money. (The total costs of OPP's operations amounted, even in the project's early years, to less than 15 percent of the amount invested by the community.) The households' responsibilities include financing their share of the costs, participating in construction, and election of a "lane manager" (who typically represents about fifteen households). The lane committees, in turn, elect members of neighborhood committees (typically around 600 houses) who manage the secondary sewers. The early successes achieved by the Project created a "snowball" effect, in part because of increases in the value of property where lanes had installed a sewerage system. As the power of the OPP-related organizations increased, so they were able to bring pressure on the municipality to provide municipal funds for the construction of secondary and primary sewers.

The Orangi Pilot Project has led to the provision of sewerage to over 600,000 poor people in Karachi and to attempts by at least one progressive municipal development authority in Pakistan to follow the OPP method and, in the words of Arif Hasan "to have government behave like an NGO." Even in Karachi, the mayor has now formally accepted the principle of "internal" development by the residents and "external" development (including the trunk sewers and treatment) by the municipality.

The experience of Orangi demonstrates graphically how peoples' demands move naturally from the provision of water to removal of waste from their houses, then their blocks and finally their neighborhood and town.

Box 2: How and when poor people demand sanitation services, and how to meet these: The case of the favelas of Sao Paulo

In the 1980s the city of Sao Paulo, Brazil, made extraordinary progress in providing all of its residents with water supply and sanitation services. In 1980 just 32% of favellas (low-income, informal settlements) had a piped water supply, and less than 1% had a sewerage system. By 1990 the respective figures were 99% and 15%!

SABESP, the state water utility serving Sao Paulo, is a sophisticated technical water supply organization. Until the emergence of democracy in Brazil, SABESP had defined its role narrowly and technocratically. Specifically it did not consider provision of services to the favellas to be its responsibility, since it was not able to do this according to its prescribed technical standards, and because the favelas were not "legal". Before the legitimization of political activity in Brazil in the early 1980s, SABESP successfully resisted pressures to provide services to the favelas. While SABESP was resisting this pressure, a small municipal agency (COBES) experimented with new technical and institutional ways of providing water and sanitation services to the poor. On the technical side this did not involve provision of "second-class" service, but of reducing the cost of providing in-house services by using plastic pipe and servicing of narrow roads where access was limited. On the institutional side it meant the community assuming significant responsibility for community relations, and for supervising the work of the contractors.

As the military regime withdrew and was replaced by democratic politics, the pressures on SABESP to serve the favellas increased. Pressure from the communities on SABESP were channeled through the municipal agencies, responsive officials and politicians (including the mayor and governor). Since COBES had shown how it was, in fact, possible to serve the favellas, SABESP had no option but to respond.

In the context of the present discussion, the lessons from Sao Paulo are:
(a) that once the poor have water services, then a strong demand for sanitation services emerges organically;
(b) that where institutions are responsive and innovative, major gains can be made in the provision of these services at full cost to poor people.

The State of the Sector, Part II: Costs of Services and How they are Currently Financed

The Cost of Providing Services:

What are typical service costs?

As shown in Table 2, costs of different levels of service vary considerably. Of particular note are (a) the modest increases in costs for urban water supplies when the level of service is improved from a public standpipe to a household connection, (b) the order of magnitude difference between simple on-site urban sanitation systems and conventional sewerage with treatment and (c) the high absolute costs of conventional sewerage.

Table 2: Typical investment costs for different levels of service

	RURAL	*URBAN*	
	Low	Intermediate	High
Water supply	~$10[1]	~$100[2]	~ $200[3]
Sanitation	~$10[4]	~$25[5]	~$350[6]

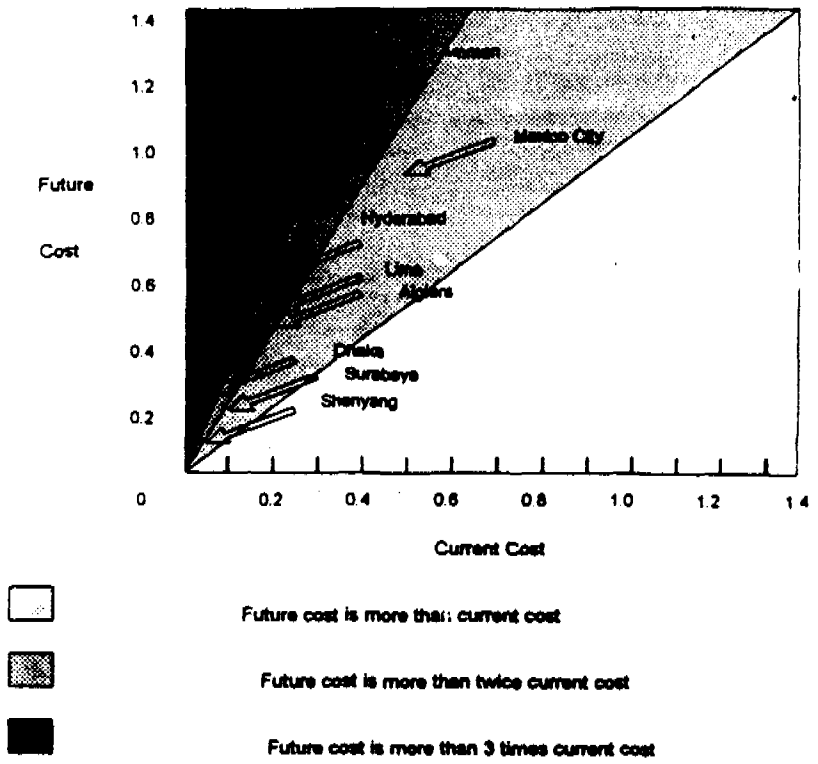
[1] Handpump, or standpost
[2] Public standpost
[3] Piped water, house connection
[4] Pour-flush or ventilated improved pit latrines
[5] Pour-flush or ventilated improved pit latrines
[6] Piped sewerage with treatment

How are costs changing?

Real costs of water supply and sanitation services are changing due to a number of factors. First are demographic factors As the population of developing countries becomes more urbanized, per capita costs rise. This is partly because a number of the low-cost, on-site urban sanitation technologies become infeasible in dense urban settlements, and partly because the aspirations of urban people -- as demonstrated in the Orangi case -- is for a high level of service.

Second are resource factors. Twenty-two countries today have renewable water resources of less than 1,000 cubic meters per capita, a level commonly taken to indicate severe water scarcity, and an additional eighteen countries have less than 2,000 cubic meters per capita. Elsewhere water scarcity is less of a problem at the national level, but is nevertheless severe in certain regions, at certain times of the year and during periods of drought. The effects of these "natural" factors are seriously exacerbated by the widespread mismanagement of water resources, with scarcity induced by the provision of large quantities of water at no or low cost for low-value agricultural uses. Costs are also affected by the fact that cities have logically first sought water where it is easiest and cheapest to obtain. Finally, as cities grow so the "pollution shadows" around the cities often engulf existing water intakes, necessitating expensive relocation of intakes. In Shanghai, for instance, water intakes were moved more than 40 kilometers upstream at a cost of about $300 million. The compound effect of these factors is, as illustrated in Figure 3, a large increase in the costs of capturing and transporting water of adequate quality to cities and towns throughout the world..

