Report No.: 26443

Efficient, Sustainable Service for All?

An OED Review of the World Bank's Assistance to Water Supply and Sanitation

September 1, 2003

Operations Evaluation Department

Document of the World Bank

Abbreviations and Acronyms

AAA	analytical and advisory assistance
AIC	average incremental cost
APL	Adaptable Program Loan
ESW	economic and sector work
EWT	Energy, Water and Telecommunications (previous Bank department)
IBRD	International Bank for Reconstruction and Development
IBT	increasing block tariffs
MDG	Millennium Development Goals
OBA	output-based aid
OED	Operations Evaluation Department
O&M	operations and maintenance
PPIAF	Public-Private Infrastructure Advisory Facility
PSP	private sector participation
SRMC	short-run marginal cost

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Foreword

This OED study, which is primarily a desk review, updates the findings of a 1992 OED review of the Water Supply and Sanitation (WSS) sector and follows up on selected key sectoral issues identified as part of OED's more recent review of the Bank's overall Water Resources Management Strategy. Accordingly, it focuses selectively on the performance of the WSS portfolio and the impact of Bank assistance on regulatory and pricing reform as well as private sector participation. The study finds that portfolio performance, although improving , has remained below average and that the Bank has had limited success in promoting deep and lasting regulatory and pricing reform in the sector. It also concludes that private sector participation, where it was promoted under Bank-supported projects, has by and large shown promising results in terms of coverage and quality of service but that it cannot be the panacea to the sector's structural problems. The study's findings point, *inter alia*, to the need for clarifying and consistently implementing the Bank's pricing policy in the WSS sector, for country-focused sector strategies geared to the achievement of the Millennium Development Goals, and for a pragmatic approach to private sector participation.

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Summary

1. From a modest start in the 1960s, World Bank water supply and sanitation lending grew to reach 9 percent of total commitments in 1979. Subsequently, *dedicated*[1] lending decreased to about 3 percent of lending, but the decline was partly offset by water supply and sanitation components under *non-dedicated* lending categories, such as the environment, social investment funds, and urban development. Currently, the active portfolio consists of about 100 dedicated water supply and sanitation projects, and another 150 non-dedicated projects with significant water supply and sanitation components. Lately the sector has attracted renewed interest because improved access to safe water and adequate sanitation are among the central goals established by the UN's Millennium Summit. Three targets under the Millennium Development Goals (MDGs) depend on success in expanding coverage and improving the quality of water supply and sanitation.

2. OED last fully evaluated the sector in 1992. That evaluation concluded that the relevant sector objectives had only been partially met and prompted a reformulation of the objectives. Although the sector has not been covered by an explicit Bank strategy for the sector, in practice its objective has been to provide efficient, sustainable service for all, with emphasis on the poor. However, the instruments to reach this goal have been changing. From having previously worked through government water supply and sewerage agencies the Bank adopted in the 1990s a paradigm that seeks to create regulatory capacity in the sector and encourage private sector participation. More recently, OED evaluated the implementation of the World Bank Water Resources Strategy that was approved in 1993 and updated in 2000 as Operational Policy 4.07. That evaluation[2] concluded, *inter alia*, that the water supply sub-sector had not sufficiently documented its effect on alleviating poverty; that the experience from sector regulation had not been evaluated; that the sector pricing policies were applied inconsistently; and that the sustainability of private sector participation remained to be demonstrated.

3. Accordingly, the present evaluation, which is primarily a desk review, follows up on these issues by focusing on four specific topics: (i) a review of portfolio performance to detect possible effects of the sector's current lending paradigm; (ii) an evaluation of regulatory reform promoted with Bank assistance: (iii) an analysis of how sector pricing policies have been applied; and (iv) an assessment of the effectiveness of private sector participation (PSP) in contributing to achieving the goal of "efficient, sustainable, service for all."

4. This evaluation notes that OED ratings of the outcome, institutional development impact, and sustainability of closed projects have improved over the 1990s although the sector continues to rank low among all sectors rated by OED. Proactive portfolio management has also helped improve the performance of the active portfolio. The proportion of satisfactory OED outcome ratings has risen from about half to about two-thirds for projects that closed in the 1995–2001 period. The ratings for institutional development impact (IDI) and sustainability have also improved, but remain at low levels: only one-third of the closed projects have IDI ratings of "substantial" and less than half have sustainability ratings of "likely." Most projects that closed in the 1990s were designed with the lending paradigm of the 1980s, however, and it remains to be seen if the detected improvements will continue for projects that were designed with the new lending paradigm of the 1990s.

5. OED concludes that the Bank's efforts to introduce effective regulation have failed to produce lasting results. There are few well-functioning water supply and sanitation regulatory agencies in

1. *Dedicated* water supply and sanitation lending is under projects mapped to the Water and Sanitation Sector Board. *Non-dedicated* projects are mapped to other sector boards within the World Bank.

2. OED, *Bridging Troubled Waters—Assessing the World Bank Water Resources Strategy*, Washington DC: World Bank, 2002.

developing countries, and practically none in the Middle East and North Africa, Europe and Central Asia, and South Asia Regions. The best-performing regulatory agencies, such as in Chile and Colombia, were established without any Bank assistance. Both quality regulation and economic regulation are largely absent elsewhere. OED finds that the eight sector performance indicators adopted in 1999 by the Bank Water and Sanitation Sector Board have not been effectively implemented by the Bank and its borrowers.

6. The absence of tariff regulation in Bank member countries can partly be explained by the Bank's inconsistent application of its long-standing pricing policies (recently reiterated in the Water Resources Management Policy, OP 4.07). These three objectives—economic efficiency, financial cost recovery, and targeted subsidies to the poor—are rarely met. Often pricing policies are internally inconsistent, and water supply and sanitation operators lack the capacity and incentives to apply them effectively. Prevailing pricing policies have not served the poor well. The poor would best be served by universal connection coverage to the public water supply systems, but their low incomes make it necessary to subsidize connections. Where water supply and sanitation are under-priced, the wealthy, who consume the most water, are the most subsidized. In contrast, the poor who consume little water and are often unconnected, receive lower or no subsidies, both in relative and in absolute terms. There is a general consensus regarding what needs to be done—universal metering, charging tariffs that reflect future costs in accordance with economic principles, subsidizing connections to the poor, and targeting consumption subsidies to the poor—but these steps have been applied only erratically.

7. Preliminary results of the Bank's efforts to promote private sector participation (PSP) are encouraging. About one-third of projects approved in the 1990s had PSP as an objective. OED rated 86 percent of the PSP projects that closed in the 1990s as having a "satisfactory" outcome versus 60 percent for projects without PSP, 57 percent as having "substantial" IDI (compared to 28 percent), and 71 percent as having "likely" sustainability (versus 35 percent). Data compiled for a limited sample of water utilities before and after PSP also point to improvements in performance. However, many projects without PSP recorded similar improvements in the performance indicators. Clearly, PSP cannot be considered a panacea to the sector challenges, nor the only option. Bank assistance to the sector should consider solutions within the continuum between fully public and fully private provision, which are most suited to individual country circumstances, as both private and public approaches have been shown to produce good results if properly designed and supervised.

8. OED concludes that, despite the noted shortcomings, the sector has made some, albeit uneven, progress during the 1990s by adopting a more relevant sector development paradigm that focuses on "efficient, sustainable service-for-all." A number of emerging findings are relevant in the design and implementation of strategies to meet the three MDGs that involve the provision of safe water and adequate sanitation.

Finding One: ***Monitoring Performance Indicators and Evaluation Systems Will Be Necessary to Track the Bank's Progress in Helping Its Member Countries Achieve the MDGs***

9. The MDGs are broad and general and cannot serve as a primary basis for planning and implementing detailed country/sector strategies. Instead, the Bank should revisit and adapt the performance indicators adopted for the water supply and sanitation sector in 1999 and use them to monitor progress toward achieving the MDGs. Without continuous estimates of service coverage and quality, efficiency, and likely sustainability, it will be difficult to formulate credible development strategies. A shift in resources is necessary to assist the Bank's member countries in creating monitoring systems that will help make service providers and financing agencies accountable for progress toward meeting the MDGs.

Finding Two: ***Regulation Must Move from Prescription to Implementation***

10. A decade after beginning the effort to create regulation, only a handful of countries have put in place well-functioning systems of quality and economic regulation in water supply and sanitation. An enhanced system of performance indicators is needed to provide incentives for countries to strengthen their regulatory frameworks, since well-designed *quality regulation* would enable planners, politicians, and managers to benchmark their systems or sectors in terms of coverage, quality of service, and efficiency.

11. A push toward *economic regulation* is equally overdue. The review of pricing policies under Bank projects has revealed that predictable tariff regulation through the consistent application of transparent rules does not exist in any country that is an active Bank borrower. In the few countries where *de jure* tariff regulation does exist, it can rarely withstand pressure to conform to short-term political expediency. This diminishes its value to investors and operators since the tariff can no longer be predicted with any measure of confidence. The performance of Bank loans would benefit from a policy of requiring either institutionalized tariff regulation or covenanted tariffs as a condition of lending. A minimum requirement should be to adjust the tariff annually to compensate for inflation.

Finding Three: ***Ensuring that the MDGs are Achieved Will Require Translating them into Implementable Sector Development Strategies***

12. The development community expects to meet the MDGs by 2015, that is, 12 years from now. Despite the relative imminence of the target year, most countries lack sector strategies that describe the present situation, and analyze policy reforms, pinpoint priorities, and pre-identify priority projects. The Bank is well placed to assist its member countries in preparing country-specific sector strategies geared to achieving the MDGs. But this will likely require a shift of resources toward operational economic and sector work. In the past decade, 1990–2001, about 90 pieces of economic and sector work (ESW) were prepared by the Bank, but only one tenth were sector studies directly aligned with sector development. Future ESW will have to be more closely linked to lending.

Finding Four: ***Private Sector Participation has Shown Promising Results and Remains an Important Tool to Improve Coverage and Quality***

13. The review concludes that private sector participation has been effective in raising service coverage and quality. However, it has not been a panacea to the sector's problems, which has prompted a recent reassessment of its use. The wholesale questioning of the justification for PSP is premature, however, but shows that the unrealistically high expectations from clients and Bank staff must be tempered. A continued careful evaluation of each PSP-led program is needed to identify factors of success and failure. Continued promotion of private sector participation is sensible as PSP offers the promise of more transparent performance by operators; faster gains in coverage, quality, efficiency, and sustainability; and a further stimulus of regulation.

Finding Five: ***Operators Require Special Incentives to Serve the Poor***

14. An early lesson from the experience of all types of contracts, including those with PSP, is that they will mostly be evaluated by the stakeholders based on how service improved for the poor. To this end, governments will have to ensure effective regulation and provide transparent subsidies linked to service provision to the poor. Output-based aid is one promising model, the results of which will need to be carefully evaluated.

"When you can measure what you are speaking about and express it in numbers, you know something about it; but when you cannot measure it, when you cannot express it in numbers, your knowledge is of a meager and unsatisfactory kind"

Lord Kelvin, 19th century physicist

1. Introduction

SECTOR CONTEXT

1.1 From a modest start in the 1960s World Bank water supply and sanitation sector lending grew to reach 9 percent of total commitments in 1979. Subsequently, *dedicated*[3] lending decreased to a level of about 3 percent of total commitments. The relative decline has been partly offset by *non-dedicated* lending for water supply and sanitation under a number of other sector categories, such as the environment, social investment funds, and urban development. At present, the active portfolio consists of about 100 dedicated water supply and sanitation projects, and another 150 non-dedicated water supply and sanitation projects.

1.2 Lately the sector has attracted renewed interest because improved access to safe water and adequate sanitation are among the goals established by the UN's Millennium Summit and confirmed and strengthened at the 2002 Johannesburg Summit. Three of 18 targets under the Millennium Development Goals (MDG) depend on expanded and improved water and sanitation services:

- Reducing by two-thirds, between 1990 and 2015, under-five mortality rates (Target 5);
- Halving by 2015 the proportion of people without sustainable access to an improved water source (Target 9); and
- Halving by 2015 the proportion of people without access to improved sanitation (Target 10 as amended in the Johannesburg Summit in August 2002).

Interest in supporting the sector has also benefited from recent studies showing that water supply, sanitary excreta disposal, and health education are cost-effective ways to reduce the incidence of disease.[4] In particular, the importance of sanitary excreta disposal and improve hygiene habits is confirmed as critical for achieving lasting health improvements.

1.3 The Bank's sharpened focus on poverty alleviation as its main mission is evident from the sector objectives listed in the previous OED evaluation of the sector in 1992. At that time, the first three objectives were: to help governments achieve least-cost solutions to infrastructure needs; to foster institution building; and to help institutions achieve financial viability. Only the fourth objective stated that projects should "ensure the availability of a minimum supply of safe water to the poor."

1.4 Operational Manual Statement 3.72, "Energy, Water Supply and Sanitation, and Telecommunications," of September 1978 is the last comprehensive statement of what should guide Bank lending in this sector. The OMS has not been updated, but the Bank's sector agenda

3. Traditionally, World Bank sector lending has been divided into *dedicated,* exclusive water supply and sanitation lending that is managed by water supply and sanitation divisions and *non-dedicated* lending that is managed by other divisions and where water supply and sanitation is part of multi-sectoral projects. The definitions are somewhat imprecise but nevertheless useful.

4. As cited in Kseniya Lvovsky, *Health and Environment*, Report No. 24096, Washington DC: World Bank, 2001.

has evolved as reflected in Bank-sponsored conferences, training events and the 1994 World Development Report on Infrastructure. A consensus has emerged on the key principle underlying the Bank's approach to the water supply and sanitation sector: to promote the provision of ***efficient, sustainable service-for-all.*** The implications would be that the World Bank strives to design and finance projects that will meet demand at the least possible economic cost ("***efficiency***"); that it will try to ensure that services will remain operational and produce economic benefits for the foreseeable future ("***sustainable***"); and that the entire population, including the poor, will be served by the water supply and sanitation utilities ("***service-for-all***").

1.5 In 1993, the Bank issued a Water Resources Management Policy Paper that became the basis for the Bank's Operational Policy 4.07. Although its main focus is on water resources management, OP 4.07 reiterates the importance of pricing and incentive policies to achieve cost recovery and water conservation. It also underlines the necessity of establishing a strong legal and regulatory framework to meet social concerns, protect the environment, and prevent monopoly pricing. A recent OED evaluation of the implementation of that policy, *Bridging Troubled Waters: Assessing the Bank's Water Resources Strategy Since 1993* (OED 2002), identifies several water supply and sanitation sector issues that warrant further evaluation:

- The sector has not documented its effect on ensuring safe water and adequate sanitation to the poor.
- The experience from sector regulation in developing countries is not properly evaluated.
- The pricing policies in the sector are ambivalent between satisfying efficiency and financial performance and facilitating the consumption of the poor.
- The long-term sustainability of private sector participation and its effect on meeting the needs of the poor are not demonstrated.

OBJECTIVES OF STUDY

1.6 The starting point for the evaluation would normally be to evaluate the implementation of the Bank policy that applies to the water supply and sanitation sector. However, such a benchmark is not available because there is no formal comprehensive and updated policy and strategy for the sector. The closest approximation to a policy may be the implicit objectives of Bank assistance that emerged over the 1990s, namely to put the sector on the path to ***"effective, sustainable service for all."*** (See Annex A for a Glossary of Terminology). Such objectives are equivalent to ensuring that projects meet demand at the least possible economic cost ("***efficiency***"); that they will be able to provide services over the foreseeable future ("***sustainability***"); and that the entire population, including the poor, will benefit from the services. ("***service-for-all***"). The first objective of the study, therefore, is to assess whether Bank assistance has indeed helped its client countries in moving towards "efficient, sustainable service-for-all."

1.7 Additionally, the study aims at following up on several key issues identified in OED's recent report *Bridging Troubled Waters*, namely:

- Whether the Bank's assistance has promoted effective sector regulation in its member countries;
- Whether OP 4.07 has been implemented as regards pricing policies under water supply and sanitation projects; and
- What the results have been of the Bank's effort to support private sector participation.

STUDY SCOPE AND METHODS

1.8 This evaluation was designed primarily as a desk study. It is based on an analysis of existing OED databases, data generated by OED project evaluations, and data obtained through electronic mail surveys. The evaluation has been divided into four main areas. The first part of the evaluation is a portfolio review that tracks quantitative and qualitative trends in the portfolio and in projects that have been rated by OED or by the Quality Assurance Group (QAG) of the World Bank. The portfolio review comprises 304 water supply and sanitation projects of which 142 dedicated and 162 non-dedicated, representing the totality of projects approved in the 1990–2001 period. The portfolio review includes both urban and rural water supply and sanitation projects but the focus of the evaluation is predominantly urban.[5] Similarly, the evaluation focuses more on water supply aspects than on sanitation aspects given that water supply lending has been many times larger than sewerage and sanitation lending. (See Table 1.) Special challenges faced by sanitation projects may be assessed in the context of future OED evaluations.

1.9 The portfolio review was complemented by collecting project performance indicators prompted by the adoption of the Comprehensive Development Framework in 1999. (See Box 1.) The source of the performance indicators has been OED assessments of 13 individual projects and a special OED review of the Bank's Assistance to the China urban water supply and wastewater sector covering 18 urban water supply and wastewater projects.[6] The project assessments were prepared during the 1999–2001 period.

Box 1. Performance Indicators of Results on the Ground

Following the 1999 launch of the Comprehensive Development Framework, the Bank's water supply and sanitation sector board developed performance indicators to enable monitoring of progress toward "efficient, sustainable service-for-all," primarily in urban areas. A similar set of indicators was also elaborated for rural and peri-urban areas where connections often are too expensive and where low-cost on-site technologies are often more appropriate in the early stages of development. The urban water supply and sanitation performance indicators comprise:

Service-for-All:
- Share of population connected to public water supplies
- Share of population connected to public sewerage
- Share of population with continuous service
- Share of population with bacteriologically safe water

Efficiency of Service:
- Percentage unaccounted water
- Number of employees per thousand households connected to public water supplies

Sustainability of Service:
- Working ratio (cash operating costs/cash operating revenue)—financial sustainability
- Share of wastewater treated—environmental sustainability.

1.10 The second part of the evaluation maps the Bank's success in bringing about an improved lending paradigm comprising (i) effective and predictable regulation; (ii) transparent pricing

5. The present evaluation was limited mainly to urban water supply and sanitation projects supported by the World Bank Group as OED had recently evaluated the segment of rural water supply and sanitation projects, the findings of which are reported in *Rural Water Projects: Lessons from OED Evaluations*, OED Working Paper No. 3, Washington DC: World Bank, March 2000.

6. "China—Review of the Bank's Assistance to the Urban Water Supply and Wastewater Sector," OED Report No. 24979, Washington DC: World Bank, October 16, 2002.

policies that promote efficient water consumption and production, favor financial autonomy, and provide the poor with access and a minimum lifeline consumption. The evaluation of regulatory arrangements benefited from a separate study conducted by Norwegian consultants under a grant from the Government of Norway. The consultants reviewed the portfolio of Bank water supply and sanitation projects with regulation components, interviewed Bank staff, and visited the Philippines and Zambia, both of which had received Bank assistance to create regulation in the water supply and sanitation sector. An intended visit to Gaza and the West Bank to study the monitoring of a Bank water supply project there proved impossible for security reasons.

1.11 The evaluation of the implementation of the pricing policies contained in OP 4.07 used a questionnaire that was mailed to the respective Bank task managers responsible for 24 dedicated and 24 non-dedicated water supply and sanitation projects with questions pertaining to the inclusion and implementation of OP 4.07 with regard to pricing. A total of 15 replies were received and form the basis for the evaluation of the pricing policies.

1.12 The Bank's success in assisting its client countries in widening and deepening private sector participation (PSP) in the water supply and sanitation sector has also been evaluated. The sources of data for this evaluation were drawn from: (i) all projects with PSP that had been closed and assessed by OED since 1997; and from (ii) a special mail questionnaire that was sent out to the task managers of 20 water supply and sanitation projects that had received Bank financial and technical assistance in support of PSP. A total of 11 complete replies were received to this mail questionnaire.

