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THE WORLD BANK
ENVIRONMENTALLY SUSTAINABLE DEVELOPMENT STAFF
TRANSPORTATION, WATER & URBAN DEVELOPMENT DEPARTMENT

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**THE EVOLUTION OF BANK LENDING
FOR INFRASTRUCTURE**

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General Operational Review

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CONTENTS

	Summary and Conclusions	i
	Introduction	1
1	Performance of Bank Infrastructure Projects	2
2	Past Treatment of Institutional Development in Bank Projects	6
	Understanding Government Goals and Institutions	7
	Importance of Autonomy and Accountability	9
	Supply Orientation and Absence of User Involvement	11
	Projections of Key Variables and Risk Analysis	13
	Pricing and Financing	14
	Macroeconomic Linkages	17
	Labor Redundancy	18
	Conditionality	18
3	Treatment of Special Areas of Emphasis	21
	Environmental Issues	21
	Poverty and Women in Development	23
4	Recent Bank Experience	25
	Institutional Development and Demand Orientation	25
	Projections of Output	30
	Macroeconomic Linkages	31
	Labor Redundancy	31
	Conditionality	32
	Environment	33
	Poverty and Women in Development	35
5	Evaluation and Lessons for the Future	37

TABLES

1	OED Performance Evaluations, 1974-91	2
2	Achievement of Institutional Objectives in Projects	3

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SUMMARY AND CONCLUSIONS

Performance of Bank Infrastructure Projects

Infrastructure has accounted for 41 percent of Bank lending over the past four and a half decades.^{1/} In the last five years, the Bank has lent US\$33.6 billion, nearly one-third of the total, for 301 infrastructure projects. The power sector alone accounted for 12 percent of lending over the last five years, with an annual average of \$2.5 billion, followed by transport with \$2.2 billion, WSS with \$879 million, irrigation with \$845 million, and telecommunications with \$317 million.

At first glance the performance of infrastructure operations has been quite good, with 82 percent of all the projects evaluated since 1974 judged by OED to be satisfactory, compared to a Bank-wide average of 76 percent. However, until very recently the judgement on performance was based largely on the economic rate of return (ERR), recalculated shortly after the project closes. Two considerations reduce the usefulness of this measure. First, in three of the five sectors, cost benefit analysis uses revenues or actual tariffs rather than economic prices, and thus does not represent an economic rate of return. Second, the recalculated ERR is based on actual costs, but still on projections of the benefits; experience has shown that when it is recalculated a number of years after project completion, the results are frequently less encouraging. For example, a review of 21 irrigation projects carried out 5 to 12 years after closing found that the average ERR had fallen from 17.7 percent at appraisal and 14.8 percent at completion to 9.3 percent when based on actual data.

Institutional achievements, while less easily quantified, may be a better indicator of longer term benefits and developmental impact. OED has recognized the importance of institutional and policy objectives, and recently began to give them greater weight in its evaluations. This is one explanation for the fall in success rates to 61 percent satisfactory in the 1991 cohort.

Taking institutional objectives as a separate indicator, infrastructure projects have performed slightly better than the full range of Bank projects, but the proportion with substantial achievements is still only 30 percent. An additional 45 percent partially achieved their institutional objectives, and one-quarter of the infrastructure projects achieved negligible institutional results.

Institutional weaknesses, both within projects and in the surrounding environment, are key causes of project failure. The disappointing findings on institutional achievements are mirrored in a number of individual indicators of performance, such as the rate of unaccounted for water in WSS projects, efficiency in the production of power, locomotive availability, the condition of roads, and the financial outcome of project entities.

^{1/} Infrastructure projects are defined in this paper as projects primarily in the transportation, power, telecommunications, water supply and sanitation (WSS), and irrigation sectors. This definition understates the importance of infrastructure in Bank lending to the extent that these activities may be important components of loans in other sectors, such as urban or agriculture.

Institutional Development in Bank Projects

Until recently, institutional components in infrastructure projects tended to be related narrowly to implementation. Institutional analysis focussed on technical aspects of service delivery, with less attention to the impact of political, legal or bureaucratic constraints and the capacity of organizations and management to steer reform. Standard practice is changing, and for the purposes of this paper, institutions are broadly defined to include all the factors which create the environment in which an entity operates.