Figure 3: How the costs of supplying water is increasing



The efficiency with which financial resources are used

A recent comprehensive review of forty years of World Bank experience in water and sanitation documents compellingly that costs are much higher than they need to be, because of the low efficiency with which available resources have been used by water supply agencies in developing countries. The review, which examined more than 120 sector projects over twenty-three years concludes that only in only four countries--Singapore, Korea, Tunisia and Botswana--have public water and sewerage utilities reached acceptable levels of performance.

A few examples illustrate how serious the situation is:

- In Accra, Ghana, only 130 connections were made to a sewerage system designed to serve 2,000 connections.
- In Caracas and Mexico City an estimated 30 percent of connections are not registered.
- Unaccounted-for-water, which is 8 percent in Singapore, is 58 percent in Manila and around 40 percent in most Latin American cities. For Latin America as a whole, such water losses cost between $1 and $1.5 billion in revenue foregone every year.
- The number of employees per 1,000 water connections is between 2 and 3 in Western Europe, around 4 in a well run developing country utility (Santiago in Chile), but between 10 and 20 in most Latin American utilities.

Financial performance is equally poor. A recent review of Bank projects found that borrowers often broke their financial performance covenants. A corollary is that the shortfalls have to be met by large injections of public money. In Brazil from the mid-1970s to mid-1980s about $1

billion a year of public cash was invested in the water sector. The annual federal subsidy for water and sewerage services to Mexico City amounts to over $1 billion a year or 0.6 percent of GDP.

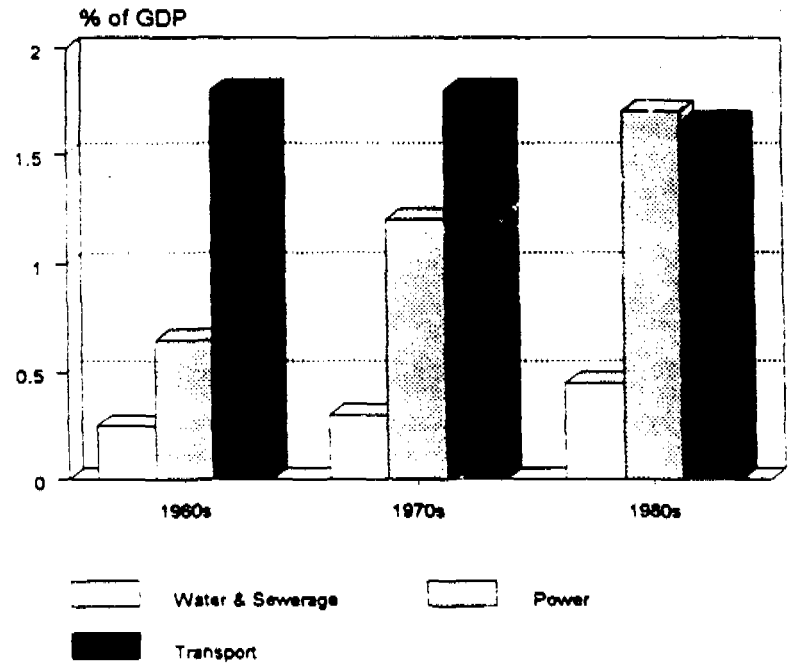
Another World Bank study of projects launched between 1966 and 1981 showed that actual outcomes fell short of expectations for reducing unaccounted-for water in 89% of projects, in sales volume in 84% and containment of operation and maintenance costs in 74% of cases. In short, the vast majority of water supply agencies in developing countries are high-cost, low-quality producers of services.

How Formal Services are Financed:

Levels of public financing

Two recent assessments by the World Bank provide a clear overview of public financing for the water and sanitation sector in developing countries over the past three decades. As shown in Figure 4 below, the proportion of Gross Domestic Product (GDP) invested in water supply and sanitation rose from about 0.25% in the 1960s to about 0.45% in the 1980s. Furthermore, although it was widely believed that the allocation to the sector fell during the difficult years of the late 1980s, a World Bank analysis of information from Public Investment Reviews in 29 countries showed that while public investment had, indeed, declined in this period (from 10.9% of GDP in 1985 to 8.7% of GDP in 1988), over this same period, investment in water and sanitation held virtually constant at about 0.4% of GDP.

Figure 4: Public investment in infrastructure in developing countries over three decades



Sources of financing for formal services

As will be discussed in more detail, sector performance and sustainability depends not only on the level of financing, but the sources of such financing. Experience shows unequivocally that services are efficient and accountable to the degree that users are closely involved in providing financing for the services. Or, stated another way, deficiencies in financing arrangements are a major source of the poor sector performance described earlier.

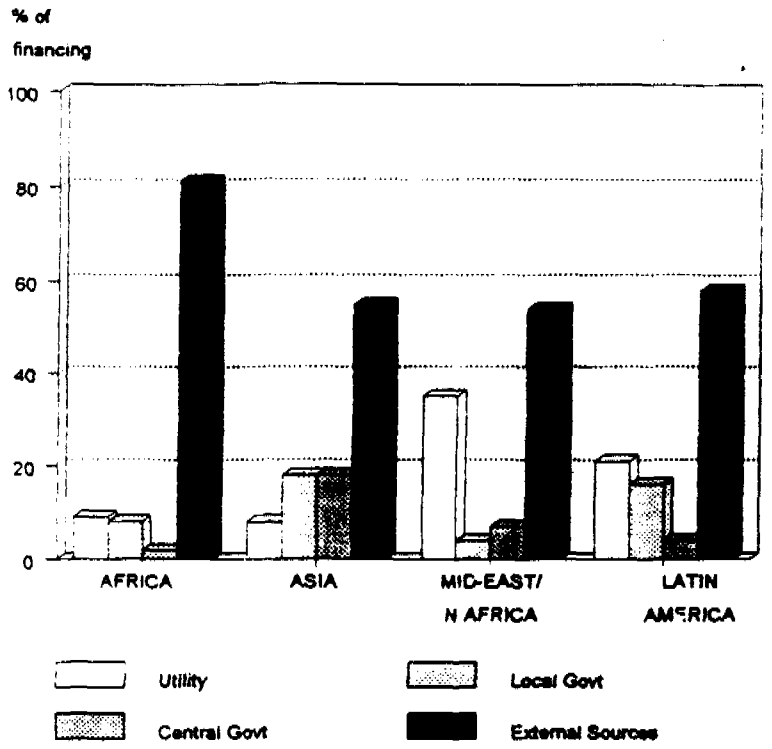
A World Bank analysis has assessed in detail the sources of financing for water and sanitation projects assisted by the World Bank. Internal cash generation in efficient, financially-sustainable utilities is high -- 67% in a World Bank-assisted water and sewerage project in Valparaiso, for example. As shown in Figure 5, there are wide regional differences in the relationship between financing and users. Africa has the longest way to go, with utilities and local government providing only 17% of investment financing. In the other three regions the proportion of financing mobilized by utilities themselves and from local government is higher. In Asia the supply institutions themselves generate relatively little financing, with domestic financing from central and local government in about equal shares. In the Middle East and North Africa utilities themselves generate most of the domestic financing in World Bank-assisted projects, whereas in Latin America the contributions of the utility and local government are similar. Unsatisfactory as these figures are, it appears that things are getting worse: internal cash generation financed 34 per cent of costs in World Bank-financed projects in 1988, 22 per cent in 1989, 18 per cent in 1990 and just 10 per cent in 1991.