2. Bank Sector Assistance

TRENDS AND PATTERNS

2.1 Total dedicated and non-dedicated Bank (IBRD and IDA) lending for water supply and sanitation in the 1990–2001 period is shown in Table 1. Bank commitments for water supply and sanitation amounted to about $13.3 billion under 304 projects— $9.8 billion (74 percent) under 142 dedicated projects and $3.5 billion (26 percent) under 162 non-dedicated projects. A portion of the latter are non-dedicated mostly in name. For instance, the China water supply and sanitation portfolio is categorized as environmental but has been managed like a dedicated portfolio. The situation may be similar for some of the urban development WSS projects.

Table 1. Dedicated and Non-dedicated Water Supply and Sanitation Lending, 1990–2001

Sector	*# Projects*	*# Projects as share of total (%)*	*Commitments (Constant US$ million)*	*Commitments as share of total (%)*
Dedicated WSS				
Urban Water Supply	52	17.1%	4,063	30.7%
Sewerage	26	8.6%	1,821	13.7%
Water San. Adjustment	24	7.9%	1,628	12.3%
Other WSS	16	5.3%	1,142	8.6%
Rural WSS	24	7.9%	1,079	8.1%
Total Dedicated	**142**	**46.7%**	**9,733**	**73.5%**
Non-Dedicated WSS				
Urban Development	57	18.7%	1,646	12.4%
Environment	21	6.9%	954	7.2%
Social Protection	55	18.0%	533	4.0%
Agriculture	17	5.6%	154	1.2%
Other Sectors	12	3.9%	225	1.7%
Total Non-dedicated	**162**	**53.3%**	**3,512**	**26.5%**
GRAND TOTAL WSS	**305**	**100.0%**	**13,292**	**100.0%**

ANALYSIS OF THE DEDICATED WATER SUPPLY AND SANITATION PORTFOLIO

2.2 The analysis of the dedicated and non-dedicated WSS portfolio attempts to answer the following questions:

- What have been the sector objectives and to what extent have they supported efficient, sustainable service-for-all?
- What have been the project components?
- What has been the conditionality of loans?
- What has been their performance?

Each of the 142 dedicated projects has been analyzed within this framework and the composite analysis is summarized in Table 2.

Table 2. Objectives, Components, and Conditionality of Water and Sanitation Projects, Loans and Credits Approved in 1990–2001

	Dedicated WSS Projects Share of Total	*Non-dedicated WSS Projects Share of Total*
Total	**100%**	**100%**
OBJECTIVES		
WSS Expansion	75%	78%
Institutional Development	74%	52%
Better Cost Recovery	40%	15%
Private Sector Part.	31%	0%
Policy Reform	17%	6%
Regulatory reform	8%	0%
COMPONENTS		
WSS Expansion	98%	99%
Institutional Development	85%	76%
Cost Recovery	76%	47%
TA for Policy Reform	43%	14%
Private Sector Part.	38%	3%
TA for Regulation	14%	0%
COVENANTS		
WSS Covenants	100%	40%
Tariff Covenants	52%	22%
Institutional Development	33%	15%
Improved metering, billings & collections	19%	2%
Private Sector Part.	17%	0%
Policy Reform	15%	1%
Improved financial management systems	11%	6%
Regulatory reform	1%	0%

Note: Percentages do not total to 100% under each category as many projects have multiple objectives.

Internal Consistency of Dedicated Projects

2.3 It is reasonable to expect consistency between stated objectives, loan components, and loan conditionality because objectives usually need to be supported by sufficient financing and loan conditionality to stand a chance of being achieved. However, the analysis indicates that such internal consistency is not always the case. Objectives are often quite general and lack legal covenants to underpin project implementation. For instance, better cost recovery is a stated objective for 40 percent of the dedicated water supply and sanitation projects, and although 76 percent of the projects provide financing to raise cost recovery only 52 percent have tariff covenants and only 19 percent have covenants to help improve metering, billings, and collections. Similarly, 8 percent of the projects list the establishment of regulation as an objective, 14 percent provide financing to make it happen, but only 1 percent has legal covenants to support the effective implementation of sector regulation.

2.4 The consistency between project objectives, components, and covenants with the objectives of "efficient, sustainable service-for-all" is also weak. "Efficient" sector development is facilitated by higher cost recovery, but only 40 percent of the dedicated projects contain this objective. "Sustainable" sector development requires institutional strengthening, higher cost recovery, and regulation but only 74 percent, 40 percent, and 8 percent of the dedicated projects, respectively, have associated covenants to assist and enforce changes in these three areas. Finally, although the Bank's main objective is to promote "service for all," and particularly for the poor only 75 percent of the projects list explicitly the objective of raising coverage and improving service quality.

Policy Consistency Between Dedicated and Non-dedicated Projects

2.5 Policy consistency between dedicated and non-dedicated projects is similarly lacking. For example, private sector participation with regulation seems to be pursued only under dedicated projects. Likewise, policy and strategy reform ranks considerably higher among the objectives,

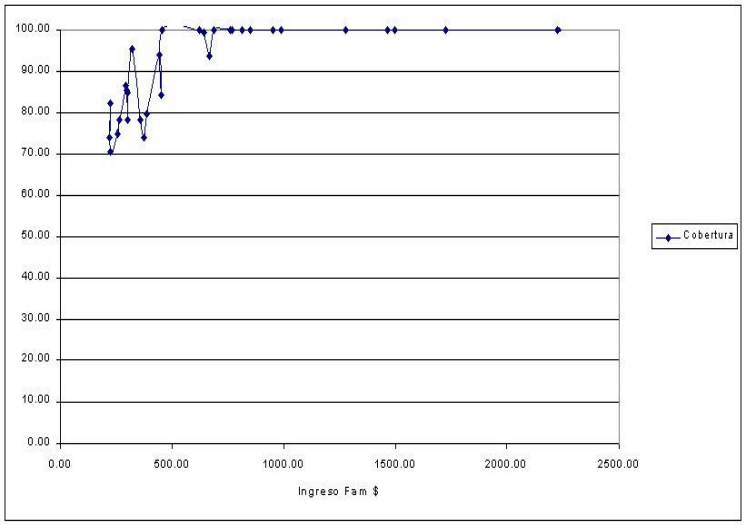
components, and conditionality for dedicated projects compared to the non-dedicated ones. The reason for the differences could be that a non-dedicated loan covers a number of sectors and each sector may receive less attention than it would in dedicated, stand-alone projects. The discrepancies point to the inconsistent policies where water supply and sanitation investments could have widely varying lending conditions and policies depending whether they are financed under dedicated or non-dedicated projects. The unintended result could be to undercut those projects that pursue a more ambitious reform agenda as distinct from those that limit themselves to financing physical works. Lack of data prevents testing this hypothesis, however. Assuming the trend toward a growing share of non-dedicated sector lending continues, the challenge of ensuring policy consistency across the entire water supply and sanitation sector will intensify.

First Sector Objective: "Providing Service-For-All"

2.6 The overarching sector objective is to provide "service-for-all" and is practically a universal *component* of both dedicated and non-dedicated projects. (See Table 2.) It is less often listed as an *objective,* showing up in only about one-quarter of either category of projects. This could lead to a weakness in project monitoring because unstated objectives are less likely to be tracked through the use of monitoring indicators.

2.7 The same lack of precision applies to service provision to the poor. Even though the focus of a project may be stated as connecting poor households or improving their service quality, the objective is not often made explicit in terms of number of additional poor consumers served. In general, it is true that increasing connection rates benefit the poor proportionately more. Wealthier households can be expected to be connected before poorer households. Figure 1 shows how connection rates increase with average income in the city of Lima, Peru. The curve shows how connection rates for the lowest income segments are around 70 percent and how the connections rates then rise to reach 100 percent from a certain household income level and onwards. It follows that the urban poor will be the last to get connected. In order to track service levels of the urban poor it is therefore essential that each project track total service connection rates and that each project clearly state how many more consumers are expected to be connected.

Figure 1. Percentage of Population Connected to Piped Water versus Income Levels Lima, Peru



2.8 Arguably, poor consumers benefit most of all making water service continuous 24 hours a day and from improving the bacteriological quality of the water.[7] All consumers incur costs to cope with unsatisfactory service. For those who can afford it, the coping costs include storage tanks, alternative water supplies, and pumping and treatment facilities. The poor who cannot afford these investments pay through the time they spend fetching water from public taps. Compounding the difficulties of the poor is the fact that such water often risks being contaminated and the cost in time and disease often exceeds what wealthier neighbors pay for water from house connections. Coping costs provide a lower boundary to willingness-to-pay for water but are seldom quantified.

2.9 The kind and level of investments that a household makes to cope with intermittent service differ substantially by income and by alternative water sources. A study in Dehra Dun, a city of 300,000 inhabitants in the state of Uttar Pradesh, India, has confirmed that families in all income brackets pay significant costs to cope with the inconvenience of intermittent supplies.[8] The average household spent $34 per year, of which $22 was coping costs and $12 was payments to the utility. In contrast, poor households spent an average $69 per year to cope, almost entirely in the form of time spent drawing "free" water from public taps.

2.10 The review of project completion reports reveals that Bank projects fail to clearly quantify how many consumers are expected to move from intermittent to continuous service by project completion. Under some projects "improved service quality" is listed as an objective but is rarely quantified. Consequently, the outcome of completed projects may be rated "satisfactory" by OED although on average only four hours of service is provided.[9] The "satisfactory" rating is likely the result of the failure to include continuous service among the project objectives. All major cities in India report daily water availability to consumers in the order of four hours.[10] The failure to pursue a target of continuous service after three decades of Bank assistance begs the question why this has not been better documented in the Bank's economic and sector work.[11]

Second Sector Objective: "Providing Sustainable Service"

2.11 A number of objectives aim at ensuring sustainable and safe services, i.e., uninterrupted operations and adequate maintenance. Well-maintained water supply and sanitation systems will be able to provide benefits over very long periods, certainly 50 years or more. Four of the six most frequent objectives contribute to improving sustainability: institutional development, better cost recovery, private sector participation, and regulatory reform. A clear distinction emerges between dedicated and non-dedicated projects, where dedicated projects pay greater attention to those aspects that underpin sustainability. (See Table 2.)

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7. Some utilities may face a trade-off between (a) increasing the number of connections, and (b) maintaining 24-hour service and high water quality. Revenue and sustainability improve with more connections, which may drive demand above the capacity to provide 24-hour service. The issues are not as straightforward as the public health trade-off. Water in a pipe is less contaminated than what a vendor sells, but a vendor can supply more households if the utility restricts the number of connections to what it can serve with a 24-hour supply.

8. Kyeong Ae Choe, Robert C.G. Varley, and H.U. Bilani, *Coping with Intermittent Water Supply: Problems and Prospects,* Environmental Health Project, Activity Report No. 26, USAID, October 1996.

9. For example, in the Hyderabad Water Supply and Sewerage Project, Loan 3181-IN and CR 2115-IN of 1990.

10. *India—Country Framework for Private Participation in Infrastructure,* paper presented at the Conference on Private Sector Participation in India Infrastructure, November 12–13, 1999, New Delhi, sponsored by the World Bank and Public-Private Infrastructure Advisory Facility, page 27.

11. Some estimates have been made though, e.g., in C. Brandon and K. Hommann, "The cost of inaction: valuing the economy-wide cost of environmental degradation in India," paper presented at the Modeling Global Sustainability conference, United Nations University, Tokyo, October 1995.

2.12 Sustainability is most of all about the quality of the institutional arrangements, in both urban and rural projects. Two recently closed rural water supply and sanitation projects in Bolivia offer a relevant comparison of the virtues of creating sound institutions and policies in order to raise the probability of sustainability (Box 2).

Box 2. Bolivia Is Promoting Demand-driven Rural Community Development

In the 1990s the Bank supported rural water supply and sanitation investments under two projects. The first was the non-dedicated Social Investment Fund (Credit 2532-BO); the second was the dedicated Rural Water and Sanitation Project (Credit 2806-BO). Initially the two projects had quite different strategies to improve rural water supplies and sanitation. The Social Investment Fund concentrated on rapidly responding to demand by building systems, while PROSABAR devoted substantial resources to first organizing and training communities before authorizing construction under the Social Investment Fund as the implementation agency. In the end, the PROSABAR method proved the superior approach for achieving sustainability, so much so that the sub-projects that had been built by the Social Investment Fund were retrofitted with additional resources spent on community development and training, using the PROSABAR methodology. Once more the principles of best practice for successful rural water supply and sanitation projects were demonstrated: investments need to be driven by demand and match the community's willingness to pay for operations and maintenance; and each beneficiary community has to be trained to operate and maintain the system; and for full benefits to accrue, safe water, sanitary excreta disposal, and health education need to be provided as a package. These findings confirm the conclusions of earlier OED impact assessments of rural water supply and sanitation projects, contained in the report *Rural Water Projects: Lessons from OED Evaluations*, OED Working Paper No. 3, March 2000.

Third Sector Objective: "Providing Efficient Service"

2.13 Service efficiency matters because lower costs facilitate sustainability when beneficiaries pay tariffs to cover costs. However, higher efficiency does not appear among the six most important project objectives. (See Table 2.) It is often included though as an auxiliary *expected* outcome resulting from institutional development, improved metering, reduced unaccounted water and the like. In fact, only 15 percent of the 142 dedicated loans and credits in the 1990–2001 period list efficiency and reduced water losses among their objectives or components. The low proportion might reduce efficiency gains. With regard to the 162 non-dedicated projects approved in the same period, efficiency is mentioned only once (in relation to collections efficiency). In short, efficiency seems to be of little concern under dedicated water supply and sanitation projects, and of practically no concern under non-dedicated water supply and sanitation projects. The absence of covenants stipulating higher efficiency is juxtaposed with covenants expecting customers to pay higher tariffs in 52 percent of the dedicated and 22 percent of the non-dedicated projects. The risk is that consumers may end up paying for inefficiencies.

PROJECT PERFORMANCE

Ratings of the Operations Evaluation Department—Dedicated Projects

2.14 The majority of projects prepared in the 1990–2001 period have not yet closed, which makes it difficult to evaluate if the lending paradigm of greater private sector participation and regulation has improved ratings for project outcome, institutional development impact, and sustainability. The majority of projects that did close in 1990–2001 were prepared in the late 1980s and the associated OED ratings for dedicated water supply and sanitation projects are summarized in Tables 3–5.

2.15 The OED ***outcome*** ratings for closed projects show a slight increase from ratings of 58 percent in the 1980s to 64 percent in the 1990s (Table 3). Project ambitions and complexity have undoubtedly increased over time and it has become more difficult for projects to achieve satisfactory outcome ratings.

Table 3. Outcome Ratings for Dedicated Water and Sanitation Projects

Decade	*1980–89*	*1990–01*
Satisfactory	58%	64%
Unsatisfactory	39%	34%
Not Available	0%	2%
Not Rated	3%	0%

2.16 Similarly, the OED ratings of ***institutional development impact*** have stabilized with roughly one-third of the closed projects being rated "substantial" on IDI, about 40 percent being rated "modest," and about one-quarter being rated "negligible" (Table 4). These ratings should be seen in the light of the difficulty and fragility of achieving large institutional changes during a project's relatively short median implementation period of six years. It should also be noted that OED did not start rating IDI and sustainability separately until the mid-1980s. For this reason, trends in IDI ratings are only meaningful for those projects that were evaluated in the latter part of the 1980s and the 1990s.

Table 4. IDI Ratings for Dedicated Water and Sanitation Projects

Decade	*1980–89*	*1990–01*
Substantial	32%	32%
Modest	30%	43%
Negligible	24%	23%
Not Rated	14%	2%
Total	100%	100%

2.17 For the same reasons, the OED ratings of ***sustainability*** can be tracked in a meaningful fashion only for projects that OED evaluated in the 1980s and the 1990s. It shows roughly 40 percent of the projects closed in the 1990-2001 period having a sustainability rating of "likely," approximately 25 percent having an "unlikely" rating, and the remaining 35 percent having an "uncertain" or "not rated" sustainability (Table 5). Sustainability is undoubtedly the most difficult aspect to rate in a consistent fashion, and is also the most difficult to use for comparisons with the corresponding ratings for other sectors.

Table 5. Sustainability Ratings for Dedicated Water and Sanitation Projects

Decade	*1980–89*	*1990–01*
Likely	32%	40%
Uncertain	36%	26%
Unlikely	19%	30%
Not Rated	13%	4%
Total	100%	100%

2.18 Quality at entry and for quality of supervision are rated on annual basis by the Quality Assurance Group (QAG). The small sample size of fewer than five projects rated annually explains why annual QAG ratings vary considerably from year to year. It is more representative to use multi-annual averages as a basis for quality at entry and for quality of supervision. The resulting quality-at-entry rating of the Bank performance in preparing water supply and sanitation projects was 91% satisfactory for the average of FY 97, 98, 99 and 01 as compared to the Bank-wide average for all sectors of 88%. Analogously, the four-year average rating for the Bank performance in supervising projects under implementation was 75% for the water supply and sanitation sector as compared to the sector-wide average of 78 percent. Quality-at-entry is highly correlated with satisfactory ratings of the outcome of completed projects and it might be expected that the convergence of QAG quality-at-entry ratings for the water supply and sanitation sector with those of other sectors will in time translate into a similar convergence in the ratings for project outcome.

Ratings of the Operations Evaluation Department—Non-Dedicated Projects

2.19 The corresponding ratings of outcome, IDI, and sustainability are not readily available for water supply and sanitation investments financed under non-dedicated projects because ratings

are not provided for individual components under multi-sectoral projects. Nevertheless, a sample of 41 non-dedicated project completion reports over the 1990–2001 period were selected for textual analysis to infer ratings. Many proved impossible to rate, further reducing the effective size of the sample, so the results are only indicative. On this basis, 46 percent of non-dedicated projects would have an outcome rating of "satisfactory," compared to roughly 60 percent for dedicated projects. The IDI ratings diverge much more: only 7 percent for non-dedicated projects were rated "substantial" for IDI compared to 32 percent of the dedicated projects. The higher IDI for dedicated projects is not surprising given that 74 percent of the dedicated projects had IDI as an objective, compared to 52 percent of the non-dedicated projects. (See Table 2.) Similarly, 24 percent of the non-dedicated projects were rated as having a "likely" sustainability, compared to 40 percent of the dedicated projects.[12] Again, the difference in ratings is readily explained by that fact that dedicated projects include objectives such as cost recovery, policy reform, private sector participation, and regulatory reform more frequently than non-dedicated projects do.

Water and Sanitation Project Ratings Compared to Related Sectors

2.20 OED's three core ratings, outcome, sustainability, and institutional development impact (IDI), are tabulated in the Annual Review of Development Effectiveness (ARDE) and can be compared for different sectors. The ratings for projects exiting the portfolio in the 1990s are shown in Table 6 for selected sectors that share characteristics with the water supply and sanitation sector, either because they share the characteristics of economic goods with the water sector (the power sector) or the social goods characteristics (environment, HNP, and social sectors). The ratings vary much with the annual sample sizes in each of the five categories studied. In order to smooth the variations three cohorts of project closings have been analyzed: FY 90–94; FY 95–98; and FY 99–01. Out of the 480 projects rated in the ARDE over the fiscal 1990–2001 period, the power sector accounts for 38 percent, the environment sector for 6 percent, the health, nutrition, and population (HNP) sector for 22 percent, the social sector for 11 percent, and the water supply and sanitation sector for 23 percent. As could be expected, the smaller sample sizes for the environment and social sectors result in larger variations in cohort ratings whereas the large sample sizes for the power and HNP sectors result in more stable ratings. The variance of the water supply and sanitation sector ratings is in between: its outcome ratings have varied considerably while those of sustainability and IDI have been more stable.

Table 6. Outcome, Sustainability, and IDI Ratings for Project Exits, fiscal 1990–2001

Sector	Exit FY 90–94			Exit FY 95–98			Exit FY99–01		
	Outcome	Sustainability	IDI	Outcome	Sustainability	IDI	Outcome	Sustainability	IDI
Power	64%	57%	30%	66%	49%	33%	63%	55%	52%
Environment	–	–	–	58%	50%	25%	76%	64%	52%
HNP	69%	45%	17%	65%	56%	25%	68%	50%	45%
Social Sector	75%	50%	75%	83%	20%	37%	88%	76%	49%
Water&San.	70%	33%	36%	49%	37%	23%	64%	47%	33%

Legend: IDI = Institutional Development Impact
HNP = Health, Nutrition and Population
Outcome Ratings refer to share of project exits rated "satisfactory" or higher
Sustainability Ratings refer to share of projects rated "likely" or higher sustainability
IDI Ratings refer to share of projects rated "substantial" or better

12. A recent OED evaluation of social funds (*Social Funds—Assessing Effectiveness*, Washington DC: World Bank, 2002) concluded that the water supply and sanitation sub-projects faced greater problems than those of other sectors in reaching sustainability. In particular, the evaluation reported greater problems with respect to the quality of construction and with respect to inadequate mechanisms to collect funds to pay for the costs of operations and maintenance.