A lack of strong government commitment to reform, compounded by inadequate attention by the Bank to institutional, particularly political, constraints, has been a major source of unsatisfactory project performance. The critical importance of autonomy, accountability and commercial objectives for satisfactory performance of project entities has not always been recognized. The ultimate expression of autonomy—privatization and steps in that direction—was virtually ignored until quite recently, although government interference in day-to-day operations, political pressure to hire (or not to fire) excess staff, excessive management turnover, failure to raise tariffs and recover costs, delays in the execution of subsidiary loan agreements or in allocating local funding, and government arrears have all contributed to poor project performance. Conditionality in these areas has often not been sufficient to overcome the institutional obstacles, since conditionality does not guarantee government commitment, and few sanctions are available short of canceling the project.

The result of this neglect can be seen in all sectors. The traditional model of large, monolithic government controlled provision of infrastructure does not provide adequate incentives to minimize costs and operate efficiently, reliably or in response to the changing needs of users. Many of the public water supply utilities the Bank has worked with in the past 23 years are actually in worse physical and financial shape than they were before Bank involvement, and the poor performance can be attributed in large part to institutional and managerial shortcomings, including lack of autonomy, political interference, lack of continuity of top management and weak incentives for performance. Many power utilities are financially insolvent. In the telecommunications sector, it is difficult to find a significant improvement in broad sector issues. In transportation, railway, port and public transport projects have been particularly vulnerable to the neglect of the institutional environment and the dependence on government monopolies, and even though road projects have a better performance record, they too have suffered on this front.

In recognition of these results, projects have concentrated increasingly on strengthening the institutional environment in an effort to provide efficient, reliable service at appropriate (market) prices. When public enterprises are involved, as is the case in many infrastructure projects, this approach may include fundamental changes in the relationship between the government and the enterprise through restructuring, commercialization and privatization, as well as regulatory reform. In the case of government departments, methods such as the contracting out of maintenance or other services to the private sector can be an effective way to improve autonomy and accountability. The use of structural and sectoral adjustment and public enterprise reform loans to pursue institutional goals ensures that central finance or planning ministries are brought into the discussion at an early stage, increasing the government "ownership" of the reform, and that institutional constraints are more likely to be revealed prior to implementation.

Examples of increased private sector participation can be found in projects in all the infrastructure sectors. In irrigation, private ownership of tubewells and low lift pumps or other forms of private investment and involvement in operations and maintenance appear in projects in countries such as Bangladesh, Nepal, Pakistan, Brazil, Colombia, Mexico, and Mali. Power projects and sector work are promoting reform in countries such as Argentina, where a privatization law was drafted; Hungary and Czechoslovakia, where regulatory arrangements are being developed; Malaysia, where shares in the national power company were listed on the stock exchange; and Jamaica and Pakistan, where projects support funds for private investment. Development of the telecommunications sector is being pursued through the diversification of supply and competition, participation of private capital, and appropriate regulation, in countries such as Argentina, Mexico, Indonesia, Hungary and Sri Lanka. Railway and urban transport projects in many countries are calling for an increased private sector role, and in roads the trend is toward decentralization and contracting out operations to the private sector. Finally, in WSS the Bank has helped governments structure arrangements with the private sector in a number of countries, including Cote d'Ivoire, Guinea, Argentina, Brazil, Chile, and Malaysia.

The new focus on institutional rather than on enterprise specific issues has also led to a broadening of the dialogue within individual projects to include entities in several sectors. Sector work is supporting this emerging cross-sectoral approach in a number of countries: for example, the recent infrastructure strategy paper for Brazil uses a common analytical framework to elucidate government and private sector roles, the design of the indirect government role and the transition from current approaches to a more appropriate mix across a number of infrastructure sectors. The form of lending has changed in many cases: adjustment and public enterprise reform loans provide an opportunity for dealing with institutional issues in multiple sectors, as in the Argentina Public Enterprise Reform Adjustment Loan, which has brought about majority private ownership in two telecommunications entities and a division of the railways into potentially profitable segments, offered as long term concessions. Appropriate regulatory reform is part of the package. Similar projects are planned elsewhere. Other projects promote private participation on a smaller scale through private management of public contracts, as in the AGETIP approach pioneered in Senegal. NGOs have played an increasing role: they were involved in 50 projects in each of the years FY89 and FY90, compared to only 15 in FY88.