Relationship between costs and pricing

The relationship between the cost of providing services and the prices that are charged for these services has major implications for the technical and financial performance of supply organizations, and for the relationship of such organizations to the users it serves. Urban consumers in most industrialized countries pay all of the recurrent costs (for operations, maintenance and debt service) for both water and sewerage services. They also pay most of the capital costs of water supply and a large -- typically more than half -- and a rising portion of the capital costs of sewerage.

In developing countries, however, consumers pay far lower proportions of these costs. A recent review of World Bank-financed projects shows that the effective price charged for water is only about 35 per cent of the average cost of supplying it. As might be expected from the discussion on sources of financing, the gap between costs and prices was greatest in Africa and Asia, where the reliability and sustainability of services is the weakest.

Figure 5: Sources of financing in World Bank-assisted Water and Sanitation Projects



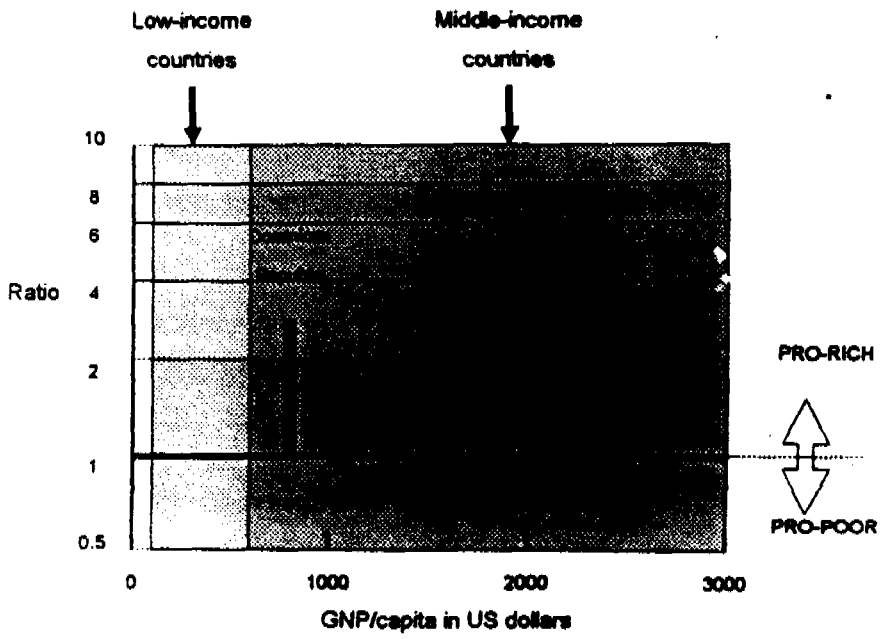
Who benefits from public subsidies?

The justification for high levels of public financing for water and sanitation services in developing countries usually offered is the low ability of poor people to pay for services. In practice, however, it is the rich, not the poor, who virtually always benefit disproportionately from subsidized water and sanitation services.

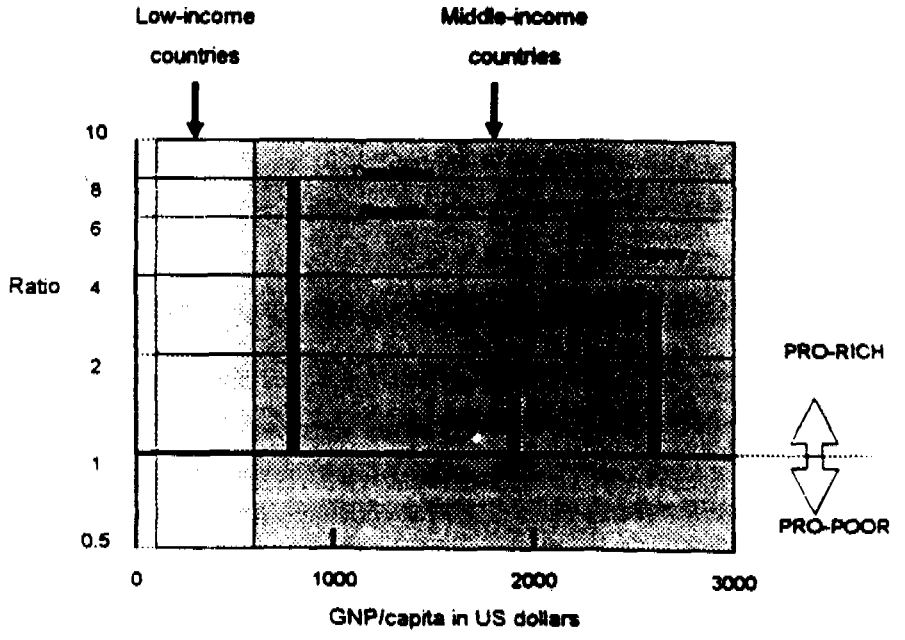
As described earlier, the unserved people, particularly those in urban areas, pay much higher prices for water. And it is the poor who are the unserved. Figure 6 reports the results of a detailed assessment of who benefits from public subsidies of water supply and sanitation services in several Latin American countries. The results are striking and the conclusions clear -- although subsidies are justified as "being necessary because poor people cannot afford to pay", they end up heavily favoring the rich, with the inequity directly related to the degree of rationing of the service. Inequity is, accordingly, greater in low- than in middle-income countries, and greater for sewerage than for water supply.

The cycle is clear. Where services are heavily subsidized, service expansion is relatively slow, both because available resources are used inefficiently (because the supply organizations are not directly accountable to their customers) and because of constraints on public financing. The consequence is that "the lucky ones" get subsidized services while "the unlucky ones" who are not served pay an exorbitant human, social and financial price to get services. Data from Latin America (Figure 6 below) provide clear confirmation of the universal rule, namely that "luck" is not a random outcome, but is the prerogative of the privileged. These data also show that inequities are greatest where services are most heavily rationed (namely in the poorest countries and for sewerage).

Figure 6: The incidence of subsidies for water and sanitation services in Latin America



WATER SUPPLY



SEWERAGE

Nonformal services and their financing

The above discussion, mirroring most discussions on the provision and financing of water supply and sanitation services, focuses exclusively on what is done by formal institutions, with the emphasis on formal public financing. In recent years it has become clear that there is, especially where formal institutions perform least adequately a very large "underground" industry for meeting those needs which the formal institutions do not meet.

Consider the following examples. In Jakarta, Indonesia, only 14 per cent of the 8 million people living in the city receive piped water directly. About 32 per cent purchase water from street vendors, and the remaining 54 per cent rely on private wells. In Jakarta, furthermore, there are over 800,000 septic tanks, installed by local contractors, fully financed by households themselves, and maintained by a vibrant and competitive service industry. In cities throughout the developing world, the reliability of the formal water supply service is unsatisfactory, and so households build in-house storage tanks, install booster pumps (which can draw contaminated groundwater into the water distribution system) and sink wells. In Tegucigalpa, for example, the sum of such investments is so large that it would be enough to double the number of deep wells providing water to the city. The size of this "hidden" water economy often dwarfs the size of the visible water economy. In Onitsha, Nigeria, for instance, revenues collected by water vendors are about ten times the revenues collected by the formal water utility!

And in rural areas, too, the "hidden" water economy is often huge. In Pakistan, for instance, over 3 million families have wells fitted with pumps, many of which are motorized. These are paid for in full by the families, and all equipment provided and serviced by a vibrant local private sector industry.