2.21 The water supply and sanitation sector's dual "utility/social" nature has a series of implications for the way governments set tariffs. The sector's social and political nature may result in financially unsustainable tariff policies, which make it difficult to attain financial and institutional autonomy and viability. Therefore, the sustainability of a utility that is unable to cover its operation and maintenance costs from revenue is usually rated as unlikely because OED includes financial resilience as an important component in its sustainability ratings. In effect, this means high or likely sustainability is harder to achieve in the water supply and sanitation sector than in sectors that depend on government budgets to pay for recurrent costs (e.g., environment, HNP, and social sectors, in the sample above). In the end and although the absolute OED ratings for the water supply and sanitation sector improved from the fiscal 1995–98 cohort to the fiscal 1999–2001 cohort ("satisfactory" outcome rose from 49 percent to 64 percent; "likely" sustainability rose from 37 percent to 47 percent; and "substantial" IDI rose from 23 percent to 33 percent), the sector continues to rank last or next to last relative to other sectors.

3. The Pursuit of Sector Reform

THE OLD ASSISTANCE PARADIGM

3.1 The Bank assistance paradigm to the sector changed little during the 1970s and the 1980s. It was a development model that relied on the public sector to meet consumer needs at the least possible cost and in a sustainable manner. Gradually the disadvantages of relying exclusively on the public sector became apparent. The faltering performance of the Bank portfolio was evident from the many deviations from sound sector policies and management practices. Some governments may have been prompted to search for alternatives to the old sector development paradigm by these risk factors:

- The risk that the monopoly power inherent in allowing only public sector agencies to implement and operate Bank water supply and sanitation projects could lead to inefficient operations, and inefficient and excessive investment costs, in part due to corrupt procurement practices;
- The risk that utilities controlled by political office-holders could invite political interference in project selection and in the day-to-day operations of the water supply and sewerage agencies;
- The possibility of unsafe service because of the absence of effective supervision by knowledgeable outsiders. Where regulation and operational responsibility were both vested in a monopoly provider there could be a tendency to adjustment performance standards to actual performance rather than the other way around;
- The temptation of preferring supply-driven solutions rather than considering demand-driven development and programs of demand management;
- The negative experience from opaque and politicized tariff setting that has lead to unsustainable finances of the public sector service providers; and
- The risk that the professional standards of utilities could stagnate because of the politicization of the appointment of key staff and because of the excessive turnover of staff.

3.2 Conventional Bank projects were fairly ineffective in combating the flaws in the public sector development model. In many instances, the effect was just the opposite of the intended. For instance, the granting of Bank financing to a monopoly service provider could favor the provider whenever financing was scarce. Similarly, there was little Bank task managers could do to control excessive political interference in operations and management in agencies where the boards and

management were largely appointed on account of their political affiliations and loyalty. Service quality and efficiency suffered for lack of explicit performance contracts for the public water supply and sewerage agencies and for lack of outside, statutory control. At any rate, performance contracts with public sector companies ("contra plans") were found to be largely ineffective for lack of incentives to improve and for lack of effective regulation.[13] Besides, sanctions in the form of fines for contract violations would only be paid out of consumers through higher tariffs or through budget subsidies. Tariff setting was a source of constant friction where consumers thought that they were asked to pay for the inefficiencies of poor service and utility managers could not plan ahead because they could not be certain that needed tariffs would be raised in time. Finally, the Bank's efforts in institution building could be ruined over night when staff who had been trained under Bank projects were replaced by a new manager because they owed their appointment and loyalty to competing politicians. In short, the old assistance paradigm suffered from lack of correct incentives and for lack of accountable service providers.

THE NEW ASSISTANCE PARADIGM

3.3 Given the challenge of achieving project sustainability and institutional development under the old assistance paradigm, starting in the early 1990s the Bank began exploring alternatives to the old assistance paradigm of public management. The paradigm that emerged had three cornerstones:

- *Quality regulation* to ensure accountability of service providers and the separation between the regulation and the operating responsibility. The expectation was that the collection and analysis of data on service coverage and quality, and on the efficiency and sustainability would stimulate competition between different service providers to strive to approach the best practice in the sector. Such "comparative regulation" or "yardstick regulation" is practiced, for instance, in Chile (see Box 3), in the United Kingdom through the offices of OFWAT, and was promoted in Brazil under the Bank-financed Water Sector Modernization project that set up the Sistema Nacional de Informaçoes sobre Saneamento (SNIS) for the entire water supply and sanitation sector.
- *Economic regulation* based on explicit and predictable pricing policies where tariff levels and structures were predicated on the efficient costs of service and where an effort was made to track which consumers received how much of subsidies. The present study showed that such economic regulation is practically non-existent in countries with active Bank water supply and sanitation projects. Instead, the study attempted to evaluate the implementation of the Bank's own pricing policies under the projects it has financed under the presumption that these pricing policies would substitute for the absence of the client countries' economic regulation for the projects in question.
- Private sector participation to avoid the instability of public water supply and sanitation agencies and to offer competition to the public monopoly providers. The evaluation attempted to assess the effect of PSP on the performance indicators (see Box 1) that relate to the provision of "efficient, sustainable service for all." Similarly, the analogous indicators were collected and analyzed for a sample of projects without PSP in order to compare whether there was any significant difference in performance between the two groups.

13. See, for instance, Mary Shirley, "Why Performance Contracts for State-Owned Enterprises Haven't Worked," *Public Policy for the Private Sector*, Note No. 150, August 1998.

EVALUATION OF THE NEW ASSISTANCE PARADIGM

3.4 Ideally, an evaluation of the new paradigm the evaluation should have analyzed a sample sufficiently large to permit identifying the separate effect of each of the three key factors: (i) quality regulation; (ii) economic regulation; and (iii) private sector participation. This proved unfeasible mainly because, as will be discussed below, there has been little institutionalized regulation implemented under either the closed or active water supply and sanitation projects. In the few cases where quality regulation was developed under Bank-financed projects (see Table 7) it proved impossible to establish a statistically significant correlation between the existence of quality regulation and project performance.

3.5 The link between PSP and regulation could take two forms: (i) PSP in projects in countries with institutionalized quality and economic regulation; and (ii) PSP in projects where the contract itself specified performance criteria and certain tariff levels. The former group of projects (with institutionalized regulation) contained very few projects. Either the Bank is no longer active in the water supply and sanitation sector with the most developed regulation (Chile) or the existing regulation had been over-ridden by the political realities (Bolivia, Colombia, and Peru). The latter PSP-group (with contract regulation) contains more projects but the contractual commitments, either on performance targets or on tariff levels, proved insufficient to withstand the macro-economic and political pressures.

3.6 In summary, whereas the study could not evaluate the full effect of quality and economic regulation on the performance of either private or public water supply and sanitation operators, it did assess the extent to which quality and economic regulation has been implemented under those projects that have received Bank assistance. Similarly, the study did survey the extent of private sector participation under Bank-assisted projects and was able to compare the evolution of performance indicators under these projects. Thus, it points to ways in which the new assistance paradigm could be better implemented in future Bank projects. A tentative conclusion is that the new assistance paradigm remains valid since it has forced the sector to address how to measure progress explicitly, how to mitigate risk, and how to take advantage of both regulation and private sector participation as means to improve sector performance rather than ends in themselves.

PROGRESS IN CREATING SECTOR REGULATION

3.7 Regulation in the water supply and wastewater sectors was developed began in the late 1980s in Chile and in the United Kingdom with a separation of the three key sector functions:

- legislating laws and policies;
- regulating that laws and policies are correctly applied; and
- providing the services within the given legislation and under regulation.

Best practice in the sector assigns each function to different branches of the government and service providers. The legislative authority is part of the political process whereas the regulatory authority is best exercised independently of the legislative process. The separation between legislative and regulatory duties is considered necessary to lend greater stability and predictability to the sector and avoid the problem of a regulator who adjusts rules to match fit the actual performance of service providers. In turn, service providers should be given incentives to perform efficiently and be subjected to regulation by results and not by day-to-day micro-regulation with the subsequent loss of autonomy. The regulator should rather limit his role to periodically monitoring whether the private operator is meeting his contractual obligations to provide a given service coverage and quality within the tariff authorized.

3.8 The World Bank has assisted regulatory reform in the sector in a number of ways. First, analytical and advisory assistance (AAA) have been provided to its client countries to define and prepare for possible further technical and financial assistance. Second, the actual establishment of regulatory agencies has been promoted under adjustment lending or in parallel to investment lending. Third, the Bank has financed and disseminated research on the experience of regulation in the sector.

3.9 The OED portfolio review found that 20 projects (14 percent of the total) included sector regulation as a component of the project, and 11 projects (8 percent) included regulation among the objectives of the project. All projects with an objective or component to improve regulation also had private sector participation, and it can be inferred that PSP is a main driver of Bank action to demand or convince the client of the need for regulation. On the other hand, 54 projects (38 percent) promoted privatization, and it can be deduced that 34 projects (24 percent of the total number of projects) relied on contract regulation to monitor and regulate contract compliance. The evaluation of those projects with regulation yields a number of findings that are relevant for the Bank's future assistance the sector.

3.10 *First*, development of the legislative and regulative framework for the water supply and sanitation sector is a new concept on the political agenda of many developing countries, where the need for regulation is often not understood. Alternatively, it is thought that governments already are exercising it if the service provider is a public agency. The imperfect understanding of what regulation is about confirms the wisdom of the Bank's substantial effort to disseminate the concept of regulation and its common forms. However, the Bank must tailor its message of what regulation is and what it can accomplish to what is realistic in developing countries. Regulation can be of two types: (i) ***quality regulation*** that tracks the quality and efficiency of individual service providers; and (ii) ***economic and tariff regulation*** that applies objective criteria for setting tariffs. Bank clients have only accepted quality regulation under Bank-assisted programs. Economic regulation has never been *successfully* applied for an entire sector under Bank assistance. Where it has been applied, as in Chile and Colombia, the Bank played no role in its design and implementation.

3.11 *Second*, the novelty of the concept and the difficulties have produced only a handful of functioning water supply and sanitation sector regulators among the Bank's client countries, and none at all in the Middle East/North Africa, Europe and Central Asia, and South Asia regions. Even fewer have had Bank assistance in the creation of their regulatory regimes (Table 7).[14]

Table 7. Few Bank Client Countries Have Regulatory Regimes for Water Supply and Sanitation

Country	*Quality Regulation*	*Economic Regulation*	*Bank Assistance for Creation*
LATIN AMERICA			
Argentina	Yes	No	No
Bolivia	Yes	Yes	Yes
Brazil	Yes	No	Yes
Chile	Yes	Yes	No
Colombia	Yes	Yes	No
Peru	Yes	Yes	No
AFRICA			
Mozambique	Yes	Yes	Yes
Zambia	Yes	No	Indirectly
EAP			
The Philippines	Yes, Manila	Yes, Manila	Yes, Manila

3.12 *Third*, as noted above, Bank support to establish regulation has mainly been a consequence of the

14. In many countries with limited private sector participation it is not clear that dedicated regulatory agencies are the most appropriate answer to the need for regulation. A more cost-effective alternative may be contract regulation, involving private audits of compliance with contract covenants. Similarly, Brazil's Sistema Nacional de Informaçoes sobre Saneamento (SNIS), supported by the Bank, may represent best practice for "yardstick regulation" of service quality and efficiency in a situation where provision of water and sanitation services is fragmented since it is the responsibility of individual municipalities.

Bank strategy of promoting commercialization and privatization. Regulatory regimes and agencies have been created with the explicit task of monitoring compliance by private operators with the contractual terms of various types of private sector participation. However, regulation is arguably needed for both government and private operators—effective regulation becomes much more difficult when water supply and sanitation systems are managed by public utilities. The reason is that sanctions to correct for breaches in service quality or efficiency do not function well for public operators. For instance, fines that are levied are often paid out of higher tariffs or from government subsidies in the case of publicly managed utilities rather than out of the profits of private operators.

3.13 *Fourth*, the need for regulation may be even greater when the government is the service provider since this will usually be done without any contractual relationship and without any performance indicators. The corollary is that the establishment of quality regulation, as a minimum, should be a minimum requirement under Bank assistance. The Bank's project to encourage the creation and application of benchmarking of sector performance indicators is a good first step but does not seem to have been widely accepted. Little use would appear to have been made of those data that have been collected.

3.14 *Finally*, the novelty of the regulation concept makes it unrealistic to expect it to become an accepted part of the sector in the course of one Bank project with an implementation period of as little as five years. In reality it requires a decade or longer, which indicates a need for continued Bank assistance. This is particularly true whenever regulation is promoted in parallel with private sector participation, possibly as one individual contract. The legal process in a country is much slower than the process of commercialization and privatization, which increases the risk that the regulatory framework will be without external assistance at the critical time when the first rate review comes up, typically within the first five years of the private sector contract. It then becomes necessary to plan Bank assistance for regulation to continue under subsequent lending operations or under parallel vehicles, such as structural adjustment operations. Such extended support to sector regulation would be particularly suitable under Adaptable Program Lending (APL).

PROGRESS IN APPLYING PRICING POLICIES

3.15 The Bank's pricing policies in the water and sanitation sector are laid down in two operational directives: Operational Manual Statement 3.72 of September 1978 for energy, water supply and sanitation, and telecommunications (EWT), and Operational Directive 4.07 on water resources management (WRM), first issued in 1993 and updated in 2000. The two directives make it clear that Bank's lending in the water and sanitation sector should aim at objectives that help borrowers to:

- provide basic infrastructure for other directly productive sectors;
- build institutions to carry out national and regional programs in the sector, including mobilizing, through adequate pricing policies, the funds necessary for cost recovery and sectoral development;
- implement pricing and incentive policies that promote water conservation and improve allocation of water resources; and
- provide adequate water and sanitation services to the poor.

3.16 The EWT directive recognizes the theoretical and practical difficulties in applying the principles underlying the policy objectives. *The theoretical difficulties* of tariff policies refer mainly to the application of marginal cost pricing, particularly when there are conflicting social

goals or large indivisible investments. It is well known that the theoretically correct price is short run marginal cost (SRMC). However, a tariff based on the theoretically correct price will lead to price instability since the SRMC will change with each incremental cubic meter of water. To overcome the instability, the EWT proposes the use of average incremental cost (AIC) as a way to smooth the variations in the SRMC. It should be noted that the AIC is not universally accepted as a guideline for setting tariffs, for instance, in cities that have undertaken large investments financed by grants. In such a situation, an AIC-based tariff may produce large amounts of excess cash during the initial years. In practice, the risk for large cash surpluses appears an acceptable price to pay in return for gaining the advantages that AIC-pricing bring: a forward-looking tariff calculation that is particularly useful when the next addition to capacity will be much more expensive than the present system.

3.17 *The practical difficulties* of tariff policies, or "operational realities," refer to the inadequacy of incentives present in the service providers to effectively address the operational problems they face, such as physical losses, improper billing, poor bill collection, inability to meter or control consumption, and inefficient operation and maintenance of the infrastructure. Generally, if the metering and the policies do not provide sufficient incentives for the service provider to attempt to convert a "lost" cubic meter into cash collections one cannot expect any tariff to have much of an impact of economic efficiency. Similarly, where consumers do not have sufficient incentives to try to reduce their level of consumption tariff policies will not improve economic efficiency. Effective metering of both production and consumption is a *sine qua non* for the incentives to work their intended effect.

3.18 Table 8 illustrates the complexities inherent in the application of the Bank's pricing policies and how these policies mesh with the operational realities of the service providers. The table also indicates which approaches to operational realities are most likely to result in achieving the Bank's policy goals. From the table it can be seen that:

- All consumption and production should be metered to make possible efficiency in both.
- Tariffs, in most instances, should be guided by average incremental cost (AIC) of each cubic meter consumed. As noted the AIC is the average cost per cubic meter of the next capacity increase for the system. As a rule, such capacity increases are designed for approximately 15 years, which is the time horizon during which the incremental costs and incremental volumes consumed are analyzed. Both are discounted to allow the inter-temporal comparisons of alternative schemes to increase capacity and consumption.
- Direct government subsidies to the poor are required to meet social objectives. In particular, no consumer segment should be obliged to pay more than an agreed portion of income for water supply and sanitation services. If direct government subsidies to consumers are not feasible, e.g., because of fiscal weaknesses of the government, some kind of cross subsidy via the tariff is one practical option to support the consumption of the poor. Another option is to explore different levels of service and the use of appropriate technologies to ensure access of service to the poor.

3.19 Table 8 illustrates the expected impact from metering, from different types of tariff structures, and from different vehicles of subsidies. It can be seen that metering is both an absolute requirement to meet the different aspects of pricing policies as specified in OP 4.07. Metering will help the utility to produce as efficiently as possible and will induce consumers to adjust their level of consumption to an optimum.

3.20 As for the best practice of tariff structures a two part tariff is the optimum where the very basic consumption level, the lifeline, is provided at a nominal cost and where all additional consumption is charged at a uniform tariff set at the average incremental cost (AIC) to signal to

consumers what future costs of service will be. The common tariff structure of increasing block rates (IBT) where additional consumption costs increasingly more is not optimal. Experience shows that it quickly degenerates into a structure where the majority of domestic consumers are subsidized by increasingly fewer large domestic consumers and by commerce and industry. The resulting distortions grow and in the end the subsidizing large-scale consumers frequently cease being consumers (and subsidizers) of the public system by building their own water supply and sanitation systems.[15]

Table 8. Choices in Pricing, Tariffs, and Subsidies Affect Achieving Bank Policy Objectives

Pricing & Operational Realities	*Policy Objective*				
	Economic Efficiency			*Serving the Poor*	*Financial Sustainability*
	Utility Production	*Water Allocation*	*Water Conservation*		
Pricing:					
Metered	+	+	+	+	+
Non-metered	-	-	-	?	?
Tariff structure:					
IBT	-	-	-	- or ?	- or ?
AIC	+	+	+	+ or ?	+ or ?
Customer differentiation	-	-	-	?	?
Subsidies to:					
Utility (to supply)	-	-	-	-	- or ?
Customers (to demand)					
Direct	+	+	+	+	+
Cross	-	-	-	- or ?	- or ?

+ denotes a positive effect on reaching Bank pricing objectives; - denotes a negative effect on reaching Bank pricing objectives; ? denotes uncertainty as to the effect on reaching Bank pricing objectives
IBT: Increasing Block Tariffs
AIC: Average Incremental Cost

3.21 Finally, Table 8 identifies direct income-based subsidies to consumers, i.e., to demand, as the best way of supporting the consumption of the poor. However, where the administrative ability of borrowers is insufficient to administer such direct subsidies because poor consumers cannot be reliably identified, a simple form of cross-subsidy based on a two-tier, lifeline tariff may be the preferred alternative.[16] To enable such lifeline tariffs, consumers must first be connected, which implies that the priority is to subsidize access to the public system by connecting consumers at nominal cost. This will have a large beneficial impact since it will provide poor consumers with a safe source of water supply at a cost that is frequently 5 percent to 10 percent of what they pay per cubic meter to water vendors. However, the lower tariff does not necessarily mean that consumer water bills will be 5–10 percent of what they previously paid because their consumption levels will likely rise once they are connected.

3.22 **Pricing Experience.** A review of the 304 project appraisal documents show there are major differences in the approach to pricing of services in dedicated and non-dedicated projects. Dedicated projects appear to be more concerned with institutional and financial issues, including pricing, than the non-dedicated projects, as suggested by the number of projects in which the stated objectives include institutional development and cost recovery, and by the number of projects with covenants related to pricing and bill collection. (See Table 2.) Dedicated and non-

15. Increasing block rates is critiqued in John J. Boland and Dale Whittington, "The Political Economy of Increasing Block Tariffs in Developing Countries," paper presented at a World Bank workshop, November 3–5, 1998.