The extent to which market forces are allowed to influence the quantity and quality of output is an important aspect of the institutional environment. The almost universal failure to charge market prices for infrastructure services makes it difficult to assess demand, and the lack of autonomy has further reduced the ability of providers to respond to market signals. Projects have thus tended to be supply oriented, often based on straight line projections of past trends or on population growth, rather than on meeting the needs of users. An indication of this orientation is the fact that the performance indicators used to evaluate projects concentrate on quantitative measures of output, and rarely include measures of quality or user satisfaction, and a further symptom is the past emphasis by both governments and the Bank on construction of new facilities at the expense of maintaining or otherwise improving the performance of existing assets.

WSS projects provide a particularly good lesson in the dangers of ignoring consumer preferences. Many rural WSS services have been underused or abandoned because of poor location, quality and reliability. In rural Pakistan, for example, only 10 percent of public standpipes were still functioning 10 years after installation. Users will not pay for services that do not meet their needs,

and poor cost recovery contributes to the lack of maintenance and the resulting poor quality. Experience shows, on the other hand, that willingness to pay is often quite high if the supply meets users' needs; this is more likely to be the case when users are involved with system design, management and finance, and such schemes are frequently well operated and maintained. Recent WSS projects pay much closer attention to users. Attention to maintenance and service quality has increased, and a number of projects include willingness to pay and consumer preference surveys, as well as community participation in design and maintenance. In irrigation also, most recent projects aim to make operations more responsive to users' needs by supporting water users associations, putting them in charge of management, finances and operations and maintenance.

Recent projects in all infrastructure sectors have reduced the emphasis on new investment and are financing maintenance and low cost rehabilitation, with a focus on the necessary institutional development, in order to improve the efficiency of existing operations and service quality. This is the case for nearly all recent transport projects, for example, and in WSS, over half the projects of the last few years give adequate attention to optimizing the use of existing assets.

Over-optimistic projections of output have pervaded projects in most of the infrastructure sectors to such an extent that even sensitivity analysis often failed to encompass the actual outcome. This bias reflects a number of factors, including the traditional supply orientation of projects, with its inadequate attention to users' needs and willingness to pay and to maintenance and service quality, as well as the negative impact of institutional weaknesses on an entity's ability to produce. Insufficient consideration of the beneficiaries of irrigation projects can be seen in overestimates of cropping intensity and the adoption of new crops and lack of access to complementary inputs. In the power sector, the overestimation of future demand has encouraged over-investment and aggravated the financial strains in most public power enterprises. Railway and urban transport projects have frequently contained unattainable goals, due in part to a failure to take into account macroeconomic and sectoral factors affecting demand. Likewise, the demand for water supply services is typically projected as a completely inelastic consumption trend, unrelated to the prices in the financial forecasts or those used for revenue projections in the economic justification.

Forecasts of output appear to have become somewhat more realistic in recent years: Poland's First Transport project forecast no growth in railway traffic (actually, this turned out to be far too optimistic - traffic fell by about 40 percent in three years) and railway traffic was projected to fall in Sudan. Risk analysis has been used to support possible modifications to projects, as in Tanzania Port Modernization II, where orders for certain equipment will be placed only when a trigger level of traffic is reached, in order to avoid unacceptably low financial and economic rates of return.

Bank policies have always stressed the importance of efficiency prices based on long run marginal cost, but in practice, infrastructure projects have treated prices mainly as a means to reach reasonable financial projections, with relatively little attention to their economic role in relation to resource allocation, demand estimation and management, or incentives for performance. Even the cost recovery goals have met with little success; prices are generally a political issue, and although covenants requiring tariff increases are nearly ubiquitous, they are frequently ignored and rarely enforced. Inadequate cost recovery substantially affects operations and maintenance and thereby the quantity and quality of output; this in turn further affects revenues, since users will not pay for services that are not reliable or timely. The absence of a link between revenues and performance also weakens the accountability of managers.

Irrigated water is not priced volumetrically in most countries, nor is it available on demand, so prices cannot be used to promote efficiency. Welfare considerations are often used to justify low cost recovery, but in fact it is rarely the poorest farmers who benefit. Similarly in WSS, marginal cost pricing is rarely addressed seriously. Many countries use block rate tariffs, which fail to recognize the existence of differentiated markets and which rarely if ever work as intended. In the power sector, cross subsidies are common; they distort signals to consumers about cost and where to locate new consumption. Furthermore, average power tariffs in developing countries have declined, leaving many power utilities financially insolvent. Railways exhibit a similar experience.