The degree of distortion involved in ignoring the informal provision and financing of services varies greatly by level of development (as is obvious from the examples discussed). For prosperous urban areas, formal services are the norm; for low-income countries the formal services may be totally dwarfed by the informal, especially in rural areas but even in some cities. What is critical is the realization that this "hidden" water and sanitation economy is extremely important in terms of both coverage and service. The nonformal sector offers many opportunities for providing services in an accountable, flexible way. When this is not possible because of economies of scale, then service by the informal sector offers a major source of supplementary financing which can be redirected if formal services can become more responsive to consumers' demands in an efficient and accountable way.

The existence of this "hidden water and sanitation economy" has important implications for service provision. First, there is a high demand for services which has not been met successfully by the formal sector. Second, although some of these services are provided efficiently by the informal sector (such as tubewells in Pakistan), in other cases (such as water vending in the urban periphery) the costs of service are exorbitant, in large part because the informal providers cannot take advantage of the large economies of scale involved in transmitting water by pipe rather than by person or vehicle.

The specific implication for the formal sector is profound and clear -- there is an enormous reservoir of resources which can be drawn into the formal sector at reduced costs for all, as and when the formal sector is able to provide the services that consumers want in a responsive, accountable way.

Towards a financially sustainable sector

An important backdrop to this discussion is the radical rethinking which has taken, and is taking, place in all aspects of economic development policy and natural resource policy. In this context, it is instructive to characterise and contrast an "old view" of sector policy (and the related financing challenges) which derives from the central planning model which dominated development thinking between the 1950s and the 1980s; and a "new view" that is emerging as a result of the central place now occupied by efforts to introduce more "market-friendly" policies, and by concerns of environmental sustainability.

The old view of sector financing

The "old view" assumes that government has the primary responsibility for financing, managing, and operation of services. It is government's task to define the services which are to be provided, to subsidize these services (especially for the poor), and to develop public organizations for the delivery of the services. And it is the function of external support agencies to assist by providing the resource transfers necessary for providing such services.

Over the past twenty years there have been many assessments of the "financing needs for the water supply and sanitation sector" based on this "old view". These analyses have followed a well-defined and often used format, comprising the following steps:

- an assessment of "the proportion of the population which is served";
- an estimate of the per capita investment costs of providing services to those "who are not served";
- an aggregation of these costs, globally and by country and region; and
- a comparison of these "investment needs" with current levels of investment in the sector.

With this format, the conclusions, too, are common and stress:

- the large "backlog" in services;
- the slow pace of improving coverage;
- the size of "the resource gap" if coverage targets are to be met; and
- the need for governments and external support agencies to increase the resources devoted to the sector so that targets can be reached.

The calculations underlying Agenda 21 are typical of this approach:

> "The current level of investment... is about US$10 billion per year. It is estimated that approximately US$50 billion a year would be needed to reach full coverage by the year 2000.... Such a five-fold increase is not immediately feasible. A new strategy is based upon doubling of current investments to US$20 billion per year...."

To the advocates of the "old view", what is needed is more strenuous advocacy so that external support agencies and national governments will dedicate larger proportions of available public resources to the sector.

The new view of sector financing

In recent years the limitations of the financing perspective implicit in the "old paradigm" have become painfully clear to many water and sanitation sector professionals (although they were becoming increasingly clear to governmental financing departments earlier).

At the most fundamental level, although complaints about "insufficient priority for the sector" remain common, a review of the record (see Figure 4 and accompanying discussion earlier in this paper) shows that allocations to the sector from public sources in developing countries

increased from about 0.25% of GDP in the 1960s to about 0.45% of GDP in the 1980s and that these levels of public investment were maintained even in the years of financial stringency of the late 1980s. This privileged place at the table notwithstanding, and partially because of it, sector performance remains poor (in terms of the number of people served, the quality of service, the efficiency of the supply organizations and the quality of the environment).

The invocations at international water conferences pleading for "increased priority to the sector" and the repeated "commitment" to ambitious targets have become an embarrassment to sector professionals. The delegates at the pre-UNCED International Conference on Water and the Environment in Dublin specifically rejected proposed targets and the pleas for the resources to meet those targets.

Of greater significance, a sophisticated understanding of sector financing has begun to emerge in the sector. As is true for development policies in general, this has entailed a rigorous separation of wish from reality, with specific attention being focused on the incentives which face individuals and organizations.

Possibly the most important element of this new understanding is that "sector finance" is not a subject to be dealt with as a mechanical "requirement" (as was the case previously) after the major policies are decided upon, but rather a set of considerations which are at the heart of developing a sector which provides the services that people want in an efficient, accountable and environmentally-friendly way.

Starting with this perspective, a remarkable, radically different, consensus has started to emerge in recent years on policies (including financial) for managing water resources and for delivering water supply and sanitation services on an efficient, equitable and sustainable basis. At the heart of this consensus are the two, closely related, "guiding principles" enunciated in the 1992, pre-UNCED, Dublin International Conference on Water and the Environment, namely that:

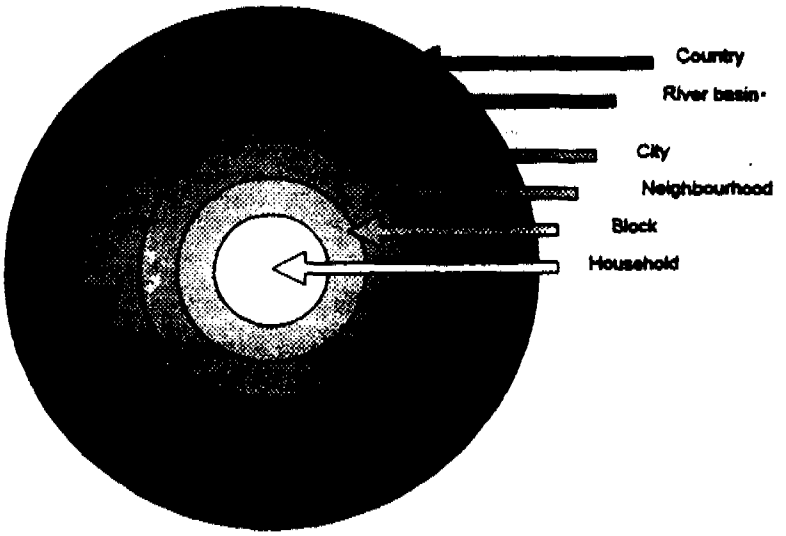
- water has an economic value in all its competing uses and should be recognized as an economic good; and
- water development and management should be based on a participatory approach, involving users, planners and policy makers at all levels, with decisions taken at the lowest appropriate level.

The great challenges now facing the sector are articulation of the details implicit in these general principles and the translation of the Dublin principles into practice on the ground.

The new consensus gives prime importance to one central principle (long familiar to students of public finance) which should underlie the financing of water resources management and water supply and sanitation services. This principle is that efficiency and equity both require that private financing should be used for financing private goods and public resources be used only for financing public goods. Implicit in the principle is a belief that social units themselves -- ranging, in this case, from households to river basin agencies -- are in the best position to weigh the costs and benefits of different levels of investment of resources for benefits that accrue to that level of social organization.