16. The tentative conclusion is corroborated by Lazlo Lovei, Eugene Gurenko, Michael Haney, Philip O'Keefe, Maria Shkaratan, "Maintaining Utility Services for the Poor—Policies and Practices in Central and Eastern Europe and the Former Soviet Union," Washington DC: World Bank, May 12, 2000.

dedicated projects in rural areas share the objective of assisting communities to establish adequate mechanisms to recover operational and maintenance costs from users.

3.23 **Water Allocation.** Water allocation issues are not discussed in the appraisal documents for any of the evaluated projects in the selected sample. This omission is understandable, however, considering that the water supply and sanitation sector uses, on average, less than 10 percent of water resources, and that most countries give priority to water for drinking purposes. It is also debatable whether projects in this sector are the best positioned to address water allocation issues.

3.24 **Water Conservation.** Concerns about marginal cost pricing are the exception rather than the rule, judging by the selected sample of 15 projects out of the 48 more detailed questionnaires mailed to World Bank task managers. Only 4 of 10 project appraisals in urban areas, and one in rural areas include a calculation of the marginal cost of expanding output or services. No project presents a plan or strategy to adjust tariffs to reach marginal cost. Moreover, operational and managerial shortcomings of most service providers make it impractical to implement marginal cost pricing, at least in the medium term. These operational realities include: lack of metering, poor billing and collection, and inefficient operation and maintenance of the infrastructure. In addition, all but one of the projects in urban areas apply increasing block rates (IBT), a tariff structure commonly considered the best way to achieve water conservation and to ensure access by the poor to water and sanitation services. However, this tariff is inconsistent with these goals, as discussed above.

3.25 **Financial Sustainability.** An important objective of the Bank's involvement in the sector is, as stated in the Operational Manual 3.72, to help borrowers "build up institutions capable of effectively planning and implementing national or regional programs, *including mobilizing through adequate pricing policies the funds necessary for sector development"* (italics added for emphasis). In accordance with that statement, rural water and sanitation projects are concerned with establishing the users' contribution to financing part of the investment. The projects also emphasize a demand-driven approach to ensure that communities take care of the operation and maintenance of the systems.

3.26 Pricing and financial sustainability issues of service providers in urban areas are extensively discussed in the appraisals for dedicated projects and are at times the subject of loan covenants and plans of action. In contrast, this discussion is perfunctory in non-dedicated projects. The review of the appraisal documents in the sample of projects suggests, however, that there is substantial room for improvement in the analysis of pricing and financial sustainability issues and in the emerging recommendations and plans of action.

3.27 **Serving the Poor.** The pricing policies under Bank-financed rural water supply and sanitation projects are consistent with Bank's policy of giving priority to the poor. They reflect the importance of a small contribution by the beneficiaries to meet capital expenditures, based sometimes on willingness-to-pay surveys. The obligation of project beneficiaries is to implement charges that allow the community to generate revenues sufficient to cover adequate operation and maintenance expenditures.

3.28 Projects in urban areas are less effective than projects in rural areas in implementing pro-poor financing policies. This lack of effectiveness is the result of prices that do not adequately cover the cost of the services, coexisting with subsidy mechanisms that provide more support to the middle class than to the poor and fail to reach the very poor who lack direct access to services.

3.29 **Factors in Project Performance.** The Bank's assistance has had limited success in inducing sector borrowers to implement pricing policies consistent with the objectives of the Bank's pricing policy. This seems to be the result of strategic weaknesses in applying a gradual

approach to reform, as suggested in the Bank's policy directives. It is also the result of an inadequate response to the often-conflicting policy objectives. This strategic weakness is reflected in the design of projects without adequate consideration of the incentives that determine the "operational realities" of the service providers, the continued use of poorly targeted subsidies, and of financial plans that do not adequately promote, from the outset, financial sustainability and resource mobilization.

3.30 **Accommodation of operational realities.** A major weaknesses in project design is the expectation that weak sector policies and poorly managed and accountable sector institutions will succeed in carrying out large investments in expansion and rehabilitation, while simultaneously creating the enabling conditions and incentives for the implementation of the Bank's pricing policies. An important effect of that expectation is that "quality at entry" is compromised. Project designers and appraisers should strive for a more realistic assessment of the challenge to improve performance of poorly managed service providers and thus to create the required conditions for the effective implementation of the Bank's pricing policies. Actions and investments aiming at "putting the house in order" should then have greater priority over large investments for expansion in the early years of project implementation.

3.31 **Conflicts between policy objectives.** Economic efficiency, water allocation and conservation, and serving the poor are all accepted objectives, but they do not necessarily lead to a consistent pricing policy. A detailed analysis of pricing trade-offs to reconcile, to the extent possible, conflicting policy objectives is necessary in all projects to arrive at a pricing strategy best suited to the particular project conditions.

3.32 **Subsidies that do not serve the poor.** A large proportion of projects in the sample, particularly those in urban areas, have been ineffective in implementing pro-poor policies that foster access to services. This lack of effectiveness is the result of prices that do not cover cost, coexisting with ineffective subsidy mechanisms that benefit better-off groups more than the poor. A primary example is the use of IBT, which often discriminates against poor consumers who consume much less water per capita than average consumers. Consumption levels of 30 lcd are not uncommon for both unconnected and connected of the lowest-income consumers. Under the circumstances, it is an sub-optimal use of scarce subsidies to subsidize those consumer segments who consume much more than this lifeline level of consumption. Any additional financial resources available for subsidies are best used to subsidize the connection cost of the poorest to enable them to benefit from a safe and low-cost lifeline consumption. The application of direct government subsidies to the poor might be beyond the institutional capabilities of many governments.

3.33 **Ability to achieve financial sustainability and resource mobilization.** Financial sustainability of the service providers and resource mobilization for sector development, although extensively discussed in the project appraisals, remain elusive goals. The financing plans underlying the projects are not fully adequate to ensure the sustainability of the infrastructure, the reliability of the services to all consumers, and the capitalization of the service providers. All water and sanitation service providers in urban areas should be able to recover all recurrent and capital costs of an *efficient operation* in accordance with the principles of economic pricing. In rural areas, recovering at least all operation and maintenance costs is necessary to ensure sustainability. Often rural beneficiaries are also required to contribute a portion of the capital investment costs. It is essential, therefore, to develop enforceable agreements with borrowers and implementing agencies on meaningful and monitorable plans for operation and maintenance properly priced and budgeted. In addition, service providers in urban areas should progressively generate sufficient funds to finance a meaningful share of investments for expansion and rehabilitation. The only country that has applied a coherent pricing policy is Chile (Box 3).

Box 3. Chile Represents Best Practice in Pricing Policies

A special Water Supply and Wastewater Law from 1989 obliges all service providers to charge tariffs that reflect long-run marginal cost of an efficient operation. Tariffs should also enable service providers to cover their financial costs, a trade-off that signals the importance Chile assigns to having a financially sound utility. This criterion is generally satisfied as long as consumers pay the average incremental cost for their consumption since future costs are invariably above historical costs that constitute financial costs. This is true even though only the AIC for efficient producers is allowed to be levied.

Consumers who cost the same to serve must pay the same tariffs and cross-subsidies are eliminated. Subsidies are for low-income households, as defined by central government guidelines. Local governments are responsible for identifying these households. Subsidies are defined yearly and paid by the central government, via local governments, to the utility, which sends an invoice for the total subsidy to the municipality. The tariff structure is kept simple to make payments administratively simple and to increase transparency. The two-part tariff has a fixed monthly component and a constant unit rate for each cubic meter consumed.

Subsidies cover part of the bill up to 20 cubic meters per month up to a maximum subsidy of 85 percent of the full cost-based bill. The bill to the consumer indicates the full cost of the services provided, the amount of the subsidy the consumer is entitled to, and the difference to be paid by the consumer.

PROGRESS IN PRIVATE SECTOR PARTICIPATION

3.34 Private provision of water supply and sanitation services is not a new concept. Private concessionaires built a number of early water supply systems in Europe in the late 18th century and in Latin America, Africa, the Middle East, and Asia in the late 19th century. Subsequently, with the emergence of an economic model where the state was presumed to be more closely aligned with the social aspirations of the populations, the role of private operators shrank. In the French colonies, private service providers remained longer than they did elsewhere, influenced by the prevalence of this model in France itself. For instance, in Côte d'Ivoire a private operator, la Societé de Distribution d'Eau de Côte d'Ivoire (SODECI) had been established in 1959, before independence, to supply the capital, Abidjan, with water and sewerage services. In most other developing countries private sector participation (PSP) faded, discouraged by tariff legislation that did not permit a return commensurate with the risks. In many newly independent nations there was also a natural reaction against the previous models of managing services. The PSP model was almost universally replaced by public service providers that were either central government agencies or municipal providers.

3.35 The paradigm of government service providers proved a natural fit for World Bank lending to the sector, which began in the late 1960s and expanded rapidly in the 1970s. The Bank's statutory requirement of sovereign guarantees was easily satisfied as long as service providers were central government agencies. The same was initially thought to hold true for municipal service providers. However, gradually the moral hazard became apparent of allowing municipal borrowers to perform poorly without suffering the full consequences since the central government was obliged to pay for World Bank debt service under its sovereign guarantee.

3.36 Disenchantment with the poor performance of lending to state providers grew, however, and accelerated with the debt crisis of the 1980s. Parallel to the growing disillusions with public service providers, the private sector gained prominence following the wholesale privatization of water supply and wastewater services in England and Wales under the Thatcher government in the 1980s. What had until then been a phenomenon limited to France and Spain became a model that was suddenly thought to be worth considering everywhere. This paved the way for the Second Water Supply Project for Guinée, which resulted in a 1989 IDA credit (Credit 1985-GUI)

that financed investments managed by a state holding company, SONEG. The operator was a private company, SEEG, that operated the publicly owned assets under a 10-year lease.

3.37 The next project with significant private sector participation was the concession of Obras Sanitarias de la Nación in Buenos Aires. The World Bank played a role in the preparation and assisted as an adviser to the Argentine government in the bidding and contracting process of this landmark concession. Following the May 1993 takeover of the Buenos Aires system, the concessionaire, Aguas Argentinas, could demonstrate rapid improvements in the quality of service and in the level of investment. The success of the Guinée lease and the Buenos Aires concession spurred widespread interest in PSP. Supported by research, dissemination, and technical assistance, PSP became *de rigueur* in most regions, starting with Latin America, but rapidly spreading to the Middle East, East Asia and the Pacific, Africa, and South Asia. The pendulum swung far, and came to favor PSP as a panacea to the perceived performance problems of the Bank's water supply and sanitation portfolio.

3.38 It took a number of PSP contracts that did not live up to expectations to correct for this excessive faith in the private sector as operator. The first disappointment was a management contract in Trinidad and Tobago, where the Bank had financed investments managed by a management contractor with a British operator and a local contractor. Following a three-year interim contract, the board of the national water supply and sewerage company, WASA, and the private operator were unable to agree on a deepened PSP contract and the private consortium left without any appreciable improvements of service quality. The next disappointment—a concession bid and contracted for the city of Cochabamba, Bolivia (Box 4)—proved more significant. As a consequence of this failure, governments, international lending agencies (and among them the Bank), and the private sector have acquired a more nuanced view of PSP. It is not a panacea to deep-seated problems and cannot be expected to substitute for decisions that only governments have the power and obligation to make. PSP is better likened to a sharp tool. A capable government can use it to great advantage to improve the water supply and sanitation situation but an inept government can make matters worse through an injudicious use of PSP without providing clear quality and price regulation and lending strong and sustained support to PSP.

Box 4. Bolivia Offers a Cautionary Lesson in Concessions

Under an IDA credit the World Bank had promoted a concession of the Cochabamba water supply and sewerage system as a cost effective way to improve city's poor service, but local opposition arose against the Bank recommendation to use cheaper water from the existing Corani dam. The IDA credit closed without any concession being signed. Later, the municipal coalition that had opposed the Corani scheme negotiated directly (without any Bank involvement) a concession contract based on the more expensive Misicuni scheme. The central government regulator signed the contract. The concessionaire, Aguas del Tunari, took over in late 1999 and promptly raised tariffs, as authorized by the Bolivian sector regulator, but without improving service quality. Severe civic opposition and rioting followed, and prompted the government to cancel the contract in early 2000. The regulation law that had been adopted in late 1999 was also modified and the regulator was forced to resign. The experience shows that for PSP to be successful (1) investments should meet least-cost criteria or else the government needs to provide subsidies; (2) it is imprudent for private operators to raise tariffs without improving service quality; and (3) PSP contracts should be bid and negotiated in a transparent fashion. The political fallout from the failed concession will likely affect the credibility of future PSP schemes not only in Latin America but in other parts of the world as well.

Bank Analytical and Advisory Assistance to PSP

3.39 In addition to lending for investments under lease and management contracts, the Bank has extended considerable analytical and advisory assistance (AAA) to its client countries. In the early 1990s some of the corresponding economic and sector work (ESW) was financed out of the Bank's own budget. Subsequently, after its establishment in 1999 with funding from a number of donors under a Trust Fund, the Public-Private Infrastructure Advisory Facility (PPIAF) has financed an increasing share of AAA activities in the water supply and sanitation sector's effort to prepare for private sector participation. Table 9 provides details of the PPIAF-funded activities over the first 30 months of operations.

3.40 PPIAF has been a flexible and valuable source of financing to support the Bank's effort to promote PSP in the sector. In many instances, PPIAF has enabled the Bank to follow up quickly on the initial diagnostic mission, which would likely not have been possible given the inflexibility of the Bank's own current budget. In fact, the OED evaluation indicates that the necessary time and effort to properly prepare PSP contracts were underestimated. PSP contracts take longer to prepare than traditional investment projects for two reasons. First, there is a need to draft a robust contract and, second, there is large effort required to build political consensus.

Table 9. PPIAF Is an Important Supporter of PSP in Water Supply and Sanitation

Purpose of PPIAF Grant	*No. of Activities*	*Amount of Grants (US$)*
Studies and dissemination	7	0.75 million
PSP Options and Strategy	15	4.50 million
Preparation of specific deal	4	1.05 million
Preparation of regulation	6	1.70 million
Total	32	8.00 million

3.41 Another source of AAA for the water supply and sanitation sector, although not exclusively in the area of PSP, has been the Water and Sanitation Program (WSP). It is the oldest trust-funded source of AAA and was established in 1978 to manage the development of appropriate sanitation technologies and promote their adoption in the Bank's member countries. The WSP has lately expanded its activities to consider the possibility of small-scale service providers to cater to the needs of the urban poor. Given its limited scope as a desk study the present evaluation did not evaluate the PPIAF-financed and WSB-driven activities, nor the impact of the customary sector dialogue, workshops and seminars promoted and implemented by the Bank. Such activities can arguably have a considerable impact on sector performance and should be self-evaluated more systematically.[17]

3.42 The water supply and wastewater sector's political importance and the fact that it is by far the most capital-intensive in relation to annual revenue makes it the riskiest of all infrastructure sectors for prospective private operators. Table 10 explains the point by relating the required capital stock of the four infrastructure sectors to the annual gross revenue. The water supply and wastewater sector has the highest ratio of the four sectors. This is largely because water supply and sanitation services are under-priced compared to other infrastructure services. In light of its capital intensity it is hardly surprising that the water supply and sanitation sector has attracted the least private financing—6 percent of total foreign direct investment—over the past 10 years. The fact

Table 10. The Riskiest of All Infrastructure Sectors

Infrastructure Sector	*Fixed Assets/ Annual Revenue*
Water Supply and Sanitation	10–12
Toll Roads	7
Electric Power	4
Telecommunications	3

Source: The Nation's Public Works: Report on Water Supply, *consulting report to the National Council on Public Works (Washington DC: Wade Miller Associates, Inc. 1987; World Bank estimates based on data on French toll roads*

17. PPIAF and the Water and Sanitation Program are among the programs covered in OED's forthcoming evaluation of the World Bank's Global Programs.

that most water supply and sanitation services are managed locally also converts risk into sub-sovereign risk. On the other hand, Bank lending requires a statutory sovereign guarantee, which limits the Bank's ability to support local private operators with financing unless the central government is willing to guarantee local borrowers and their performance.

OED Ratings of Completed Projects with PSP

3.43 The relative novelty of PSP under Bank projects explains why few projects closed during the 1990–2001 period. Consequently, there are few projects with OED ratings. However, seven projects did close during this period; their ratings are shown in Table 11.

Table 11. The Few Closed Projects with PSP Have Generally Performed Well

Project and PSP-type	*Outcome*	*IDI* [a]	*Sustainability*
Argentina I, Concession	Satisfactory	Modest	Likely
Argentina II, Concession	Satisfactory	Substantial	Likely
Bolivia, Concession and one cooperative	Satisfactory	Substantial	Likely
Guinée, lease	Satisfactory	Substantial	Likely
Indonesia, concession	Satisfactory	Modest	Unlikely
Romania, concession	Satisfactory	Substantial	Likely
Trinidad & Tobago, management contract	Unsatisfactory	Modest	Unlikely

a. IDI = Institutional Development Impact

Source: OED evaluation summaries

3.44 The ratings are generally positive. OED usually rates projects within a year of the closing of Bank projects, which is a short time. However, the risk tolerance of private operators is probably lower than for government operators. Risks that materialize will likely affect the operating cash flow and the profits of the private operator immediately and the private operator could be expected to react immediately to mitigate risks and protect the financial returns under the contract. In contrast, a government operator may not even be aware of the impact of certain risks and may be slow in reacting, particularly when there are no clear performance criteria. The ratings for projects with PSP are higher than for those projects without PSP, as Table 12 shows. The OED evaluation methodology rates project outcome on the basis of tracking the degree of fulfillment of project objectives. Further, OED employs an explicit methodology for rating institutional development impact (IDI) and sustainability. It is important to keep in mind that the OED ratings are for the most part qualitative and are not exclusively based on a comparison of the values of performance indicators before and after the Bank loan.

Table 12. And They Are Rated Higher Than Projects without PSP

Rated Project Aspect	*Projects with PSP*	*Projects without PSP*
Outcome, Satisfactory	86%	60%
IDI, Substantial	57%	28%
Sustainability, Likely	71%	35%

3.45 Although the OED ratings seem to indicate that the initial experience from PSP has been positive in comparison with the average project, caution is in order, given the small number of closed projects. It could also be argued that initially successful concessions such as those for Buenos Aires and Santa Fe in Argentina are battling serious difficulties in the wake of that country's deep macroeconomic crisis. However, this is likely to be true for all projects, with or without private operators. It is even likely that public service providers will be more vulnerable than private operators since their cash flows are likely to be weaker and more dependent on central government budgets. Nor is a successful, long-term PSP contract assurance of continuity: the Conakry lease contract lapsed after 10 years and after another 2 years of ultimately unsuccessful negotiations operations reverted back from the private operator to the government of Guinée.

Performance Indicators Under Bank-Assisted Projects, With and Without PSP

3.46 Using standardized definitions to ensure comparability performance indicators were collected through a mail survey of operators and in the context of selected OED project assessments for projects without PSP and projects with PSP and that had been facilitated by Bank technical assistance.[18] Data were received from 11 private operators out of the 20 that received the questionnaires. Those not responding were largely small Argentine private operators. Unfortunately. the limited number of responses does not allow for generalizations regarding the relative performance of different types of PSP-model: concession, lease, or management contract. The number of surveyed projects without PSP numbered 28 out of which 18 were from the Bank's lending program in China. In order to avoid a bias because of the large proportion of projects in China, the statistical calculations used the simple average from the 18 individual Chinese projects. The values of the performance indicators for projects with and without PSP are shown in Table 13, which also compares the situation before and after the Bank assistance. The analysis was conducted on the aggregate average ratings to respect the wishes for confidentiality from a number of those private operators who agreed to participate in the survey. The original intent was to compare the data supplied by the private operators themselves with those supplied by the regulators. However, in almost all cases surveyed there is no ready regulatory capacity to supply an independent set of data.