One reason for project failure is the tendency to overlook the macroeconomic environment during project design and preparation. Tariff conditionality often does not allow for the impact of likely inflation or devaluation, and similarly, forecasts of output often fail to take into account expected changes in macroeconomic policies and trends. In some cases, projects proceed without adequate preparatory work on the sector. This was the case, for example, in the power sector in Colombia, where economic and sector work did not match the volume of lending, and a persistent shortage of sufficiently prepared projects led to the implementation of some that were not acceptable. A review of 120 WSS projects found that nearly 60 percent of them were undertaken without a meaningful sector survey. Unanticipated problems in irrigation projects have included a contraction in credit available to agriculture resulting from restrictive monetary policies; government pricing and exchange rate policies that resulted in low farmgate prices and hence low output; and rising labor costs due to rapid economic growth. Even when the relevant information is available in the Bank, the connections are not always made, as in the case of Mexico, where Railways III failed to take into account the drastic public spending control program which was enacted, not unexpectedly, shortly after loan approval.

Overstaffing is pervasive in public agencies and enterprises in developing countries. Staff reduction is often the key to successful financial, economic and institutional reform—putting the enterprise on a sound market-oriented footing—but until very recently it has been treated only obliquely in Bank projects, generally through the imposition of targets for increased labor productivity. These targets were rarely achieved, and there was little discussion of the actions, including lay-offs, that might contribute to their success. Recent infrastructure projects show substantial progress in the treatment of labor redundancy. The trend toward increased private sector participation and commercialization has highlighted the catalytic role of staff reduction in the restructuring of an enterprise. Project conditionality now deals directly with the need to reduce staffing, for example in Sudan and Argentina, but the source of financing for severance pay has become a major stumbling block in many projects.

Conditionality

Conditionality by itself cannot guarantee government ownership of and commitment to reform, but the use of covenants is a convenient way to elicit a demonstration of that commitment, i.e., to ensure that it exists. Frequently, however, project conditionality does not reflect a common outlook by the Bank, the government and the borrower; in such cases, it rarely succeeds. Sometimes the objectives are politically unrealistic and the conditions are ignored; in others they deal only with the symptoms, not the underlying causes. Deadlines for difficult conditions have often been left for the implementation period, when the only recourse available is that of suspension or cancellation, steps the Bank is loathe to take.

Financial conditions are among the most frequently used and frequently unsatisfied. In the WSS sector, the governments of 42 countries, more than three fourths of those with Bank operations during the past 25 years, failed to live up to or ignored financial covenants. (The Bank took action in only one case.) Cost recovery covenants in 48 irrigation projects were sometimes ignored, seldom enforced, and often relaxed; they remained unmet in three fourths of the cases. Similarly, in the power sector, the Bank has not been successful in achieving price reform or phasing out subsidies; on average in 60 countries, cash generation is only 12 percent of the investment requirements, compared to Bank targets of 20 to 60 percent. Railway projects also provide many examples, including cases where the same covenants were repeated in project after project in one country, with no success.

Other types of conditionality have also frequently failed to achieve their objectives. Problems with timely contribution of local funding, land acquisition, adoption of necessary legislation, appointment of consultants, and preparation of bidding documents have often caused long delays. In the roads sector, non-compliance with axle load regulations is so common it is often barely mentioned in supervision reports. Covenants designed to reduce unaccounted for water in water supply projects and transmission and distribution losses in power projects have also been relatively unsuccessful.

In the new approach to institutional development, conditionality is becoming increasingly front loaded, with governments asked to take substantive steps before negotiations or Board presentation in order to demonstrate their commitment to reform, as well as to ensure speedy implementation. Various adjustment, public enterprise reform and privatization loans in countries such as Argentina, Colombia, Jamaica, Egypt, Poland and Zambia have included as conditions for Board presentation the establishment of a legal framework for privatization and the completion to point of sale of individual privatizations, as well as new systems for tariff increases (rather than simply a one-time increase). The Bank has also been less reluctant in recent years to suspend or cancel loans in the face of continued failure on the part of the government to address fundamental institutional issues.