The vital issue in application of this principle to the water sector is the definition of the decision unit and the definition of what is internal (private) and external (public) to that unit. And here it is useful to think of the different levels at which such units may be defined, as illustrated in Figure 7 below.

Figure 7: Levels of decision-making on water and sanitation



To illustrate the implications of the "decision-making rosette" (Figure 7), it is instructive to consider how water supply and sanitation services should be financed.

How water supply services should be financed

The economic costs of providing water include (a) the financial costs of abstracting, transporting, storing, treating and distributing the water and (b) the economic cost of water as an input. The latter cost arises because when water is taken, for example, from a stream for use in a city, then other potential users of that water are denied the possibility of using the water. The value of the most valuable opportunity foregone because of this water (known technically as the "scarcity value" or "opportunity cost") constitutes a legitimate element of the total production cost of water. In the most appropriate forms of water resources management (discussed later) charges are levied on users for this privilege. (As an empirical matter, the financial costs of water supplies to urban consumers and industries usually greatly exceed the opportunity costs. For low-value, high volume uses -- specifically irrigated agriculture -- this relationship is frequently just the opposite -- opportunity costs comprise a considerable fraction of total costs, especially in situations of water scarcity.)

What of the benefit side? The provision of water supply to households has several different benefits. Households themselves value a convenient, reliable and abundant water supply because of time savings and amenity benefits and, to a varying degree, because of the health benefits it confers on them. Because these "private" benefits constitute the bulk of the overall benefits of a household water supply, the public finance allocation principles dictates that most of the costs of such supplies should be borne by householders themselves. When this is the case households make appropriate decisions on the type of service they want (for example, a communal tap, a yard tap or multiple taps in the household). The corollary is that, because this is principally a "private good", most of the financing for the provision of water supply services should be provided through user charges sufficient to cover both the economic costs of inputs (including both the direct financial cost of inputs such as capital and labor and the opportunity cost of water as an input.)

How sanitation, sewerage and wastewater management should be financed

The benefits from improved sanitation, and therefore the appropriate financing arrangements, are more complex. At the lowest level, households place high value on sanitation services which provide them with a private, convenient and odor-free facility which removes excreta and wastewater from the property or confines it appropriately within the property. However there are clearly benefits which accrue at a more aggregate level and are therefore "externalities" from the point of view of the household. At the next level, the block, this means that households in a particular block collectively value services which remove excreta from the block as a whole. At the next level, that of the neighborhood, services which remove excreta and wastewater from the neighborhood, or which render these wastes innocuous through treatment, are valued. Similarly at the level of the city, the removal and/or treatment of wastes from the environs of the city are valued. Cities, however, do not exist in a vacuum -- the wastes discharged from one city may pollute the water supply of a neighboring city. Accordingly, groups of cities (and farms and industries and others) in a river basin perceive a collective benefit from environmental improvement. And finally, because the health and well-being of a nation as a whole may be affected by environmental degradation in one particular river basin, there are sometimes additional national benefits from wastewater management in a particular basin.

The fundamental axiom of public financing prescribes that costs should be assigned to different levels in this hierarchy according to the benefits accruing at different levels. This would suggest that the financing of sanitation, sewerage, and wastewater treatment be approximately as follows:

- households pay the bulk of the costs incurred in providing on-plot facilities (bathrooms, toilets, on-lot sewerage connections);
- the residents of a block collectively pay the additional cost incurred in collecting the wastes from individual houses and transporting these to the boundary of the block;
- the residents of a neighborhood collectively pay the additional cost incurred in collecting the wastes from blocks and transporting these to the boundary of the neighborhood (or treating the neighborhood wastes);
- the residents of a city collectively pay the additional cost incurred in collecting the wastes from blocks and transporting these to the boundary of the city (or treating the city wastes);
- the stakeholders in a river basin -- cities, farmers, industries and environmentalists -- collectively assess the value of different levels of water quality within a basin, decide on what level of quality they wish to pay for, and on the distribution of responsibility for paying for the necessary treatment and water quality management activities.

In practice, of course, there are complicating factors to be taken into account (including transactions costs of collection of revenues at different levels, and the interconnectedness of several of the benefits). What is striking, nevertheless, is that the most innovative and appropriate forms of sector financing (and service provision) follow the above logic to a remarkable degree.

Box 1 (earlier in this paper) presents the case of the financing of sewerage services in an informal urban settlement in Karachi, Pakistan. In this case households pay the costs of their on-lot services, blocks pay the cost of the tertiary sewers, blocks pool their resources to pay for the neighborhood (secondary) sewers, and the city (via the Municipal Development Authority) pays for the trunk sewers. This evocative "feeder/trunk" distinction is now being applied on a much larger scale to the provision of urban services in Pakistan.

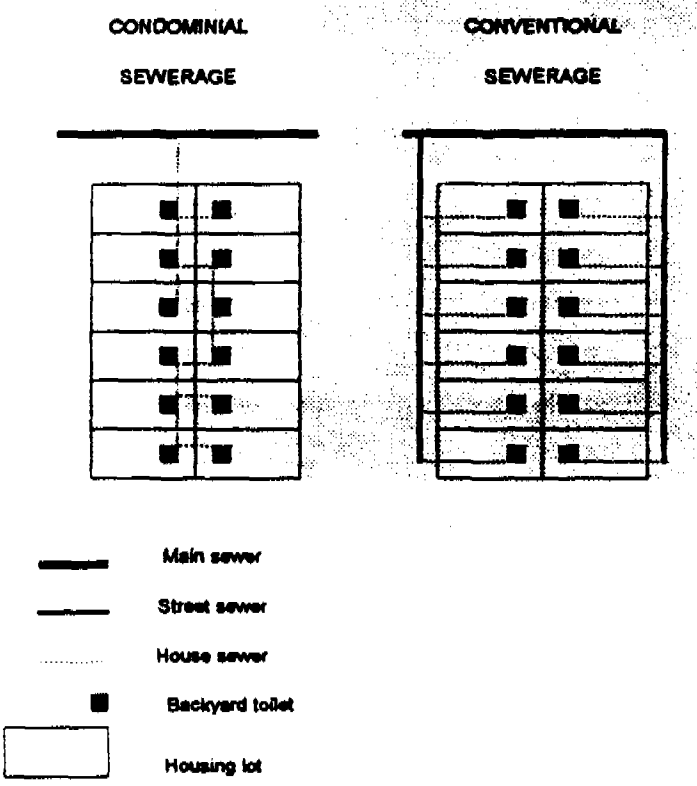
Box 3 (overleaf) presents the case of the financing of condominial sewers in Brazil. Although the arrangements are not quite as clear-cut as in Karachi, the same principle applies, and applies successfully -- households pay for the on-lot costs, blocks pay for the block sewers (and decide

what level of service they want from these), with the water company or municipality paying for the trunk sewers.

Box 3: The condominial sewerage system in Brazil

The "condominial" system is the brain-child of Jose Carlos de Melo, a socially committed engineer from Recife. The name "condominial" was given for two reasons. First, a block of houses was treated like a horizontal apartment building -- or "condominial" in Portuguese (see Figure 8 below). Second, "Condominial" was a popular Brazilian soap opera and associated with the best in urban life! As is evident in Figure 8 below, the result is a radically different layout (with a shorter grid of smaller and shallower "feeder" sewers running through the backyards and with the effects of shallower connections to the mains rippling through the system). These innovations cut construction costs to between 20 percent and 30 percent of those of a conventional system.