Table 13. Projects With and Without PSP Both Show Improvements

Performance Indicator	*With PSP*		*Without PSP*	
	Before Project	*After Project*	*Before Project*	*After Project*
		"Service-for-All"		
Water Supply Connection Coverage	66%	80%	70%	86%
Sewerage Connection Coverage	38%	48%	32%	41%
Share of Connected Households receiving continuous service	68%	94%	Not available[19]	Not available
Share of Connected Households receiving disinfected water	82%	97%	Not available	Not available
		"Efficiency of Service"		
Unaccounted Water	53%	46%	40%	38%
Employees per thousand water households connected	8.2	4.2	7.6	4.4
		"Sustainability of Service"		
Financial Working Ratio	0.77	0.70	0.71	0.66
Share of Wastewater treated	7%	13%	9%	31%

Legend:
Unaccounted Water = (Metered Water Production-Metered and Estimated Unmetered Consumption)/Metered Water Production
Employees per Water Connections = Number of Regular Employees/Number of Households Connected/1000
Financial Working Ratio = Cash Operating Costs (excluding depreciation)/Operating Revenue
Share of Produced Wastewater Treated = The percentage of total wastewater produced (not necessarily collected) that receives any level of treatment

18. Antalya, Turkey (lease/contracted operations with collections risk); Barranquilla, Colombia ("empresa mixta"); Buenos Aires, Argentina (concession); Cartagena, Colombia ("empresa mixta"); Conakry, Guinée (lease); Jakarta, Indonesia (PALYJA, cooperation agreement); Jakarta, Indonesia (TPM, cooperation agreement); La Paz, Bolivia (concession); Manila West, the Philippines (concession); Santa Fe, Argentina (concession); Trinidad and Tobago (management contract).

19. "Not available" denotes that too few data prevent meaningful comparisons of "before" and "after" project.

Service-for-All

3.47 The performance indicators on service coverage and quality demonstrate solid progress, both for projects with PSP and for those without PSP. With due caution paid to the fact that the sample sizes are small it can be said that the differentials between the situation before and after the PSP are similar except for "share of the population receiving disinfected water" where the improvement was substantially larger than under projects without PSP. The better performance by the private operators may be because their contracts with the government spelled out in detail the water bacteriological standards. The greater sense of accountability, backed up by contractual sanctions, would then provide the incentive for the private operators to improve the bacteriological quality. In contrast, public agencies rarely work under performance contracts that specify water quality standards. It is important to note that effective PSP requires well-drafted contracts that align incentives for the private operators with the objectives of the client. Thus, if higher coverage is an objective, the contract should fix targets accordingly and link remuneration to higher connection rates. The time required to reach these improvements varied for the different contracts from 3 years up to 9 years. Service coverage will require more time and higher investment to achieve compared to improvements in service quality, which often depend more on the operator's know-how. At times, improvements were reached without substantial investments in water production, as Box 5 illustrates.

Box 5. Colombia Shows the Way in Better Use of Existing Capacity

Barranquilla, a city of 1.5 million on the Caribbean coast, was under private operation from 1925 to 1960. Universal coverage and good service quality made the city's water supply the best in Colombia. However, the municipal government took over operations in 1961 and in three decades operations and service quality deteriorated to rival the worst in the country. The crisis reached a climax in 1991 when the World Bank suspended disbursements under an existing loan. The central government and civic organizations in the city rallied around reform that resulted in the creation of a new company. A Spanish private operator, AGBAR, assumed operational control in 1996 to be followed in 2002 by another Spanish operator, Canal Isabel II. A capable manager was successful in boosting water coverage from 78 percent to 97 percent in five years and sewerage coverage from 68 percent to 88 percent. Service quality improved rapidly. The positive achievements were possible mainly through a better use of existing facilities and firm management that sharply reduced undocumented connections and unmetered consumption. Annual water production actually dropped from 17 to 15 million cubic meters although annual consumption rose by a third from 7 to 10 million cubic meters and the number of connections grew by 44 percent from 180,000 to 260,000. As a result, the percentage unaccounted water decreased from 55 percent to 38 percent in five years.

Efficiency of Service—Operating Efficiency

3.48 Private operators have ready incentives to improve operating efficiencies under both lease and concession contracts since by doing so they can directly increase their profit. The thumbnail indicator for operating efficiency is unaccounted water that measures the share of produced water that is "lost" and does not generate revenue. In the surveyed PSP contracts unaccounted water decreased from 53 percent to 46 percent. Projects without PSP also recorded lower unaccounted water, but the improvements were smaller—between 38 and 40 percent. These levels are still high compared to the best practice utilities with unaccounted water between 10 and 20 percent. The explanation could be poorly designed tariff structures that do not sufficiently reward operators for reducing unaccounted water. In the case of the Buenos Aires concession the concessionaire was slow in raising the metering coverage and *ipso facto* in reducing unaccounted water. The explanation was the financial incentives for the concessionaire were to continue billing according to the historical, un-metered tariff structure. Greater investment efficiency is likely only under

concession contracts where the private operator will attempt to optimize investment returns since the concessionaire is responsible for financing and paying for all investments at its own risk. While meeting contractual goals of service coverage and quality higher investment efficiency will directly increase the operator's profits. This explains the keen interest by concessionaires in reducing investments through squeezing more production out of existing capacity. The first major concession, Aguas Argentinas in Buenos Aires, was characterized by many small investments to remove system bottlenecks rather than major investments in additional production capacity that a government operator might have undertaken. Under the same contract, the concession managed to postpone indefinitely costly additions to the capacity of the sewerage interceptors simply by accelerating maintenance of the existing interceptors. The concessionaire was also successful in quickly boosting production capacity through a series of small but well selected investments in the existing treatment plants. The cumulative incremental efficiency in this kind of investment policy is difficult to document given that concessionaires, for competitive reasons, may not be willing to disseminate their success in raising investment efficiency.

3.49 The other performance indicator for efficiency is staff productivity as measured by the number of regular employees in the water supply and sewerage company divided by the number of households connected (expressed in thousands). For projects with PSP this indicator decreased on average from 8.2 to 4.2 employees per thousand households connected to the water supply system, which represents a doubling of productivity while non-PSP projects recorded a reduction from 7.6 to 4.4. The halving of regular staff is explained by the strong incentive of lease and concession operators to improve the cash flow through attrition and reduction in force. Some of the displaced employees were likely shifted to sub-contractors in the private sector who continued performing their erstwhile functions under outsourcing. To the degree that outsourcing increased with PSP, the reported productivity increases might be exaggerated. Nevertheless, staff reductions are particularly difficult for private operators, which explains why some concessions (such as the recent one in Casablanca) stipulate an interim period during which the private operator cannot reduce the number of employees. In the case of the Cartagena "empresa mixta" it was the mayor who made the decision to reduce the number of employees in the municipal water supply company before bidding for a private operator. This demonstration of political support was likely decisive for the subsequent successful bid and contract negotiations since it resolved the difficult issue of staff reductions.

Sustainability of Privately Operated Services—Financial Sustainability

3.50 A good indicator of financial sustainability is the working ratio that relates cash operating costs to operating income with depreciation excluded. A ratio below 100 percent indicates that operations are generating a surplus that can be used for debt service and for investment. The collected data show a slight improvement in the average working ratio from 0.77 to 0.70 percent for PSP-operators and a corresponding drop from 0.71 to 0.66 for operators without PSP. In the case of PSP-operators working ratios dropped and as a result internal cash generation rose because: (i) tariff levels rose on average by 20 percent after the take-over by a private operator and (ii) unaccounted water dropped from 53 percent to 46 percent, which implies that previously unrecorded water consumed was converted into metered water consumption and into collections. On average, the share of metered water connections rose from 54 percent to 64 percent, and in those PSP contracts where the operator had a clear incentive to meter, the effectively metered connections was almost 100 percent within a few years (Barranquilla and Cartagena).

Environmental Sustainability

3.51 The eighth and final performance indicator is environmental sustainability and measures the share of total wastewater generated (although not necessarily collected) that is treated. This indicator has also risen under the PSP projects surveyed from 7 percent of wastewater treated before PSP to 13 percent during the latest available year with PSP and for non-PSP-operators from 9 to 31 percent. The small sample sizes make it imprudent to rely heavily on the differences in the shares of wastewater treated registered for with-PSP and without-PSP projects. Investments in sewage treatment are heavily dependent on the availability of concessionary financing since such investments are generally not financially profitable. It could be expected that private operators will put a lower priority to sewage treatment as compared to investments in water supply that will be easier to make profitable.

Comparing the Performance of Projects With and Without PSP

3.52 On average, Table 13 shows that Bank projects—with or without private sector participation—produced improvements in all the indicators. The changes are quite similar for the two groups of projects with a slight edge for PSP projects in areas such as quality and efficiency indicators. The relatively small differences support the conclusion that PSP is not a *sine qua non* for improving service coverage and quality, and the efficiency and sustainability of services. The question of how long the improvements will last is difficult to answer since both PSP- and non-PSP-assisted projects were monitored during a relatively short period, before and after the take-over by a private operator and before and after the assistance provided by the Bank. Given that the sample sizes are relatively small (11 PSP projects and 28 non-PSP projects) it will be important to continue adding to the database by collecting the performance indicators for all Bank-assisted water supply and sanitation projects. It will be particularly important to require all project completion reports to furnish such data over the project implementation period, which in turn should provide an incentive to incorporate the performance indicators in project supervision reports.

3.53 The reported slight differences in evolution of the performance indicators between projects with PSP and without PSP must be compared to the OED ratings for closed projects, which are clearly higher for projects with PSP than for those without PSP (Table 12). The apparent inconsistency is explained by the fact that OED does not rate its projects on the basis of performance indicators but against other aspects, such as relevance, efficacy, and efficiency (combined as project outcome), institutional development impact (IDI), and resilience against adverse changes in a number of areas (sustainability). Somewhat lower ratings in these areas are possible even though the performance indicators show little difference between PSP and non-PSP projects, for instance, if gains in performance indicators were achieved with heavy investments, financed with government guarantees (rather than without them, as in the case of concessions); where IDI was slight (because institutional change is more difficult to achieve with public borrowers), and with financial sustainability made possible with tariff increases rather than improved operating efficiency (as might be necessary in the case of concessions). The relative performance of PSP and non-PSP projects will require deeper analysis using additional data in the future.

3.54 The review of PSP projects highlights two important factors of performance. First is the way the different types of risks are allocated. And second, as already noted, different results can often be explained by the incentive structures embedded in the operator contracts. Both risk allocation and lack of incentives go a long way in explaining the evolution of performance indicators in the case of public operators. In these cases risks are almost exclusively borne by the government and operator management do not stand to benefit personally for superior performance. It is not surprising then that the upshot will be lackluster and erratic performance. (The more positive evolution emerging from Table 13 cannot be termed typical for public operators since the

incremental changes took place within the scope of a Bank project with more focused governance than is typical for public operators without external financial and technical assistance.) The situation for private operators differs considerably. They will operate under contracts that — if well drafted — will specify how risks are allocated between the private operator and the client government. The differences between the three main forms of PSP — management contracts, lease contracts, and concession contracts — center around the risk allocation. Private management contractors assume little if any risk and are often paid according to the their costs. Although management contracts with incentive-based remuneration have been increasingly used under Bank projects these continue to shift little financial risk to the private operator. Lease contracts represent a much greater risk for private operators since they are often based on how much they can collect and since their profits will drop if they are unable to control operating costs. Only in concession contracts is the private operator assuming most risks, including the construction and financial risks associated with financing and implementing an investment program.

4. Findings and Conclusions

4.1 The starting point for evaluating the Bank's assistance to the water supply and sanitation sector in the 1990s should be the previous OED evaluation of Bank assistance during the 1967–89 period. OED evaluated Bank performance against four perceived principal objectives:

- To help governments achieve least-cost solutions to infrastructure needs;
- To foster institution building;
- To help institutions achieve financial viability; and
- To ensure a minimum supply of safe water to the poor.

4.2 At the time, OED concluded that the achievement of these four objectives was partial at best. The first objective was hardly met in the face of endemic project completion delays, and with sanitation and environmental protection trailing water supply accomplishments. The second objective rarely succeeded. The evaluation singled out lack of progress in improving operations and maintenance (O&M), in reducing unaccounted water, and in improving the quality of utility management as three areas of shortcoming. The third objective was also felt not to have been met, in part because of rushed reforms and the need for more time than single Bank operations can afford. Finally, the fourth objective was poorly documented or not addressed at all.

4.3 The Bank response to the largely negative OED evaluation became the focus on promoting "efficient, sustainable service-for-all" where "efficiency" was a proxy for least-cost policies, "sustainability" of financial and institutional autonomy, and "service-for-all" for service for the poor. The chosen instrumentality for reaching the general targets was private sector participation, at times underpinned by regulatory reforms and a willingness to involve users in the selection and administration of the systems.

PROGRESS HAS BEEN UNEVEN

4.4 *Based on the data and analysis contained in the present evaluation OED concludes that the Bank has made uneven progress in helping its borrowers and client countries to move toward the targets of "efficient, sustainable service-for-all."* The assessment is based on OED ratings of water supply and sanitation loans that closed in the 1990–2001 period; on the evolution of the performance indicators applied by OED in its project performance assessments since 1999; and on the quality of the active water supply and sanitation portfolio. These three sources do attest to progress made but, in contrast, progress to establish regulation and applying the pricing policies

of OP 4.07 has been uneven or absent in many instances. It should be noted that reforms based on the "new assistance paradigm" gained pace from the mid-1990s onwards. The fact that water supply and sanitation projects have an average implementation period of 6.7 years implies that it is not possible to capture the full effect of the "new assistance paradigm" on OED-ratings since few of the projects approved from the mid-1990s onwards are included in the 1990–2001 cohort of projects analyzed in the present evaluation. For the same reason, the full effect of the reforms can only be assessed for projects that closed from 2002 onwards.

4.5 OED ratings hint at improvements. Outcome ratings of "satisfactory" or better rose from 58 percent for projects that closed in the 1980s to 64 percent in the 1990s. Ratings for institutional development impact as "substantial" or better held steady at 32 percent. The "sustainability" ratings of likely or better were mixed, however. The "likely" ratings rose from 32 percent in the 1980s to 40 percent in the 1990s but so did the "unlikely" ratings from 19 percent to 30 percent. It is clear that water supply and sanitation investments financed under non-dedicated projects performed less well than under dedicated water supply and sanitation projects. A systematic analysis of completion reports for non-dedicated projects indicates that outcome was rated "satisfactory" in 46 percent of the closed projects (versus 64 percent for dedicated projects); that IDI ratings were rated "substantial" in 7 percent of the closed projects (versus 32 percent for dedicated projects); and that sustainability was rated "likely" in 24 percent (versus 40 percent for dedicated projects). The latter ratings are tentative but confirm the intuitively obvious: water supply and sanitation investments are better prepared, implemented, and managed by specialized "dedicated" divisions rather than by divisions where water supply and sanitation are just one of a number of sub-sectors.

4.6 The evolution of the performance indicators is only available from 1999 onward for those projects that OED has assessed (about 25 percent of closed projects on average) and for those projects with private sector participation. However, based on a sample of 11 projects the trend is encouraging. Water supply and sewerage connections rates rose substantially from 66 percent to 80 percent and from 38 percent to 48 percent, respectively, comparing the situation subsequent and prior to PSP; service continuity and bacteriological quality rose from 68 percent to 94 percent and from 82 percent to 97 percent, respectively; efficiency improved as measured by unaccounted water and higher doubled staff productivity; and financial and environmental sustainability of service also strengthened. Similarly, the performance indicators for non-PSP water supply and sanitation projects also demonstrate similar positive changes from Bank financing (Table 13).

4.7 The positive trend from the evaluation of the effectiveness of private sector participation is also mirrored in the quality of the active water supply and sanitation project portfolio. Due to efforts to improve performance the Bank dedicated water supply and sanitation portfolio of about 100 projects now has 15 percent of projects at risk, in line with the Bank average of 17 percent, and has realism and pro-activity indices in line with Bank averages. It can be concluded that with active portfolio management the water supply and sanitation portfolio is not any riskier than the average Bank project and does not have any ratings substantially different from other sectors when adjusted for the effects of the dual economic good/social good nature of the sector. Much of the improvement can be attributed to the conscious effort to manage the portfolio more actively by closing poorly performing projects and not accepting new projects in countries without the political will to create an enabling environment for projects to prosper.

BUT MORE REMAINS TO BE DONE

4.8 Despite these improvements, the sector continues to suffer from significant shortcomings. *At the sector level*, quality and economic regulation remain a distant goal. The best sector regulation in developing countries was created without Bank assistance, and few countries that have received Bank assistance can point to a sustainable and coherent legislative and regulatory

framework. The scarce progress to effectively implement the Bank's own pricing policies in its client countries is particularly damaging to sector progress since it negatively affects the financial and institutional performance of the agencies implementing Bank-financed projects and raises the risks for serious private investors and operators.

4.9 At the project level, many of the deficiencies noted in the previous OED evaluation persist. First, the fundamental flaw is the lack of appropriate incentives that could motivate utilities to convert unaccounted water into paid revenue and that could induce managers to reduce both operating and investment expenditure. In the absence of PSP, improved incentives remain elusive. Second, project completion reports continue to highlight overestimated demand as a main culprit for failed projects. The reason might be more than projection error: it could be a matter of pressure to make projects economically and financially feasible that provides an upward bias in favor of higher-than-prudent demand growth. Third, the lack of financial autonomy spills over into lack of institutional autonomy, which can help explain the breaches of financial covenants. The latter are inevitable in the absence of clear criteria for setting tariffs. After all, it is unrealistic to expect utilities to comply with financial covenants without being liberated from political interference in the fixing and updating of tariffs.

THE WAY FORWARD

4.10 The future direction of the sector within the Bank is intimately linked to the Bank's strategy to reach its Millennium Development Goals (MDG). It is already clear that the water supply and sanitation sector must gain importance if the MDGs are to be met. After all, three of the MDG targets depend on the success in expanding and improving water and sanitation services:

- Reducing by two-thirds, between 1990 ad 2015, the under-five mortality rates (Target 5);
- Halve by 2015 the proportion of people without sustainable access to an improved water source (Target 10); and
- Halve by 2015 the proportion of people without adequate sanitation (Target 11 as amended by the Johannesburg World Summit of Sustainable Development in August 2002).

4.11 It is less clear what the Bank's strategy will be to achieve these targets. The recent trend of improvement is welcome but must be seen for what it is: an improvement in performance indices of projects in the active portfolio. Some of these improvements in portfolio performance are due to simply closing poorly performing loans. The greater and more difficult challenge will be how to expand the portfolio from the present low level of new commitments while maintaining an improved performance. There are signs that this will not be easy, nor will it be cheap. In some regions of the world lower preparation and supervision budgets have slowed sector development and made it difficult for the Bank to build the critical mass that is necessary to maintain excellence in staff to match the growing proficiency of client staff. In other regions, notably South Asia, the Bank has slowed or stopped the preparation of new projects in the sector, in frustration over the lack of necessary reforms of policies. Yet, it is precisely in these countries that an expanded Bank sector role is necessary in order to meet the MDGs for the simple reason that such a large share of the world's poor live there with their basic needs unmet.

4.12 The sector will benefit from sharpening its present message. The last sector development strategy was adopted in the mid 1970s and has not been updated formally. Instead, the water supply and sanitation sector has been lumped with the water resources management sector. This has been less fortunate since the focus on how to improve the management of water resources is different from the need to provide safe water supply and sanitation services. After all, the amount of water required to sustain the needs of both urban and rural populations is less than 10 percent of the amounts of water used for irrigation and is rarely an impediment. What is more to the

point: the solutions to the water supply and sanitation sector challenges requires a strategy all of its own for the sector's special needs. This lends urgency to the preparation of the sector's business development strategy. A business development strategy is under preparation within the Bank and is expected to be finalized in 2003. The strategy could benefit from a number of conclusions that are emerging from the present OED evaluation/recommendations.

Finding One: ***Monitoring Performance Indicators and Evaluation Systems Will Be Necessary to Track the Bank's Progress in Helping Its Member Countries Achieve the MDGs***

4.13 The broad MDGs are general and cannot serve as a primary basis for planning and implementing detailed country or sector strategies. Instead, the Bank should revisit and confirm the use of the performance indicators that were adopted in 1999 for the water supply and sanitation sector. Without continuous estimates of service coverage and quality, efficiency and likely sustainability, it will be difficult to formulate credible development strategies. Without discontinuing the production of portfolio performance indicators that caters largely to the Bank's internal needs, a shift in resources is necessary to assist the Bank's member countries in implementing analogous monitoring systems geared to the performance indicators. (See paragraphs 2.6-7, 2.10,2.13, 2.19,3.46, and 4.6.)