Special Areas of Emphasis: Environment, Poverty and Women in Development

Investments in infrastructure have the potential to produce large environmental benefits. They can also, however, impose large environmental costs. Treatment of the environment in infrastructure projects has been mixed. Irrigation projects have led to unexpected problems with water shortages and drainage. Drainage is also a serious problem in the WSS sector; of 104 projects that added very large volumes of water to urban areas, 62 relied on existing removal systems, and many of the others did not provide sufficient sewerage or sanitation facilities. Transport and power projects have generally given careful consideration to potential adverse impacts and taken appropriate steps to avoid them, with some notable exceptions. The inefficient pricing policies noted above encourage excessive consumption of scarce resources, allowing inefficient and polluting production, and providing insufficient funds for the maintenance needed to keep services operating cleanly and safely.

Environmental concerns have become central to Bank thinking, and treatment of environmental issues in infrastructure projects has improved considerably in recent years. In addition to carrying out environmental assessments as a standard practice, a number of projects have special

environmental components, and the growing attention to pricing as an instrument of efficiency encourages conservation and discourages waste. Many of the problems that were treated inadequately in the past are now being addressed more forcefully. For example, awareness is growing of the critical need to address the cost of collection and disposal of wastewater in water supply projects, and a number of projects are adopting a water basin approach to pollution control. Power projects are incorporating goals of reduced emissions and energy conservation. Port projects are dealing increasingly with such issues as the disposal of ship waste and safe handling of hazardous cargoes, and road projects show a growing awareness of the need to address motor vehicle noise and exhaust pollution through regulatory and market-based interventions.

Weaknesses remain in Bank treatment of the environment, however. Environmental issues, while raised, are often not incorporated into the economic analysis of projects. In the power sector treatment varies widely—in some cases inordinate attention to the environment carries the risk that important technical, financial and economic components receive inadequate attention—but on the whole greater efforts are still needed to evaluate the costs and benefits of reducing adverse environmental impacts. Despite some improvements, projects in the WSS sector continue on the whole to deal superficially with the water resources issue. Relatively little has been done to explore pricing and technical aspects of water conservation, waste reduction and environmentally sound disposal, or even to coordinate the treatment of water in the WSS, irrigation and power sectors. Weaknesses remain also in the treatment of the environment in transport projects, particularly urban transport.

The Bank's approach to poverty alleviation and women in development has changed over the years, and the record is mixed. As noted above, subsidized irrigation has not been effective at targeting assistance to the poor. In WSS, few projects have had any measurable success in reducing poverty, and there has been no systematic attention to the role of women. Few countries have WSS programs that are replicable on the scale needed to reach a significant part of the rural population within a reasonable time, and many of the already provided facilities have been underused or abandoned. Rural electrification has been costly and has done little to improve living standards or reduce migration to urban centers. Few transport projects have addressed the issues of poverty and women, with some major exceptions, such as the work on labor-based construction and maintenance methods.

In recent years, labor-intensive public works projects have been introduced in many countries to create temporary employment to alleviate the short term social costs created by adjustment programs. Many of the projects establish social investment funds and promote grassroots and community participation through NGO, church and other private and local agencies. However, it is still too early to judge the impact of these programs, and there has been little analysis of their cost effectiveness. Poverty alleviation is a major focus of much recent lending in the irrigation and WSS sectors, and some projects pay special attention to the enhancement of women's roles, but many projects still neglect these areas. In transport, recent sector work on urban transport in Nigeria and Uganda stressed the large amount of travel by the poor on foot and bicycle and the need for better facilities for them, and projects in Ghana are providing non-motorized vehicles for the rural poor, distributed through user groups, mainly women, who are also the main beneficiaries.

Lessons for the Future

Private sector development and participation have received growing attention in Bank infrastructure projects, but the scope for private sector involvement is still not always addressed adequately or with sufficiently strong assurances of government commitment. The latest power projects, for example, pay surprisingly little attention to regulation, although this is at the core of the attempt to reduce the role of the government and allow a growing role for the private sector. Too few recent transport projects have examined the scope for private involvement, and rarely do they investigate whether the balance between the public and private sectors is appropriate, whether there are constraints to private sector development that might be removed, or whether markets are sufficiently competitive to produce efficiency gains.

Users' needs are considered more frequently than in the past, but the demand oriented approach is still not standard. Institutional development work that might facilitate matching of beneficiary needs and demand to the design of projects and institutional alternatives is limited, and Bank supported participatory projects are still the exception. In irrigation, where water users associations are increasingly common, the results are not uniformly positive, and involving local participants, village groups and regional institutions has often proved difficult. More work is needed to find models that work.