Figure 8: Schematic layouts of condominial and conventional sewerage systems



The more fundamental and radical innovation, however, is the active involvement of the population in choosing their level of service, and in operating and maintaining the "feeder" infrastructure. The key elements are that families can choose: (i) to continue with their current sanitation system; (ii) to connect to a conventional water-borne system; or (iii) to connect to a "condominial" system. If a family chooses to connect to a condominial system, it has to pay a connection charge (financed by the water company) of, say X cruzados, and a monthly tariff of Y cruzados. If on the other hand, it wants a conventional connection, it has to pay an initial cost of about 3X and a monthly tariff of 3Y (reflecting the different capital and operating costs). Families are free to continue with their current system (which usually means a holding tank discharging into an open street drain). In most cases, however, (continued)

those families who initially choose not to connect eventually end up connecting. Either they succumb to heavy pressure from their neighbors. Or they find the build-up of wastewater in and around their houses intolerable once the (connected) neighbors fill in the rest of the open drain. Individual households are responsible for maintaining the feeder sewers, with the formal agency tending to the trunk mains only. This increases the communities' sense of responsibility for the system. Also, the misuse of any portion of the feeder system (by, say, putting solid waste down the toilet) soon shows up in a blockage in the neighbor's portion of the sewer. This means rapid, direct and informed feedback to the misuser! This virtually eliminates the need to "educate" the users of the system in the do's and don'ts, and results in fewer blockages than in conventional systems. Finally, because of the greatly reduced responsibility of the utility, its operating costs are sharply reduced.

The condominial system is now providing service to hundreds of thousands of urban people in Northeast Brazil and is being replicated on a large scale throughout the country. The danger, however, is that the clever engineering is seen as "the system". Where the community and organizational aspects have been missing, the technology has worked poorly (as in Joinville, Santa Catarina) or not at all (as in the Baixada Fluminense in Rio de Janeiro).

Even when the appropriate financing and institutional principles are followed, however, very difficult issues arise with respect to financing of wastewater treatment facilities. In industrialized countries it is possible to discern two models which have been used.

In many industrialized countries the approach followed has been to set universal standards and then to raise the funds necessary for financing the required investments. As is becoming increasingly evident, such an approach is turning out to be financially infeasible, even in the richest countries of the world. In the United Kingdom the target date for compliance with the water quality standards of the European Community is being reviewed as customers' bills rise astronomically to pay the huge costs involved. And in the United States local governments are revolting against the unfunded mandates of the Federal Government. A particularly pertinent case is the refusal of cities on the Pacific coast to spend the resources ($3 billion in the case of San Diego alone) required for secondary treatment of sewage. The National Academy of Sciences of the United States has advocated rescinding the "secondary treatment everywhere" mandate and developing an approach in which the costs and benefits are both taken into account in the management of sewage in coastal areas.

In a few countries a different model has been developed. In these countries, institutional arrangements have been put into place which (a) ensure broad participation in the setting of standards, and in making the tradeoffs between cost and water quality; (b) ensure that available resources are spent on those investments which yield the highest environmental return and (c) use economic instruments to encourage users and polluters to reduce the adverse environmental impact of their activities.

These principles were first applied immediately before the First World War to the management of the Ruhr River Basin in Germany's industrial heartland and have provided the underpinnings for the management of the Ruhrverband ever since. Learning from the experience of their German neighbors, France developed a national river basin management system based on the Ruhrverband principles and have been applying it since the early 1960s. Box 4 below describes the principles of these river basin financing and management models and shows how resources for wastewater treatment and water quality management are raised from users and polluters in a basin, and how stakeholders -- including the users and polluters, as well as citizens' groups -- are involved in deciding the level of resources which will be raised and the consequent level of

environmental quality they wish to "purchase"[1]. This system, which obviously embodies the central principles codified in the Dublin Statement, has proved to be extraordinarily efficient, robust and flexible in meeting the financing needs of the densely industrialized Ruhr Valley for 80 years, and the whole of France since the early 1960s

Box 4: Water resource financing through river basin agencies in Germany and France:

The Ruhrverband:

The Ruhr Area, which has a population of about 5 million, contains the densest agglomeration of industrial and housing estates in Germany. The Ruhrverband is a self-governing public body which has managed water in the Ruhr Basin for eighty years. There are 985 users and polluters of water (including communities, districts, and trade and industrial enterprises) which are "Associates" of the Ruhrverband. The highest decision-making body of the Ruhrverband is the assembly of associates, which has the fundamental task of setting the budget (of about $400 million annually), fixing standards and deciding on the charges to be levied on users and polluters. The Ruhrverband itself is responsible for the "trunk infrastructure" (the design, construction and operation of reservoirs and waste treatment facilities), while the communities are responsible for the "feeder infrastructure" (the collection of wastewater).

The French River Basin Financing Agencies:

In the 1950s it became evident that France needed a new water resources management structure capable of successfully managing the emerging problems of water quality and quantity. The French modeled their system closely on the principles of the Ruhrverband, but applied these principles on a national basis. Each of the six river basins in France is governed by a Basin Committee (also known as a "Water Parliament") which comprises between 60 and 110 persons who represent all stakeholders -- national, regional and local government, industrial and agricultural interests and citizens. The Basin Committee is supported by a technical and financial "Basin Agency". The fundamental technical tasks of the Basin Agency are to determine (a) how any particular level of financial resources should be spent (where should treatment plants be located; what level of treatment should be undertaken, etc.) so that environmental benefits are maximized and (b) what level of environmental quality any particular level of financial resources can "buy". On the basis of this information, the Water Parliament decides on (a) the desirable vector of costs and environmental quality for their (basin) society, and (b) how this will be financed (relying heavily on charges levied on users and polluters). The fundamental financial task of the Basin Agency is to administer the collection and distribution of these revenues.

In the French system (in contrast to the Ruhrverband) most of the resources which are collected are passed back to municipalities and industries for investments in the agreed-upon water and wastewater management facilities.

For developing countries the implications of the experience of industrialized countries are crystal clear. Even rich countries manage to treat only a part of their sewage -- only 52% of sewage is treated in France and only 66% in Canada. Given the very low starting points in developing countries-- only 2% of wastewater is treated in Latin America, for example -- and the vital importance of improving the quality of the aquatic environment, what is needed is a process

[1] With respect to the discussion in Sections A and B of the chapter on Freshwater in Agenda 21 -- on, respectively, Integrated Water Resources Management and Development, and on Protection of Water Resources, Water Quality and Aquatic Ecosystems -- it is relevant to note that the administrative and technical budgets of the River Basin Agencies are also decided upon by the governing "Water Parliaments".

which will simultaneously make the best use of available resources, and provide incentives to polluters to reduce the loads they impose on surface and ground waters.

Against this backdrop, developing countries face an awesome challenge. The "old agenda", namely the provision of water supply and household sanitation services, is clearly a relatively "easy" task if sensible financial policies are adopted, since consumers want and are willing to pay for these services. And yet only a handful of developing countries have been successful in meeting this "easy task" in an efficient, responsive and financially sustainable way. The "new agenda", which centers of management of wastewater and the environment, is a much more difficult and expensive one, and one in which successes (in terms of efficiency and financial sustainability) are few and far between even in industrialized countries.