Finding Two: ***Regulation Must Move from Prescription to Implementation***

4.14 A decade after beginning the effort to create regulation, only a handful of countries have put in place well functioning systems of quality and economic regulation in water supply and sanitation. Africa, Asia, and the Middle East do not have a single regulator with a proven record of applying regulatory guidelines consistently. A few countries in Latin America do have regulation, but the best regulatory systems were conceived and established without any Bank involvement. An enhanced focus on indicators would provide further incentives for countries to strengthen their regulatory frameworks, since well-designed *quality regulation* would enable planners, politicians, and managers to benchmark their system or sector in terms of coverage, quality of service, and of efficiency. At times quality regulation may be provided in a more cost-efficient fashion by making use of private audit firms to collect and monitor data rather than through the establishment of dedicated public regulatory agencies. (See paragraphs 3.9, 3.11 and Table 7.)

4.15 A push toward *economic regulation* is equally overdue. The review of pricing policies under Bank projects has revealed that predictable tariff regulation through the consistent application of transparent rules does not exist in any country that is an active Bank borrower. In the few countries where *de jure* tariff regulation does exist, it can rarely withstand pressure to conform to short-term political expediency. This diminishes its value to investors and operators since the tariff can no longer be predicted with any measure of confidence. The Bank would do well to return to a policy of requiring either tariff regulation according to economic principles or explicit and covenanted tariffs as a condition of lending. A minimum requirement should be to adjust the tariff annually to compensate for inflation. (See paragraphs 3.24 and 3.26.)

Finding Three: ***Ensuring that the MDGs are Achieved Will Require Translating them into Implementable Sector Development Strategies***

4.16 The development community expects to meet the MDGs by 2015, that is, a little more than a decade from now. Despite this urgency, most countries lack sector strategies that describe the present situation, and analyze policy reforms, pinpoint priorities, and pre-identify priority projects. The Bank is well placed to assist its countries in preparing country-specific sector strategies geared to achieving the MDGs. But this will likely require a shift of resources toward economic and sector work. In the past decade 1990–2001 (see Annex I) about 90 pieces of economic and sector work were prepared by the Bank, but only 10 percent were sector studies that were directly aligned with

sector development. Future ESW will have to be more closely linked to lending. (See paragraphs 4.11-12 and Annex I.)

Finding Four: ***Private Sector Participation has Shown Promising Results and Remains an Important Tool to Improve Coverage and Quality***

4.17 The tentative conclusion from the present review is that private sector participation has been effective in raising service coverage and quality. However, it has not been a panacea for the sector's problems, which has prompted a recent reassessment of its use. The wholesale questioning of the justification for PSP is ill advised, but the unrealistically high expectations from clients and Bank staff must be tempered. What is needed is a continued careful evaluation of each PSP-led program with a view to identifying factors of success and failure. Continued promotion of private sector participation is sensible as PSP offers the promise of more transparent performance by operators; faster gains in coverage, quality, efficiency, and sustainability; and accelerated development of regulation. (See paragraphs 3.12, 3.44,3.47, and 3.48.)

Finding Five: ***Operators Require Special Incentives to Serve the Poor***

4.18 Both private and public operators should be held accountable for their performance in improving service to the poor. In order to enable operators to serve the poor better, the government will have to ensure effective regulation and, on occasions, provide transparent subsidies linked to service provision to the poor. Output-based aid (OBA) is one promising model (the results of which will need to be carefully evaluated), under which operators are remunerated partly on the basis of their success in serving poor households. OBA will entail particular attention to be paid to reforms of pricing and subsidy policies. It may be difficult for all but the financially strongest and administratively sophisticated governments to be able to provide subsidies from public budgets to underpin OBA. (See paragraph 3.32.) The necessary incentives include direct subsidies to pay for part or all of investments that will favor low-income segments; subsidies contingent on the use of appropriate low-cost technologies; and modified tariff structures to ensure that operators will find it profitable to provide quality service to the poor once the capital investments have been made. In addition, service to the poor will often require informal, small-scale solutions in order to reduce costs to levels that are affordable.

Annex A. Glossary

Service Coverage	The percentage of households connected to a public potable water system or sewerage system.
Financial autonomy	The situation where a water and wastewater company is able to collect revenue sufficient to pay for the costs of operations, adequate maintenance, depreciation on assets, and for paying interest and amortization on its loans.
Financial costs	Monetary payments by a water and wastewater company for operations and maintenance, and for interest on loans.
Economic costs	The alternative value of resources used for operations, maintenance and investments if they were sold in a completely free market.
Marginal cost	The future economic costs of producing one additional cubic meter of water. The marginal cost is often approximated by the Average Incremental Cost (AIC)**,** which is the average unit cost water in an incremental project to capture, transport, treat, and distribute water and then collect, treat and safely dispose of the wastewater.
Tariff	The payment by consumers in return for a cubic meter of water and/or for a cubic meter of wastewater collected, removed from the house, and possibly treated before being returned to the environment. A tariff can be expressed in financial or economic costs that are not necessarily equal.
Subsidy	The difference between the marginal cost of water and wastewater and the tariff. If the difference is negative the customer pays a tax instead of receiving a subsidy.
Cross subsidy	The difference between the average financial costs of service and the tariff paid by each customer category.
Connection fee	The contribution from customers to the investment cost of a water or sewerage connection.
Transparent subsidies	Subsidies where the exact amount and recipient are known.
Unaccounted water	The ratio between the difference between metered water produced and (the metered consumption + estimated non-metered water consumption) divided by the metered water production.
Regulation	The monitoring and control of water and wastewater service providers to ensure that they comply with the laws and regulations of the sector (“the rules of the sector”). Regulation consists of *quality regulation* where the quality and efficiency of the service provided is monitored and compared, and *economic regulation* that applies objective and predictable criteria for setting and monitoring tariffs.

Economic or tariff regulation	The monitoring and authorization to charge tariffs given to water and wastewater service providers.
Regulatory agency	The institution responsible for regulating services and tariffs.
Quality regulation	Collecting and analyzing data on the service coverage, quality, efficiency, and tariffs of water and wastewater services in order to compare how well different service providers perform. This type of regulation is also called yardstick regulation where each company's performance is compared to the sector benchmark.
Efficiency	The situation when water and wastewater companies use the minimum amount of economic resources to meet the demand of consumers for water and wastewater services.
Sustainability	Sustainability has a number of meanings in connection with water supply and sanitation services: (i) sustainable services that provides uninterrupted service over the foreseeable future and is made possible by competent operations and adequate maintenance; (ii) financially sustainable operations and utilities are those that manage to collect sufficient financial revenue to defray all their financial costs; and (iii) environmentally sustainable water supply and wastewater operations are those that do not upset the ecological balance, e.g. by treating wastewaters generated before returning them to the environment.
Private Sector Participation	PSP comprises contract forms where private companies perform different functions. In ***outsourcing*** the water and wastewater company sub-contracts for example meter installations and maintenance with private firms and pays a fixed amount per meter installed. In ***management contracts*** the private company operates and maintains the systems and receives an annual fixed amount for its services. In ***leases*** the private company operates and maintains the systems and is paid out of the tariffs that it collects (the private company assumes "collections risk"). In ***concessions*** the private company also has to finance and expand system capacity in addition to operating and maintaining the systems.
Present value	The discounted value of future benefits and costs that have been reduced by an annual percentage called the discount rate. Future benefits and costs are therefore worth less in present value if they are earned or incurred later rather than sooner.
Risk	The danger that future benefits and costs will be respectively lower or higher than projected. The party to whom risks are allocated suffers the consequences if the danger actually materializes.
Guarantee	The assurance of a party to compensate another party if risk materializes. Government guarantees are also called sovereign.

Annex B. Dedicated Water Supply and Sanitation Lending, by Country, 1970–2001

(Constant US $ 2000 millions, Commitments net of Cancellations)

Country	*1970–79*	*1980–89*	*1990–2001*	*Total*	*As a share of Total Lending*	*Cumulative Share*
Brazil	485	1582	1019	3086	13%	13%
India	667	561	906	2135	9%	23%
Algeria	139	997	116	1252	5%	28%
Mexico	280	260	689	1230	5%	34%
Colombia	541	355	238	1135	5%	38%
Nigeria	152	471	452	1075	5%	43%
Turkey	107	500	369	975	4%	47%
China		106	675	781	3%	51%
Philippines	227	159	297	683	3%	54%
Morocco	208	247	221	676	3%	57%
Tunisia	274	199	125	597	3%	59%
Indonesia	84	130	349	563	2%	62%
Pakistan	52	266	244	562	2%	64%
Korea, Republic of		358	186	545	2%	67%
Argentina		48	349	397	2%	68%
Yugoslavia, former	226	106		332	1%	70%
Kenya	151	8	115	273	1%	71%
Jordan	47	170	56	273	1%	72%
Senegal	4	32	229	265	1%	73%
Cote d'Ivoire	90	66	87	243	1%	74%
Syrian Arab Republic	188	42		230	1%	75%
Bangladesh	34	62	117	213	1%	76%
Iran, Islamic Republic of			205	205	1%	77%
Peru	14	19	158	191	1%	78%
Egypt, Arab Republic of	99	91		189	1%	79%
Thailand	128	61		189	1%	80%
Vietnam			188	188	1%	80%
Yemen, Republic of	50	57	69	176	1%	81%
Chile		127	36	162	1%	82%
Uganda		51	110	161	1%	83%
Paraguay	10	18	116	144	1%	83%
Poland			143	143	1%	84%
Sri Lanka	17	95	26	137	1%	84%
Malaysia	75	55		130	1%	85%
Ghana	37	43	48	128	1%	86%
Malawi	13	29	83	125	1%	86%
Nepal	46	43	34	122	1%	87%
Russian Federation			121	121	1%	87%
Ecuador	54	35	32	120	1%	88%
Congo, Democratic Republic of	42	74		117	1%	88%
Mozambique			115	115	0%	89%

Country	*1970–79*	*1980–89*	*1990–2001*	*Total*	*As a share of Total Lending*	*Cumulative Share*
Bulgaria			103	103	0%	89%
Zambia		21	73	93	0%	90%
Madagascar		51	42	93	0%	90%
Guinea	21	44	26	92	0%	90%
Uzbekistan			84	84	0%	91%
Bolivia	9	15	58	82	0%	91%
Israel	77			77	0%	91%
Tanzania	35	39		74	0%	92%
Burkina Faso			74	74	0%	92%
Ethiopia	31		38	69	0%	92%
Portugal	69			69	0%	93%
Cyprus	15	0	53	68	0%	93%
Costa Rica		41	27	68	0%	93%
Azerbaijan			64	64	0%	94%
Uruguay		26	33	58	0%	94%
Rwanda		37	20	57	0%	94%
Niger		9	47	57	0%	94%
Lebanon			56	56	0%	95%
West Bank and Gaza			48	48	0%	95%
Botswana	15	33		48	0%	95%
Afghanistan	47			47	0%	95%
Burundi		12	35	47	0%	95%
Nicaragua	43	4		46	0%	96%
Jamaica	32	12		43	0%	96%
Venezuela			41	41	0%	96%
Panama	24	16		40	0%	96%
Sierra Leone			38	38	0%	96%
Croatia		0	38	38	0%	96%
Slovenia		35		35	0%	97%
Cameroon		34		34	0%	97%
Somalia	10	23		33	0%	97%
Bosnia-Herzegovina			33	33	0%	97%
Haiti	11	22		33	0%	97%
Cambodia			32	32	0%	97%
Hungary			32	32	0%	97%
Turkmenistan			32	32	0%	98%
Armenia			31	31	0%	98%
Mauritius		18	13	31	0%	98%
Bahamas, The	18	12		30	0%	98%
Benin		19	11	29	0%	98%
Macedonia, former Yugoslav Republic of			29	29	0%	98%
Guyana			28	28	0%	98%
Singapore	28			28	0%	99%
Greece	28			28	0%	99%
Romania			26	26	0%	99%

Country	*1970–79*	*1980–89*	*1990–2001*	*Total*	*As a share of Total Lending*	*Cumulative Share*
Honduras		26		26	0%	99%
Trinidad and Tobago			25	25	0%	99%
Kazakhstan			25	25	0%	99%
Gabon	25			25	0%	99%
Ukraine			24	24	0%	99%
Albania			23	23	0%	99%
Lesotho	8	12		20	0%	99%
Liberia	13	7		20	0%	100%
Mongolia			18	18	0%	100%
Togo		17		17	0%	100%
Mali		14		14	0%	100%
Comoros			11	11	0%	100%
Mauritania			11	11	0%	100%
Gambia, The		8		8	0%	100%
Swaziland	6			6	0%	100%
Dominican Republic			5	5	0%	100%
Guatemala		4		4	0%	100%
Caribbean			0	0	0%	100%
Grand Total	**5103**	**8132**	**9733**	**22968**	**100%**	**100%**

Annex C. Dedicated Water Supply and Sanitation Lending, by Sector, 1970–2001

(Constant US $ 2000 millions)

	Commitments Net of Cancellations				*Share of Lending*		
Sub-Sector	***1970–79***	***1980–89***	***1990–2001***	***Total***	***1970–79***	***1980–89***	***1990–2001***
Other Water, Sanitation	14	191	1142	1394	0.3%	2.3%	11.7%
Rural Water Sup/Sanitation	13	279	1079	1371	0.3%	3.4%	11.1%
Sewerage	593	452	1821	2865	11.6%	5.6%	18.7%
Urban Water Supply	4464	6803	4063	15329	87.5%	83.6%	41.7%
Water, Sanitation Adjustm.	19	409	1628	2056	0.4%	5.0%	16.7%
Total	**5103**	**8132**	**9733**	**22968**	**100.0%**	**100.0%**	**100.0%**

	Number of Projects				*Percentage Share*		
Sub-Sector	***1970–79***	***1980–89***	***1990–2001***	***Total***	***1970–79***	***1980–89***	***1990–2001***
Other Water, Sanitation	1	7	16	25	1%	5%	11%
Rural Water Sup/Sanitation	2	8	24	34	2%	6%	17%
Sewerage	14	10	26	50	14%	8%	18%
Urban Water Supply	84	99	52	235	82%	77%	37%
Water, Sanitation Adjustm.	1	5	24	30	1%	4%	17%
Grand Total	**102**	**129**	**142**	**373**	**100%**	**100%**	**100%**

Annex D. Dedicated Water Supply and Sanitation Lending, by Region, 1970–2001

(Constant US $ 2000 millions)

	Commitments Net of Cancellations				*Share of Lending*		
Region	***1970–79***	***1980–89***	***1990–2001***	***Total***	***1970–79***	***1980–89***	***1990–2001***
AFR	652	1173	1678	3549	13%	14%	17%
EAP	542	869	1745	3156	11%	11%	18%
ECA	445	640	1231	2316	9%	8%	13%
LCR	1520	2621	2856	6997	30%	32%	29%
MNA	1080	1803	897	3780	21%	22%	9%
SAR	863	1027	1327	3217	17%	13%	14%
Total	5103	8132	9733	22968	100%	100%	100%

	Number of Projects				*Percentage Share*		
Sub-Sector	***1970–79***	***1980–89***	***1990–2001***	***Total***	***1970–79***	***1980–89***	***1990–2001***
AFR	23	37	32	93	23%	29%	23%
EAP	9	13	24	46	9%	10%	17%
ECA	9	9	26	44	9%	7%	18%
LCR	26	31	30	87	25%	24%	21%
MNA	22	26	16	64	22%	20%	11%
SAR	13	13	14	40	13%	10%	10%
Total	102	129	142	373	100%	100%	100%

Annex E. Non-dedicated Water Supply and Sanitation Lending, by Country, 1990–2001

(Net Water Commitments constant US $2000 m)

Country	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*Total*	*Water Lending as a Share of Total*	*Cumulative Lending*
China			89	112	108	61	383		104	156	171	182	1367	39%	39%
Indonesia		63			77	48	57	118	41		39	36	479	14%	53%
Brazil	22				88	37	11	45	29			74	307	9%	61%
Vietnam												175	175	5%	66%
Mexico			3		97								100	3%	69%
Peru					26			70					96	3%	72%
Argentina						49		32	4	9			94	3%	75%
Pakistan					59		3			18			80	2%	77%
Tanzania			1				62					6	69	2%	79%
India				12						43	13		69	2%	81%
Egypt, Arab Republic of		30					30		2	5			67	2%	83%
Russian Federation							44						44	1%	84%
Ethiopia							39						39	1%	85%
Venezuela			18							14			32	1%	86%
Croatia					19				11				30	1%	87%
Honduras		3	2				7			5	2	9	28	1%	88%
Tunisia				22	6								28	1%	88%
Ghana					9		8	8			2		26	1%	89%
Yemen, Republic of							11	4		8			22	1%	90%
Nicaragua				4			5			12			20	1%	90%
Colombia		11							8				19	1%	91%
Madagascar							7					11	18	1%	91%
Guatemala				6						11			18	1%	92%
Malawi							10			7			17	0%	92%
Swaziland						17							17	0%	93%
Jordan									16				16	0%	93%
Ecuador					5				6		4		15	0%	94%
Bangladesh										14			14	0%	94%
Burkina Faso						12							12	0%	94%
Cote d'Ivoire	5							7					12	0%	95%
Zimbabwe									11				11	0%	95%
Panama								10					10	0%	95%
Bolivia				7					3				10	0%	96%
Angola							4				5		9	0%	96%
Togo					9					1			9	0%	96%
Mali								8					8	0%	96%
Algeria						3	5						8	0%	97%

Country	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*Total*	*Water Lending as a Share of Total*	*Cumulative Lending*
Bosnia-Herzegovina								1	6				8	0%	97%
Armenia					3		2				2		8	0%	97%
Benin			3		2				3				7	0%	97%
Georgia						2			5				7	0%	98%
Lithuania						5				2			7	0%	98%
Belize								3				4	7	0%	98%
Cambodia						2						5	7	0%	98%
Albania						1			4	2			7	0%	98%
Burundi				2								4	6	0%	98%
Latvia						3	3						6	0%	99%
Bhutan											5		5	0%	99%
Rwanda						5							5	0%	99%
Sri Lanka						4							4	0%	99%
Sudan			4										4	0%	99%
Mauritius		4											4	0%	99%
Mozambique			4										4	0%	99%
Morocco												3	3	0%	99%
Guinea-Bissau						3							3	0%	100%
Zambia		2											2	0%	100%
Eritrea							2						2	0%	100%
Lebanon												2	2	0%	100%
Djibouti		2											2	0%	100%
Haiti		2											2	0%	100%
Philippines									2				2	0%	100%
Moldova										1			1	0%	100%
Lesotho			1										1	0%	100%
Bulgaria										1			1	0%	100%
Estonia						1							1	0%	100%
Poland											0.25		0.25	0.01%	100%
Grand Total	**27**	**117**	**123**	**166**	**508**	**252**	**694**	**307**	**255**	**309**	**243**	**511**	**3512**	**100%**	

Annex F. Non-dedicated Water Supply and Sanitation Lending, by Sector and Year, 1990–2001

(Net Water Commitments constant US $2000 m)

Sector Group	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*Total*
Agriculture		11	8		2	1		8	37			87	154
Education					59					13			72
Environment	5		51	45	210	70	114	7	111	170	171		954
Finance										18			18
Hlth, Nutn & Popultn											43		43
Multisector												5	5
Public Sector Mgmt.									35				35
Social Protection		37	2	19	32	7	157	120	18	54	23	64	533
Transportation				12		10		22	3			4	52
Urban Development	22	69	63	89	205	163	423	150	51	54	7	351	1646
Total	**27**	**117**	**123**	**166**	**508**	**252**	**694**	**307**	**255**	**309**	**243**	**511**	**3512**

(Number of Projects)

Sector Group	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*	*1998*	*1999*	*2000*	*2001*	*Total*
Agriculture		1	2		1	1		1	4			7	17
Education					1					1			2
Environment	1		2	1	3	4	2	1	3	2	2		21
Finance										1			1
Hlth, Nutn & Popultn											2		2
Multisector												1	1
Public Sector Mgmt.									1				1
Social Protection		4	1	4	2	2	11	6	4	11	4	6	55
Transportation				1		1		1	1			1	5
Urban Development	1	3	5	2	7	10	8	4	7	4	2	4	57
Total	**2**	**8**	**10**	**8**	**14**	**18**	**21**	**13**	**20**	**19**	**10**	**19**	**162**