What is heartening is that there is evidence that the right lessons are being drawn from the experience of many developed countries. Just five years ago the Baltic Sea Clean-up was conceived of in classic terms -- setting quality standards and then determining what was needed to finance the needed investments. In this case (as in all others) once the calculations were done it became clear that the necessary money (over $20 billion) could not possibly be raised. In the Interministerial Conference on Financing of the Baltic Sea Clean-up in Gdansk in 1993 this approach was abandoned for a far more productive one, namely ensuring that limited available resources were invested in such a way as to develop financially sustainable, efficient water and sanitation utilities, and to ensure that the limited resources for wastewater treatment were allocated to the highest priority investments.

Daunting as the "new agenda" is, there is cause for hope. It is encouraging that delegates from over 100 countries could agree at the International Conference on Water and the Environment in Dublin on the global relevance of the principles underlying the Ruhr and French water resource management systems. Even more important are the signs that the Ruhr/French system is now being adopted, with appropriate modifications, in Spain, Poland, Brazil, Venezuela and Indonesia, and is likely to be applied in many developing countries in the near future.

Summary of the financing implications of "the new view"

In summary, the articulation of the "new view" of sector financing represents a radical departure from the old. Financing is seen not as an exogenous afterthought. Rather it is seen as central to the development of a sector which will provide people with the services they want and are willing to pay for, and to developing the right balance between environmental quality and cost. The way in which investments are financed matters for all issues -- resource mobilization, the efficiency of allocating these resources, the efficiency with which assets are operated, and the accountability to customers and stakeholders -- which are central to the development of the sector. Indeed, if financing policies can be "got right", all of the other key sector issues -- involvement of users, the assignment of responsibility for different actions to "the appropriate level", the development of accountable institutions, appropriate standards, technology and service selection -- will more readily fall into place. Where the "new view" of financing is adopted, the focus will be precisely on the central sector problems[1], namely:

- Managing water resources better, taking account of economic efficiency and environmental sustainability;
- Providing, at full cost, those "private" services that people want and are willing to pay for (including water supply and the collection of human excreta and wastewater);
- Mobilizing and using scarce public funds only for those services (specifically the disposal and treatment of wastes) that provide wider communal benefits;
- Developing flexible, responsive, financially sustainable institutions for providing these services, with a larger role for community organizations and the private sector.

[1] For example see the World Bank's World Development Report, 1992 on Environment and Development.

Some common beliefs about the new approach to financing:

Finally, it is important to explore three commonly-held beliefs which may impede the adoption of the "new" financing perspective.

Belief #1: The existence of externalities means that a demand-based, participatory approach to sector development cannot work

It is frequently asserted that a demand-based approach is fine for "private goods" but not for "public goods" (such as environmental quality).

In this context, it is important to note that a central feature of the approach advocated in this paper is respect for the capacity of stakeholders to make the right decisions. First it should be noted that the principle which applies at the household level -- namely that the household is in the best position to decide how to spend the resources available to it -- can successively be applied at greater and greater levels of social aggregation (remember that "the household", too, is a social aggregation!) to solve the resource allocation issues appropriate to that level.[1] Second, it should be noted that there is no appeal to override the basic behavioral-based decision process by appealing to "externalities", but simply a need to deal with externalities at any particular level by "kicking them up" one level, where they are internalized.[2] And third, that a successively smaller and smaller number of decisions needs to be made at higher levels.

There is clear evidence from the experience of the World Bank that the (appropriate) concern with environmental quality can easily lead to a supply-driven approach which mandates investments on the basis of "technocratic criteria" and which ends up serving the interests of consultants and contractors, but not the people to be served or the environment in which they live. In such a context it has correctly been asserted that "externalities are the first refuge of scoundrels"!

Belief #2: The new approach to financing does not address the needs of the poor

A second myth about the "new" approach to financing is that it does not take adequate account of the situation of the poor and their need for subsidies.

First is an empirical issue. Although virtually all developing country governments contend that public funds are and should be used to subsidize the poor, the reality is quite different. Figure 6 (earlier in this paper) shows who, in fact, benefits from subsidies for water and sewerage services -- it is overwhelmingly the rich, not the poor, with the discrepancies particularly pronounced n poor countries. (This has appropriately been termed "the hydraulic law of subsidies" -- the subsidies go with the service, and it will always be the better off and more influential who, public pronouncements notwithstanding, benefit first. And it will always be the less influential -- the poor -- who are at the end of the line both literally and figuratively and who either do not get services or who suffer most from poor quality services.)

Second is an issue of income transfers to poor people. Although subsidies often (as in the above case) work perversely in practice, the transfer of resources to poor people is obviously a legitimate (and desirable) instrument of public policy. In the present context the key is to resist the temptation to wrap those transfers up into the transfer of particular types of services (which the poor may or may not value). Once again this comes down to the question of trusting people -- even poor people -- to know how best to spend the resources which are available to them. In practice then, where block grants are made to poor communities, these can, appropriately, be

[1] The critical concept here is that one party's externalities are another party's costs (or benefits).

[2] The situation is similar for health benefits, as discussed in pages 92 through 95 of the World Bank's World Development Report, 1993: Investing in Health.

used by the community to pay for water and sewerage services, if these are the services which the communities value most. (This is a practice which is becoming fairly widespread in the social development funds which have become common in developing countries in recent years.)

An issue of considerable importance for the poor is that of the difficulties they face in raising the capital required for the initial costs of connecting to a piped water supply system. Studies in India and Pakistan have shown that connection rates can be increased very substantially if water companies provide financing (not subsidies) to poor customers for the costs of connecting to piped systems. This practice – of amortizing the costs of connections over, typically, five years -- has been practiced to considerable success in Latin America for many years.

Belief #3: The financing problem can be overcome by mobilizing financing from the private sector

Faced with constraints on public financing, some countries have looked to the private sector for financing of the massive investments required. There are many reasons – efficiency, innovation, and separation of provider and regulator – suggesting that it is often appropriate to involve the private sector in the provision of these services. And there are an increasing number of examples of private sector financing being mobilized for wastewater investments (especially for Build-Operate-Transfer schemes) in Mexico, Malaysia, Indonesia and other developing countries.