Annex G. OED Ratings for Dedicated Water Supply and Sanitation Projects, 1970–2001

	Outcome Ratings (%)	ID Ratings (%)			Sustainability Ratings (%)			
Country	Satisfactory	Substantial	Modest	Negligible	Likely	Uncertain	Unlikely	Highly Unlikely
Albania	0%	0%	0%	100%	0%	0%	0%	100%
Algeria	40%	0%	20%	60%	0%	40%	40%	0%
Argentina	100%	50%	50%	0%	100%	0%	0%	0%
Bahamas	50%	0%	50%	0%	0%	50%	0%	0%
Bangladesh	80%	0%	40%	20%	0%	40%	20%	0%
Benin	67%	33%	0%	33%	33%	33%	0%	0%
Bolivia	75%	50%	25%	0%	50%	25%	0%	0%
Bosnia-Herzegovina	100%	0%	100%	0%	0%	0%	50%	0%
Botswana	100%	0%	0%	0%	0%	0%	0%	0%
Brazil	57%	21%	36%	7%	29%	29%	7%	0%
Burkina Faso	0%	0%	0%	100%	0%	0%	100%	0%
Burundi	100%	33%	33%	0%	67%	0%	0%	0%
Cameroon	100%	0%	50%	0%	0%	50%	0%	0%
Caribbean	100%	100%	0%	0%	100%	0%	0%	0%
Chile	75%	50%	50%	0%	100%	0%	0%	0%
China	75%	50%	50%	0%	75%	25%	0%	0%
Colombia	69%	0%	8%	46%	15%	38%	0%	0%
Congo, DR	67%	33%	0%	33%	0%	33%	33%	0%
Costa Rica	0%	0%	100%	0%	0%	100%	0%	0%
Cote d'Ivoire	100%	0%	40%	0%	0%	40%	0%	0%
Croatia	0%	0%	100%	0%	100%	0%	0%	0%
Cyprus	75%	50%	0%	0%	50%	0%	0%	0%
Ecuador	50%	0%	0%	50%	0%	50%	0%	0%
Egypt	60%	0%	20%	0%	0%	0%	20%	0%
Ethiopia	100%	0%	0%	0%	0%	0%	0%	0%
Gabon	100%	0%	0%	0%	0%	0%	0%	0%
Gambia	0%	0%	0%	100%	0%	100%	0%	0%
Ghana	80%	20%	20%	40%	40%	40%	0%	0%
Greece	100%	0%	0%	0%	0%	0%	0%	0%
Guatemala	0%	0%	0%	100%	0%	0%	100%	0%
Guinea	50%	50%	0%	0%	50%	0%	0%	0%
Haiti	0%	0%	0%	50%	0%	0%	50%	0%
Honduras	0%	0%	0%	100%	0%	100%	0%	0%
India	71%	36%	21%	14%	29%	36%	7%	0%
Indonesia	88%	25%	63%	0%	25%	25%	38%	0%
Iran	100%	0%	100%	0%	0%	0%	0%	0%
Israel	100%	0%	0%	0%	0%	0%	0%	0%
Jamaica	67%	0%	33%	0%	0%	0%	33%	0%
Jordan	33%	50%	0%	17%	0%	67%	0%	0%
Kenya	57%	0%	29%	43%	14%	14%	43%	0%
Korea, Rep	100%	57%	43%	0%	86%	14%	0%	0%
Lebanon	0%	0%	0%	100%	0%	0%	100%	0%
Lesotho	100%	67%	0%	0%	67%	0%	0%	0%
Liberia	0%	0%	0%	50%	0%	0%	50%	0%
Madagascar	33%	33%	33%	33%	33%	0%	67%	0%
Malawi	100%	67%	0%	0%	0%	67%	0%	0%
Malaysia	100%	0%	25%	0%	25%	0%	0%	0%

	Outcome Ratings (%)	*ID Ratings (%)*			*Sustainability Ratings (%)*			
Country	***Satisfactory***	***Substantial***	***Modest***	***Negligible***	***Likely***	***Uncertain***	***Unlikely***	***Highly Unlikely***
Mali	100%	0%	100%	0%	0%	100%	0%	0%
Mauritania	0%	0%	0%	100%	0%	0%	100%	0%
Mauritius	100%	100%	0%	0%	100%	0%	0%	0%
Mexico	29%	14%	29%	29%	14%	43%	14%	0%
Morocco	100%	50%	17%	0%	67%	0%	0%	0%
Nepal	0%	0%	25%	25%	0%	0%	50%	0%
Nicaragua	100%	0%	0%	0%	0%	0%	0%	0%
Niger	0%	0%	100%	0%	0%	100%	0%	0%
Nigeria	25%	0%	75%	25%	0%	25%	75%	0%
Pakistan	60%	0%	60%	0%	20%	20%	20%	0%
Panama	50%	0%	0%	50%	0%	0%	50%	0%
Paraguay	100%	33%	0%	33%	67%	0%	0%	0%
Peru	0%	0%	0%	100%	0%	50%	50%	0%
Philippines	63%	25%	38%	13%	25%	50%	0%	0%
Portugal	100%	0%	0%	0%	0%	0%	0%	0%
Rwanda	50%	50%	0%	50%	50%	0%	50%	0%
Senegal	100%	0%	50%	0%	0%	50%	0%	0%
Seychelles	100%	0%	100%	0%	100%	0%	0%	0%
Singapore	100%	0%	0%	0%	0%	0%	0%	0%
Slovenia	100%	100%	0%	0%	100%	0%	0%	0%
Somalia	100%	50%	0%	0%	0%	50%	0%	0%
Sri Lanka	75%	25%	0%	25%	0%	50%	0%	0%
Swaziland	100%	0%	0%	0%	0%	0%	0%	0%
Syria	50%	0%	0%	0%	0%	0%	0%	0%
Tanzania	0%	0%	0%	50%	0%	0%	100%	0%
Thailand	100%	50%	0%	0%	50%	0%	0%	0%
Togo	100%	100%	0%	0%	0%	100%	0%	0%
Trinidad & Tobago	0%	0%	100%	0%	0%	0%	100%	0%
Tunisia	100%	36%	0%	0%	45%	0%	0%	0%
Turkey	83%	17%	50%	17%	33%	33%	17%	0%
Uganda	67%	33%	33%	33%	67%	0%	33%	0%
Uruguay	100%	0%	100%	0%	100%	0%	0%	0%
Uzbekistan	0%	0%	0%	0%	0%	0%	0%	0%
Yemen Arab Republic	75%	0%	0%	0%	0%	0%	0%	0%
Yemen, PDR	100%	0%	25%	0%	0%	25%	0%	0%
Yemen, Rep	67%	0%	67%	33%	0%	100%	0%	0%
Yugoslavia, former	83%	17%	0%	0%	0%	17%	0%	0%
Zambia	0%	0%	0%	100%	0%	0%	100%	0%
Grand Total	**68%**	**20%**	**25%**	**17%**	**24%**	**23%**	**15%**	**0%**

Annex H. Performance Indicators for Water Supply and Sanitation Projects

With PSP

	Water Supply Coverage (%)		*Sewerage Coverage (%)*		*Continuous Water Service (%)*		*Share of Disinfected Water (%)*		*Unaccounted-for Water (%)*		*Staff per 1000 Households Served*		*Working Ratio*		*Share of Wastewater Treated (%)*	
	Before PSP	*Latest Year of PSP Contract*	*Before PSP*	*Latest Year of PSP Contract*	*Before PSP*	*Latest Year of PSP Contract*	*Before PSP*	*Latest Year of PSP Contract*	*Before PSP*	*Latest Year of PSP Contract*	*Before PSP*	*Latest Year of PSP Contract*	*Before PSP*	*Latest Year of PSP Contract*	*Before PSP*	*Latest Year of PSP Contract*
Project 1	75%	92%	50%	60%	NA	93%	NA	100%	32%	25%	10	2.2	0.55	0.64	0%	15%
Project 2	40%	67%	NA	NA	33%	100%	33%	100%	NA	53%	21	10	0.91	0.85	NA	NA
Project 3	30%	48%	NA	NA	Unknown	100%	Unknown	90%	62%	48%	9	5.2	0.01	0.80	NA	NA
Project 4	52%	60%	NA	NA	NA	82%	NA	NA	56%	47%	4.8	3.5	0.61	0.65	NA	NA
Project 5	93%	95%	1%	2%	85%	95%	96%	100%	62%	58%	1.93	0.99	1.00	0.40	NA	NA
Project 6	74%	94%	62%	74%	82%	99%	74%	94%	51%	42%	2.62	1.99	1.01	0.74	NA	NA
Project 7	88%	96%	48%	66%	70%	100%	100%	100%	NA	44%	3.33	1.65	NA	NA	NA	NA
Project 8	68%	82%	54%	61%	NA	100%	NA	100%	44%	34%	7.4	3	NA	0.51	9%	11%
Project 9	78%	97%	68%	88%	NA	NA	NA	NA	55%	38%	5.4	2.9	NA	NA	NA	NA
Project 10	59%	67%	13%	13%	90%	90%	90%	90%	50%	45%	17.5	11	1.28	1.03	13%	13%
Project 11	67%	84%	11%	19%	50%	79%	97%	99%	67%	67%	7.6	4.1	NA	NA	NA	NA
AVERAGE	**66%**	**80%**	**38%**	**48%**	**68%**	**94%**	**82%**	**97%**	**53%**	**46%**	**8.23**	**4.23**	**0.77**	**0.70**	**7%**	**13%**

Without PSP

COUNTRY/City	Water Supply Coverage (%)		Sewerage Coverage (%)		Continuous Water Service (%)		Share of Disinfected Water (%)		Unaccounted-for Water (%)		Staff per 1000 Households Served		Working Ratio		Share of Wastewater Treated (%)	
	1988	1999	1988	1999	1988	1999	1988	1999	1988	1999	1988	1999	1988	1999	1988	1999
BOLIVIA																
Cochabamba	70	60	57	53	0	0	NA	99	34	42	10	5.4	0.71	0.66	NA	80
Santa Cruz	70	94	29	40	100	100	100	100	30	25	7	3.7	0.73	0.65	33	48
TURKEY																
Istanbul	57	97	52	79	NA	98	100	100	51	38	6.1	3	0.49	0.5	11	37
Ankara	94	100	87	100	NA	100	100	100	51	29	6.8	3.8	0.62	0.58	0	85
Izmir	NA	95	NA	95	NA	90	NA	100	NA	61	NA	3.9	NA	0.71	0	0
CHINA																
Avg. for Cities/Provinces with Bank Projects	84.6	93	65		82.7	94.2	99.2	100	8.7	15.7	5.6	5.8	0.79	0.99	7.4	21.8
BRAZIL																
CASAN	80	94	7	9	100	100	NA	NA	NA	48	5.8	2.7	0.73	0.73	NA	12
EMBASA	77	97	10	18	NA	NA	NA	NA	64	57	6.9	3.1	1	0.68	17	48
SANESUL	88	100	9	7	NA	NA	NA	NA	NA	37	4.8	4	0.66	0.72	NA	6
INDONESIA																
Semarang	45	53	0	0	20	15	NA	NA	41	41	9	6	0.5	0.7	0	0
Surakarta	30	63	3	6	5	98	NA	NA	38	29	13.8	7.5	0.91	0.37	0	0
AVERAGE	69.6	86.0	31.9	40.7	51.3	77.2	99.8	99.8	39.7	38.4	7.6	4.4	0.71	0.66	8.6	30.7

Annex I. Bank Economic and Sector Work in Water Supply and Sanitation Sector

	1970–79	*1980–89*	*1990–2001*	*Total*
Policy Research Working Paper		1	16	17
Departmental Working Paper	19	6	13	38
PPIAF			13	13
Working Paper	1	2	10	13
Sector Report	10	9	9	28
World Bank Technical Paper		12	9	21
Water & Sanitation Discussion Paper			7	7
Working Paper (Numbered Series)	3	18	4	25
Infrastructure Action Program			3	3
UNDP-Water & Sanitation Program			3	3
Internal Discussion Paper		1		1
Staff Working Paper	1			1
World Bank Discussion Paper		1		1
Total	**34**	**50**	**87**	**171**

Annex J. Lessons from Water Supply and Sanitation Project Cohort, FY98–2001

Lessons From FY99 Water Supply and Sanitation Project Cohort

Africa

Burkina Faso Ouagadougou Water Supply Engineering Credit (Credit 2519)
Long-term technical assistance does not guarantee long-term institutional strengthening of a public water supply company. Lasting improvements require an enabling framework and contractual incentives for a private operator to improve efficiency of financial performance.

Ghana Water Sector Rehabilitation Project (Credit 2039)
Stable and sustained management is a necessary condition for project success. As it happened GWSC had none and project performance suffered: Operating efficiency did not improve, the cash flow was much worse than projected, and technical progress turned worse with components actually canceled for lack of counterpart funding. Under the circumstances the twinning arrangement with Thames Water was ineffective. It is likely that the Ghana water supply and sewerage sector performance will not improve until a private operator takes over with appropriate incentives to increase efficiency and produce operational profits.

Kenya Nairobi III Water Supply (Credit 2060)
This Project was doomed to fail for lack of an enabling legal and regulatory environment that could promote financial and institutional autonomy that could make the project sustainable. One result was that the service coverage and quality to the low-income, most needy population improved only marginally. The Project illustrates the thesis " Old Lessons in New Projects". The main lesson is that the technical analysis and implementation were allowed to proceed with the Project's socio-economic, financial, and institutional aspects receiving insufficient attention. The technical concept was also flawed since distribution investments and efforts to increase connection rates lagged production investments. Future Bank operations are likely to prove futile unless the political will appears to change the enabling framework, and the incentive structure for water supply and sewerage operators.

Mauritania Water Supply Project (Credit 2389)
The lessons from this project cover important issues (such as, Borrower commitment to policy reform, sound capacity assessment of the responsible project entity, match between the objectives and components of the project, and coordination of efforts by various participating funding agencies), and are largely applicable to preparation of any urban water and sanitation project. There are two lessons that should be especially highlighted as follows: (i) appropriate timing of new investments in relation to institutional strengthening of the executing agency; and (ii) tariff increases to achieve financial sustainability should be firmly linked with parallel efficiency gains in the O&M of the system.

Uganda Second Water Supply Project (Credit 2124)
The most significant lesson from this project is that well-designed specific components are necessary to address the many and complex issues related to major institutional reforms and improvements, as was the case in Uganda. Furthermore, to achieve meaningful results: (i) a realistic and gradual implementation program needs to be established; and (ii) TA and training, to be effective, need to be supported by appropriate incentives within the operating framework. Lessons from two previous projects were not adequately considered; as a result, "the quality at entry" of this project was poor, not only with regard to the institutional objectives, but also as no

component was designed for dealing with an essential objective of sanitation improvements. The above, and many other useful project specific lessons have already lead to a detailed analysis of necessary reforms, privatization being one option under consideration.

Guinea Second Water Supply Project (C1985)
The completion report gives several useful project-specific lessons learned. An additional aspect can be cited to highlight an important "Quality at Entry" lesson: The project is a "good practice" example of the Bank obtaining a firm commitment from the Borrower for crucial restructuring of the sector prior to project appraisal and the credit effectiveness. It provides sound evidence on the importance of such early agreements on fundamental reform and changes for successful project implementation and sustained outcome.

Nigeria Lagos State Water Supply Project (L2985)
Expectations for project start up should take into account the implementing agency's prior experience with Bank projects. Weak institutions should be assisted incrementally with projects that are modest in design and objectives. A more radical approach, such as private sector participation in operations, could help achieve sustained results.

East Asia and Pacific

Indonesia Second Jabotabek Urban Development Project (L3219)
The completion report presents several important project-specific lessons, many of which have wider application. The following is particularly highlighted: "Complex institutional issues surrounding water supply should be addressed with equal priority to physical objectives and the design of respective components should be adequately specific. Institutional performance cannot simply be improved by providing technical assistance and training".

Philippines Water Supply, Sewerage and Sanitation (L3242)
Projects with multi-agencies should be avoided. It is recommended that a single agency should serve as the executing agency. The capability and experience of Local Government Units is important to allow decentralized aspects of projects to function successfully.

South Asia

India Hyderabad Water Supply and Sanitation Project (Credit 2115)
The project provides a strong lesson on the importance of competent and committed senior management (including heads of various operational departments) supported by effective and timely staff training in the laying of a solid foundation for a newly established entity when at the same time a major investment program was being carried out.

India Maharashtra Rural Water Supply and Environmental Sanitation Project (Credit 2234)
The completion report addresses some key deficiencies in project preparation that caused less than satisfactory outcome at the end. These are mainly in the areas of: (i) design of components to appropriately match project objectives; (ii) community participation; and (iii) institutional and financial reforms and arrangements. Furthermore, alternative technical solutions should have been evaluated so as to make new services better affordable to users. The lessons from this project should be carefully reviewed when preparing follow-on projects in Maharashtra and elsewhere in India.

Europe and Central Asia

Turkey Istanbul Water Supply and Sewerage Project (Loan 2888)
The completion report presents several lessons, which have a wider application on the importance of: (i) a thorough and timely mid-term review, (ii) consultations with affected population at project design stage, and (iii) realism of project's design assumptions as well as project scope that is commensurate to the proven capacity of the implementing entity. One finding especially worth mentioning is the fundamental role of a careful institutional analysis at appraisal to ensure that project scope does not become unrealistic and overly ambitious.

Latin America and the Caribbean

Chile Second Valparaiso Water Supply and Sewerage Project (L3331)
This project reinforces the case for importance of sound preparation of all components prior to project appraisal. In addition, an approach for tackling the risks in a complex project as this one should be agreed upon at the outset.

When a project gets into serious problems early in its implementation, a comprehensive review (e.g. at mid-term) should be carried out to determine the most feasible course of action, including radical curtailment of the project scope or cancellation of the loan as an ultimate solution.

Bolivia Major Cities Water and Sewerage Rehabilitation Project (C2187)
The completion report presents several useful project specific lessons. The following are emphasized for broader application: (i) High turnover of Task Managers in the Bank does not foster sound supervision, does not support implementation efforts and should be avoided; and (ii) the successful privatization of the sector operations in La Paz shows the importance of strong political will and commitment.

Paraguay Third Rural Water Supply and Sanitation Project (Loan 3519)
The project experience suggests three important lessons. First, it is important that the project presented to the Board for approval contain objectives that are realistic and consistent with the project design and the resources provided. Second, given a set of expected impacts (as indicated by the objectives) the project needs to make adequate provisions to monitor the degree of their achievement. Third, the provision of water and sanitation to rural areas lends itself to the use of the Bank's "Adaptable Program Lending" instrument. An "APL" would have been relevant for Paraguay where the Bank has recently approved a fourth rural water supply and sanitation project.

Caribbean The Wider Caribbean Initiative on Ship-Generated Waste project
There are three broad lessons. First, a thorough preparation or, preferably, a flexible project implementation schedule need to be allowed for regional projects involving several countries, languages and legal systems. All countries need to be involved in project preparation from the beginning. Second, in regional projects the responsibilities between the implementing and the executing ('the borrower') agencies must be spelled out clearly in the project preparation phase, and not left for 'ad hoc' decision making during the project. This only causes procedural disputes and issues of turf between two competent agencies. And third, for regional projects, a serious consideration should be given to create a regional organization either execute or supervise the project on behalf of the beneficiaries.

Lessons From FY99 Water Supply and Sanitation Project Cohort

Africa

Nigeria Lagos Drainage and Sanitation (Credit 2517)
Projects need to be designed, supervised, and monitored to reach stated objectives. In particular, sustainable benefits require autonomy and incentives for stakeholders to strive to achieve the stated objectives. Drainage projects need to adopt integrated solutions ensuring well-functioning tertiary, secondary and primary drainage over the long-term, which requires adequate and dependable financing, both of investment and of operations and maintenance.

Kenya Second Mombassa and Coastal Water Supply Engineering and Rehabilitation Project (Credit 2333)
(a) The water utility implementing the Project should be financially viable and autonomous and, without addressing this issue, the attainment of physical objectives ultimately proves pointless; (b) Cross-subsidies are counter-productive if they imperil the financial viability of the water utility by postponing the necessary tariff adjustments in the subsidized areas; (c) Simple technical assistance is no substitute for private sector participation to reach improved efficiency and financial viability; (d) The preparation of quality technical studies by itself cannot attract financing if the fundamental issues of insufficient institutional and financial viability are left pending; (e) Improved financial viability should stand on two legs: regular tariff adjustments and improved commercial procedures; (f) Detailed project preparation, and in particular confirming the availability of ground water, should be undertaken before appraisal.

Rwanda Second Water Supply & Sanitation (Credit 1783)
(a) Early operations with inexperienced executing agencies should be simple and offer hope of tangible progress in the form of better and extended service. (b) Cofinancing should be designed in such a way that the withdrawal of one or more co-financiers (as happened following the 1994 civil war) should not stop entirely components but at the most reduce their scope. (c) Project ownership and government commitment are key factors to make success possible and this is particularly true of innovative project components that represent a sharp break with the practice of the past.

East Asia and Pacific

China Rural Water Supply and Sanitation Project (Credit 2336)
(a) Demand for improved latrines is correlated with higher income levels and, in this case, the income levels of the rural poor were too low to support the latrine improvement strategy; (b) Investing in model villages with external financing did not yield the desired demonstration effect in non-project villages where the same external financing was not available; and (c) Training of water plant operators and accountants is critical to ensure sustainability of the systems and financing must be provided to ensure that it will occur.

China Changchun Water Supply and Environment (Credit 2457)
(1) Design and project management need to be handled by the best experts available. The reluctance of the Borrower to use “expensive” IDA funding for technical assistance proved “penny-wise but pound-foolish.” (2) The financial and institutional arrangements and policies should have been analyzed and corrected before the project was approved and implemented; (3) More resources need to be devoted for supervision of large projects with first-time borrowers and particularly in the area of procurement; and (4) it is better to declare a project to have positive

demonstration effects once the experience has been rated as positive. In the event, most of the project lessons turned out to be negative from which it is also possible to learn.

South Korea Seoul And Kwangju Sewerage (Loan 3590)
(1) A comprehensive wastewater strategy should include both water conservation and wastewater collection and treatment. Where water supply and wastewater services are administratively separate it is more difficult to achieve such an integrated strategy. In particular, the water agencies' commitment to water conservation may be difficult to achieve since they do not perceive the large, down-stream costs in wastewater collection and treatment;

(2) Financial covenants requiring financial rates-of-return of 2 or 3 percent are unrealistic to achieve in the short term when the investment programs are very large. It is simply inappropriate to expect assets with a very long life to be recovered in a relatively short time. A covenant with a minimum percentage contribution to investments from the internal cash generation would likely have been more appropriate;

(3) Though not included in the project design, Kwangju successfully privatized the operations and maintenance of its wastewater treatment plant with cost savings in the order of 30 percent. This example is of wide interest in Korea and elsewhere.

South Asia

Nepal Urban Water & Sanitation Rehabilitation (Credit 2239)
Most of the lessons are trite and have been known since the mid-1970s. Once again it should be recalled that:

(1) In the face of general agreement of what had gone wrong in the past (under three previous Bank-financed water supply projects) it was a fallacy to expect that half-measures that failed to radically change the legal/regulatory framework and the incentives would produce any better results than in the past;

(2) Politicization of tariff increases, staff recruitment, and of other administrative and financial matters will destroy the best-intentioned project and the costs will ultimately be borne by the consumers in the form of poor and unsafe service;

Pakistan Second Karachi Water & Sanitation (Credit 1987)
(1) Without a fundamental legislative and regulatory reform, including changed incentives and contracting of a private operator, the project was doomed from the start;

(2) Financial covenants are ineffective if the water supply and sewerage authority is not given the authority and means to comply with them. In the particular case of KWSB, excessive politicization of the tariff settings and of the management added to the difficulties;

(3) The project design should have incorporated more of community participation and especially so under the sanitation component where Karachi had gained valuable experience from the Orangi sanitation works.

Sri Lanka Community Water Supply and Sanitation Project (Credit 2442)
The completion report presents several important findings and lessons applicable to the project and useful for many future projects in Sri Lanka and elsewhere. One that should be further highlighted is the need for rigorous M&E during project implementation, the key for achieving

sustained results. Similarly, the continued funding of TA activities is the key to critical institutional improvements.

Europe and Central Asia

Slovenia Slovene Coast Water Supply and Sewerage Project (L3070)
First, demand forecasting needs to be conservative in the face of major macro-economic and structural reforms that can often reduce industrial and commercial demand for water. Under the original project design demand was probably over-estimated. Second, successful programs to reduce unaccounted-for-water require strong Borrower commitment and a well-designed and strongly supported action program. The Borrower's success in reducing unaccounted-for-water is exemplary. Third, where the Bank chooses to include financial covenants it should pay sufficient attention to ensure effective financial supervision.

Turkey Ankara Sewerage Project (Loan 3151)
(1) It is preferable to have a few, simple and consistent objectives that can be achieved when lending to a novice institution for the first time rather than overreach with a multitude of objectives that ultimately remain unfulfilled; (2) It is essential to reach full agreement on procurement procedures before going ahead with project implementation. The procurement problems in the early years of the Ankara project are largely due to procurement disagreements. (3) The Project calls into question the merits of financial covenants when the implementing agency, ASKI, does not have de facto full authority to take all actions (such as tariff adjustments) to assure full compliance.

Cyprus Southeast region sewerage and drainage (Loan 3398)
(1) The difficulties of the joint venture approach for the Paralimni and Ayia Napa Sewerage Board to collaborate on the implementation of a joint sewage treatment plant are instructive for all projects that envisage close collaboration between fully independent legal bodies, such as municipalities or autonomous boards;

(2) The requirements in terms of time and leading-edge advice on how to procure and implement a turnkey contract for sewage treatment plants are easily underestimated and resulted in substantial delays;

(3) The assessment of willingness-to-pay was inadequate. This resulted in resistance from hoteliers to pay since they were asked to cross-subsidize domestic consumers and since they were reluctant to write-off their own recent package treatment investments;

(4) The project scope should have been defined in a more participatory manner to gain the support of the general public, which would likely have facilitated the collection of wastewater charges.

Bosnia-Herzegovina Water Sanitation and Urgent Works
(1) Emergency projects necessarily focus on meeting urgent needs but should also be designed to gradually meet objectives that are relevant for the long-term sustainability of sector operations;

(2) The multiplicity of donors and their differing financing terms can create tensions between municipalities that receive widely differing financing terms for similar investments. The necessary harmonization of financing terms could be helped by creating a central financing facility that would finance all emergency works under the same terms, and through which all external aid would flow; and

(3) Implementation should utilize locally available expertise to a maximum, and (more expensive) expatriate technical staff should be limited to areas where they clearly add value.

Middle East and North Africa

Yemen Al Mukalla Water Supply (Credit 1944)
(a) The project demonstrates how close supervision and a flexible response to adverse external events can rescue a project with serious implementation problems; (b) Experienced contractors and consultants are also critical to provide continuity and support in the face of rapidly changing circumstances and in the end can compensate for prolonged turmoil and weakness in the public sector agencies; and (c) Delays in local counterpart funds causes severe disruptions in project implementation.

Republic of Yemen Taiz Flood Disaster Prevention and Municipal Development Project (Credit 2160)
IDA made a deliberate decision to continue supporting the Project despite implementation difficulties due to the 1994 civil war. The more intensive and effective supervision through a strengthened IDA Resident Mission proved the key to rescue the Project and its associated flood control benefits.

Yemen Tarim Water Supply (Credit 2160)
i) There is a need for broad-based and comprehensive sector reform that emphasizes autonomy and private sector participation. This was indeed done in the follow-up project, the Sana'a Water Supply and Sanitation Project.

(ii) IDA should have been quicker to take pro-active measures to restructure the project once unsatisfactory ratings were maintained for more than one year. The restructuring came rather late in the project

Lebanon Coastal Pollution Control and Water Supply L4136
(i) It is essential to confirm the Government's support of a project as early as possible in the project cycle to minimize the risk of expending substantial amounts to prepare a project that is subsequently aborted. In this particular case, the political situation was fluid and in spite of the Government's assurances, the political support vanished. However, it would have been preferable to have the necessary parliamentary legislation of sector reform approved before Board approval, which might have served as a bellwether of the true political backing of the project;

(ii) Projects with parallel financing should be designed so that components could be self-contained with separate sources of financing and separate execution. In this case, the EIB financing of US$ 48 million was canceled since it was tied to the aborted Bank loan;

(iii) The site for the wastewater treatment works at Kesrouan turned out to be controversial, although studies confirmed it to be the most feasible one. It would have been preferable to advance the involvement of all stakeholders in this controversial decision before including the component in the project.

Latin America and the Caribbean

Uruguay Water Supply Rehabilitation (Loan 2921)
(a) The effectiveness of twinning arrangements is limited as long as the incentive framework continues to hamper efficiency improvements and institutional change; (b) Project monitoring should dovetail with the objectives and procedures of the utility itself and not only serve the

Bank's reporting requirements and they should focus not only on the borrower's performance but also on the project itself; (c) It is preferable to set more modest objectives that match the country's appetite for reform and institutional history and succeed in contrast to force too rapid reforms that stand little chance of success.

Haiti Port-au-Prince Water Supply (Credit 2052)
(1) With the wisdom of hindsight the project should have been conditioned on private sector management with the private operator obliged to take on the risk for collecting for water distributed;

(2) The water kiosks demonstrate the financial and operational success that community-selected water committees assisted by NGOs can produce in the distribution of minimal water quantities in low-income areas;

(3) Close coordination between co-financiers is essential in order to share and achieve objectives.

Trinidad and Tobago Water sector institutional strengthening (Loan 3784)
1. The Bank should include legal and privatization specialists early in the process of privatization contract preparation to ensure the contract is clear and enforceable;

2. When the main objectives of a project are institutional reform and policy implementation an adjustable program loan may be more effective for managing conditionalities;

3. The Bank's procurement rules need to evolve to deal with successive privatization contracts (for instance determining the eligibility of the incumbent winner of an Interim Operational Agreement to bid on a subsequent Long Term Agreement);

4. Financial audits should include monitoring of compliance with specific covenants;

5. When projects are linked (in this case a Flood Control and Drainage Project was promised) this should be formalized to avoid misunderstanding;

6. Water Resources Management and Water Supply Sector Reform should be more closely coordinated yet the sectoral specializations of most task teams has meant these are followed independently of each other, with limited interaction.

Lessons From FY00 Water Supply and Sanitation Project Cohort

Africa

Madagascar Antananarivo Plain Development (Credit 2117)
(1) One project should not try to address a large number of diverse issues such as agricultural development, flood control, institutional strengthening, taxation reform, urban development, and wastewater collection. This type of "Christmas tree project " is bound to fall well short of expectations.

(2) Co-financing should be targeted at discrete and physically unlinked project components to minimize disruptions of the type that followed AFD's suspension of disbursements from 1994–97;

(3) The institutional and financial resource mobilization arrangements should be defined before implementation to increase the chances of sustainability, rather than late during implementation as was the case for the project.

Lesotho Highlands Water Phase 1A (L3393)

- The Bank can leverage significant value, particularly in fostering regional cooperation and providing technical advice, even when it finances only a small proportion of costs (less than 3 percent.);

- A sophisticated trust mechanism, like that devised by the Bank for this project, reduces perceived risk by saving potential financiers the embarrassment of being seen to receive guarantees from a country under international sanctions (RSA in 1990.)

- Clear and equitable sharing of benefits between international parties should be established at the design stage;

- Vesting responsibility for rural development, water supply and sanitation, and other social facets, in an organization like LHDA, with a primarily engineering function, runs the risk they will devote insufficient attention to them;

- Independent panels of environmental and engineering experts provide valuable advice which impacts designs and reduces costs;

- Participation of agencies and communities should be promoted as early as the project conceptualization stage;

- Technology transfer from expatriates to locals should be through structured training programs coupled with professional institution guidelines.

East Asia and Pacific

Indonesia Sulawesi - Irian Jaya Urban Development (L3340)

1. Physical achievements cannot be sustained unless they are supported by increased institutional capacity and changed attitudes towards service delivery and maintenance.

2. In the absence of on-the-ground supervision, the preparation of environmental assessment documents did little to improve environmental management during implementation.

3. The Bank should give more attention to the impacts of urban services and ways to measure them.

4. Local governments need to move away from a “project focus” towards more of an overall urban management approach.

5. Much more emphasis should be placed on community involvement in service delivery.

Indonesia Water Supply and Sanitation for Low Income Communities (Loan 3629)

(1) Rather than rely on line ministries projects of this nature should try to maximize the community development in order to make the investments more relevant, stretch available project funding and increase the chances for sustainability;

(2) Project selection criteria need to provide for some flexibility to move the program forward and capitalize on strong community support of the program;

(3) The communities readily see the benefits of water supply investments. In contrast, sanitation programs need additional support, both of private latrine construction and of sanitation education in order to change the population's sanitation habits.

South Asia

Pakistan Rural Water (C2228)
(1) A demand-driven rural water supply and sanitation strategy based on strong community participation requires a longer time to take root than what is usually offered by one single project. The AJK component performed better than the Balochistan and Sindh components precisely because it enjoyed a centuries old tradition of community participation whereas the other two did not.

(2) Changing the habits of excreta disposal implies a much greater effort than providing water supply. Symptomatically, the water supply investments performed much better than the latrine components.

(3) Project objectives should be stated in terms that would allow quantitative monitoring of progress towards reaching them.

Europe and Central Asia

Croatia Istria Water Supply (L3069)
(1) Turnkey contracts are complicated to design and supervise. In this case, the contract went seriously wrong;

(2) Demand projections and project design always need to incorporate flexibility, and particularly for transition economies; and

(3) For the Bank to be able to influence the implementation of a given component, it should finance a share of costs, sufficient to provide leverage. In this case, the Bank financed nil of the sewerage and treatment works, yet these had been included in the project.

Latin America and the Caribbean

Argentina Water Supply II (L3281)

- on sub-project identification and selection: Detailed preparatory work should ensure that a project is front-loaded with a significant pipeline of sub-projects at loan effectiveness. Grant financed technical assistance to prepare the engineering projects helps accelerate this process.

- on sub-loan allocation: Mechanisms should not be too rigid, allowing investment choices to be driven by demand. If a sub-loan remains unused for a period of time, it should be possible to readily reallocate unused amounts. Risks need to be spread (not allocating one half of a loan to a single sub-project that could be cancelled, as happened in this case).

- on monitoring indicators: A change of strategy—toward privatization during this project—represents a significant challenge for monitoring and requires supervision missions and Borrower executing agencies to track agreed monitoring indicators closely

- on project executing agencies: Staffing them with a qualified team of external consultants helps project execution and continuity as management changes, but fails to transfer project knowledge to local staff.

- on institutional strengthening and reform: Major institutional reform is needed for improved efficiency of public utilities that lack incentives and are set in a culture of 'expand and spend'.

- on private sector participation: Strong political commitment at the top to reform and a clear government strategy are necessary. Necessary conditions for success include: a sound regulatory framework, capable regulators, credible dispute resolution mechanisms, standard clauses on arbitration in concession contracts, and advice on all these matters to local governments involved.

Brazil Water Sector Modernization Project (L3442)
(1) Political support is critical for agreement on sector policies. In spite of a large number of studies prepared under the project, of which many of high quality, a clear regulatory sector framework is still absent in Brazil. The important question is still not defined who has the power to concede water supply and wastewater services in urban areas.

((2) Sector investment loans should be demand-driven and allocated according to the performance of potential sub-borrowers in order to accelerate disbursements and provide incentives for reform at the local level.

Brazil Minas Gerais water quality and pollution control (Loan 3554)
1. To facilitate creation of a river basin agency, introduction of water use and pollution fees, and drafting and enactment of the necessary legal framework, projects should: (i) make budget provision (in the form of seed money) for the agency, until it can demonstrate its value, credibility, and capacity to collect water use and pollution fees; (ii) promote creation of a transitional institution to take the lead in creating the agency; (iii) ensure that users and communities are well informed; and (iv) ensure that the legal covenants are realistic and that they do not affect the consensus building process adversely.

2. The Adaptable Program Lending approach is highly suitable for introducing the comprehensive river basin approach.

3. Monitoring indicators defined at appraisal should capture incremental and partial achievements of the project objectives. A baseline survey should be conducted to make it possible to compare the situation before and after project intervention.

4. Environmental education programs should be designed to be implemented before and during physical interventions, so as to ensure beneficiary communities' ownership, support and commitment. Ensuring that other public and private agencies, neighborhood associations, business associations, are involved guarantees the continuity of the program.

Lessons From FY01 Water Supply and Sanitation Project Cohort

Africa

Ghana Community Water & Sanitation (C2604)
(a) The soundness of demand-driven implementation of community water supply and sanitation programs was confirmed under the project. This confirms the validity of the model developed in Latin America and elsewhere in the 1960s and 1970s.

(b) There is the need to think of potable water supply, sanitary excreta disposal, and hygiene education as a package, " a three-legged stool", on which the health improvements depend. Hygiene education of school children needs to start as early as possible.

Benin Rural Water Supply & Sanitation Project (C2622)
(1) The private sector can respond dynamically to economic opportunities when the public sector is phased out of the preparation and implementation of rural water supply and sanitation works.

(2) The satisfactory outcome of the program was possible because of a relatively significant investment in capacity building, successful partnerships between national agencies and private firms and the communities, and the support of a coalition of external assistance agencies, such as IDA. DANIDA, and UNICEF.

Nigeria State Water I (C2372)
(1) Without administrative autonomy for water supply and wastewater agencies, it is impossible to reach commercial autonomy;

(2) Demand was overestimated and the dropping utilization of the installed water production capacity can most of all be explained by the insufficient investments in distribution works, coupled with insufficient possibilities for the populations to connect. The same experience with overestimated demand has been derived from projects in all regions since the Bank started lending for water supply and sewerage investments;

(3) Many of the urban towns and cities in Africa have more in common with rural villages and they could best be served through a "small towns" approach with greater reliance on community participation and participation, and health education campaigns than is usually the case in the Bank's work in urban areas.

South Asia

India Karnataka Water Supply and Environment Project (C2483)

1. A sustained improvement in environmental health requires three ingredients: safe, potable water; sanitary excreta disposal; and health education;

2. Sustainable water supply and sanitation systems can best be assured by delegating the administration to the lowest, appropriate level which is to the village level through the establishment of village-based committees.

3. Financial sustainability requires user fees to be levied to pay for the costs of operations and maintenance. If, in addition, users are obliged to contribute something—in cash or in kind—towards the construction of the system they can be expected to care more for efficiency of investment and for the continued operations and upkeep of the facilities.

Europe and Central Asia

Albania Durres Water Supply (C2610, CP749)
(1) The project experience confirms that demand projections in restructuring formerly planned economies, need to anticipate dropping demand, and especially dropping industrial demand;

(2) The lack of sector analysis preceding project preparation produced a failure to identify key weaknesses of the sector and failure to design a project that could have addressed them; and

(3) The planned utility improvements proved impossible to achieve for lack of institutional autonomy that in turn was impossible to attain in the face of complete lack of financial autonomy.

Uzbekistan Pilot Water Supply (L4090)
The PCN suggests that a Project Preparation Facility or other instrument with lower transaction costs for the Bank would have been equally effective in facilitating the preparation of the full-scale project.

Boznia-Herzegovina Republika Srpska Reconstruction Assistance Project (C3028; CQ055)

- Initial assistance to war-affected farmers should not be on a strictly commercial basis, since market conditions and production support may not exist in a post-conflict situation. The poorest among them cannot be expected to contribute to full cost recovery.

- Despite their political sensitivity, project attention should focus more upon occupancy and tenure issues in the housing sector in a post-conflict situation.

- Institutional capacity can be strengthened through on-the-job training of local counterparts in the management and implementation of a project.

- Important assistance—especially concerning procurement matters—can be best provided through specialists based in Bank Resident Missions.

- Management of broad-based procurement though ICB and LCB can be too time-consuming in an emergency situation.