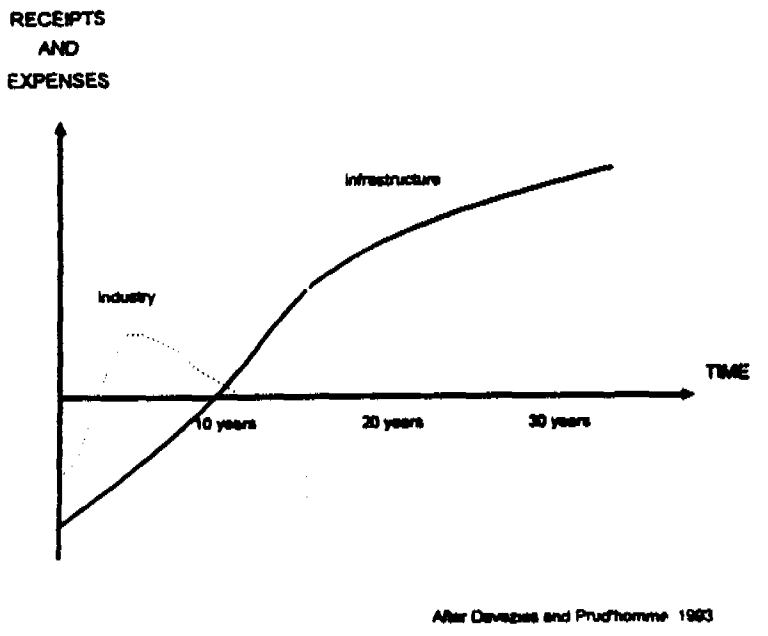
In the context of the present discussion, there are two major factors to be taken into account in assessing the role of the private sector in financing of wastewater investments in developing countries. First, as shown in Figure 9 (overleaf), public facility projects are often "characterized by a long construction period, followed by a gradual increase in the revenue extracted from the operation, with the result that the investors may have to wait 8 to 10 years before receiving their first dividend and will almost have to wait 15 to 20 years before obtaining a rate of return comparable to that offered by an industrial investment. In addition, the entire construction period may be characterized by considerable uncertainty about the ultimate profitability of the investment (because of potential cost overruns and because about the uncertainty about operating revenues). During this period of great uncertainty, remuneration of the investor's risk should compare to that of venture capital and run at the level of 25 to 30%. In contrast, when tariff levels are known following commencement of operation, revenues are not likely to vary as much as in an industrial project. The risk (and appropriate return) is thus less."[1]
It is relevant, in this context, to note (Table 3) that in the country with by far the most advanced private sector participation in the water sector – France – the bulk of privately-operated water supplies are privately financed (concession contracts), but the majority of privately operated sewerage provision is publicly financed (affermage contracts).

Table 3: Private and public financing of privately-operated water and sewerage services in France (approximate)

	Water supply	*Sewerage*
Affermage (public financing)	30%	70%
Concession (private financing)	70%	30%
All delegated management	100%	100%

[1] Laurent Davezies and Remy Prud'homme, 1993

Figure 9: The time profile of expenses and receipts for typical infrastructure investments



Financing of Freshwater in Agenda 21 in Context

The verdict on the "old", top-down, populist, supply-driven financing policies is clear: despite the good intentions which underlie these policies they have failed on all counts -- they are inequitable, inefficient and unsustainable. The overwhelming supporting evidence notwithstanding, in certain political fora populism and good intentions still hold sway.

To take but two examples. The 1990 New Delhi Consultation (the end-of-the-Water-Decade event) declared that the driving principle should be "some for all rather than more for some", a noble intention which had manifestly failed in practice.[1]. What is particularly striking is that such a declaration was made just as the counterproductivity of such policies was leading many developing countries to take a less romantic, more pragmatic and more productive policy position.

Next consider the freshwater sections (Chapter 18) of Agenda 21, the outcome of the United Nations Conference on Environment and Development. The preparatory technical meeting (the International Conference on Water and the Environment, held in Dublin) was, attended by delegates from over 100 countries. Many of the delegates were veterans of previous international water conferences and were acutely aware both of the seductiveness of the populist

[1] Interestingly, nowhere had the "some for all rather than more for some" maxim been followed more closely than in India, the country which hosted the New Delhi Consultation. In India this approach led to a "low level equilibrium trap", in which, in the name of equity, service quality was low, willingness to pay low, revenues low, etc., with the end result being poor services to those who had service and no service to those who the policy was ostensibly designed to benefit!. (Singh et al, 1993) Interesting, too, is the fact that the Indian government itself now recognizes the counterproductive nature of these policies and is in the process of abandoning them. (Government of India, Ministry of Urban Development, 1993).

positions which had prevailed at such conferences, and of the ultimately counterproductive nature of those positions. The delegates at Dublin resisted the standard calls -- for unachievable targets, for additional resources, for unimplementable laundry lists. In particular they drew attention to the total impracticality of the draft recommendations on financing (which formed the basis for the discussions on financing in Agenda 21), where the volume of external resources "required" for freshwater exceeded the total volume of official development assistance! Instead the Dublin delegates focused on defining the two key principles which had proved to be effective in managing water resources. The result was a document -- the Dublin Statement -- which has proved to have widespread acceptance and applicability and has come to frame the debate on water resources policies in many external support agencies and countries alike[1] . And what happened to the Dublin principles in the political atmosphere of UNCED? The core principles which Dublin had articulated and prioritized -- specifically "water as an economic good" and "responsibility at the lowest appropriate level" -- disappeared as guiding principles. Instead the Chapter on Freshwater (Chapter 18) of Agenda 21 comprises long list of unreachable and unfundable targets, with no fewer than 184 activities advocated in this chapter alone!

The hopeful sign is the way in which these policy pronouncements are playing in developing countries and with external support agencies. The rhetoric of the Delhi Declaration is being disregarded even in India (which had pursued the "some for all rather than more for some" policies for decades). And Chapter 18 of Agenda 21 is seldom read or even referred to while numerous countries and external support agencies are showing the way by developing participatory, efficient, and financially and environmentally sustainable policies of the sort described in this paper.

[1] To cite just a few examples. The "Dublin Principles" underlie the recently-formulated World Bank Water Resources Management Policy Paper, and provide the benchmark against which the OECD countries have agreed to assess their water resource assistance strategies. The principles are being implemented in a concerted fashion by many bilaterals, most notably the Nordic countries and the French. And several governments in developing countries -- including the states of São Paulo and Ceará in Brazil, Venezuela, Poland, Peru -- are basing their new water resources policies on the Dublin Principles.

References

Bhanwar Singh, Radhika Ramasubban, Ramesh Bhatia, John Briscoe, Charles-C. Griffin, and Chongchun Kim. *Rural Water Supply in Kerala, India: How to Emerge From a Low-Level Equilibrium Trap* (Paper 92WR02996) Water Resources Research, Volume 29 Number 7 July 1993.

Water and Sanitation Utilities Partnership Report # 3, *Utility Reform and Environmental Clean-up in Formerly Socialist Countries*, Report of a Workshop on the Baltic Sea.

Operations Evaluation Department, June 19, 1992. *Water Supply and Sanitation Projects, The Bank's Experience - 1967 - 1989.*

A World Bank Policy Paper. *Water Resources Management.*

The World Bank, World Development Report 1992, *Development and the Environment*, World Development Indicators.

The World Bank, World Development Report 1993, *Investing in Health*, World Development Indicators.

Harvey A. Garn, TWUWS, World Bank. *Financing Water Supply and Sanitation Services.* Prepared for the Collaborative Council As a Background Paper for the Delhi Conference, April 1990.

Harvey A. Garn, Operations Policy and Research Division, Water Supply and Urban Development Department. *Patterns in the Data Reported on Completed Water Supply Projects*, April 1987.

The World Bank, Policy Planning and Research Staff, Infrastructure and Urban Development Department. *FY88 Annual Sector Review Water Supply and Sanitation*, November 1988. General Operational Review. Report INU32.

The World Bank, Sector Policy and Research, Infrastructure and Urban Development Department. *FY90 Sector Review Water Supply and Sanitation*, December 1990, General Operational Review. Report INU-OR6.

The World Bank, Sector Policy and Research, Infrastructure and Urban Development Department. *FY91 Sector Review Water Supply and Sanitation*, December 1991, General Operational Review. Report INU-OR9.

The World Bank, Sector Policy and Research, Infrastructure and Urban Development Department. *FY92 Sector Review Water Supply and Sanitation*, December 1992, General Operational Review. Report INU-OR13.