Bank attention to pricing beyond its implications for financial viability has grown, but this has yet to be matched by a commitment to action by most governments, and even within the Bank the role of prices in equilibrating supply and demand and in promoting environmentally sound development is not generally given great weight.

Treatment of labor redundancy has improved considerably, but is still deficient, in part because of the prohibition against direct Bank financing of severance pay. Bank staff sometimes spend much time and effort establishing severance mechanisms acceptable to governments and workers and finding donors to finance the severance pay only to find that the staff reduction never takes place because the funds do not materialize or because alternative mechanisms, such as capital grants or training, prove ineffective.

The experience with conditionality suggests that lending should be concentrated in countries with a clear commitment to improving institutional performance. Government commitment to reform is essential, because the reform process may be long and often has major political and economic consequences. Although such commitment can never be certain, and the level of commitment may change for many reasons, strong up front conditionality, including substantive steps in the reform process, is an important way to gauge the willingness of the government to undertake difficult actions. Issues that are likely to constrain implementation seriously should be settled during project preparation. Experience further shows that conditionality should be focussed on how to bring about change, i.e., on changes in procedures and rules of the game, rather than on mechanical indicators of progress or one-time actions such as tariff increases. Specific conditions to be considered include steps toward autonomy or privatization; legislative or regulatory reform to permit ownership changes and promote competition; hard budget constraints and prohibition of subsidies, except those explicitly retained for social purposes; and actions to reduce surplus labor.

INTRODUCTION

1. The infrastructure sectors have played a prominent role in the Bank's efforts to assist developing countries, accounting for 41 percent of Bank lending over the past four and a half decades.^{1/} In the last five years, the Bank has lent US\$33.6 billion, nearly one-third of total lending, for 301 infrastructure projects. The power sector alone has accounted for 12 percent of Bank lending over the last five years, with an annual average of \$2529 million, followed by transport, with \$2151 million; water supply and sewerage, with \$879 million; irrigation, with \$845 million; and telecommunications, with \$317 million. (Transport comes first when ranked by the number of projects—115 over the last five years, compared to 75 for power.)

2. Such a major component of Bank lending deserves close scrutiny. Although these are five distinct sectors, they have much in common in terms of institutional development, their treatment in Bank projects, and possibilities for improving the performance of projects. The first section of this paper reviews briefly the performance of Bank infrastructure projects, underlining the critical importance of institutional achievements. The second section examines the way in which institutional development has been treated in infrastructure projects until recently, identifying factors that have weakened project performance. Section III deals with the treatment of the Bank's special areas of emphasis. Section IV demonstrates ways in which treatment of all of these issues has improved in recent years, and the final section addresses the need for further change.

3. It is important to note that the treatment in this paper is not comprehensive or quantitative; it is based on a combination of original and secondary sources and does not attempt to cover all Bank projects. While in some cases it refers to numbers of projects that succeed or fail in certain areas, in others it simply cites examples of good or not so good practices. While it is certainly true that many projects have contributed substantially to economic development, it is also the case that many projects have failed to reach some or all of their objectives. This paper concentrates on those weaknesses that have affected many projects across a number of sectors, thereby permitting judgments on how to improve the impact of Bank lending for infrastructure.^{2/}

^{1/} Infrastructure is defined here as transportation, power, telecommunications, water supply and sanitation (WSS), and irrigation.

^{2/} It is worth noting that the Bank is only one, albeit a major player in the field of development. There are many other institutions in the same field with generally similar broad objectives, but with different ideas as to how these goals can and should be reached. The Bank alone may not be able to bring about the solutions it advocates, regardless of the quality of its projects.

1

PERFORMANCE OF BANK INFRASTRUCTURE PROJECTS

4. The performance of infrastructure operations, as assessed by OED, has been quite good, with 82 percent of all the infrastructure projects evaluated since 1974 judged to be satisfactory^{3/}, compared to a Bank-wide average of 76 percent (see Table 1). Telecommunications projects have shown the best results, with 90 percent satisfactory, and only irrigation, at 74 percent, performed slightly below the Bank average.

Table 1: OED Performance Evaluations, 1974-91

<i>Sector</i>	<i># Projects Evaluated</i>	<i>% Rated Satisfactory</i>	
		<i>(1974-91)</i>	<i>(1991)</i>
Irrigation	180	74	71
Power	237	87	53
Telecommunications	79	90	43
Transportation	488	83	64
WSS	148	80	56
Total infrastructure	1132	82	61
All Bank projects	2865	76	63

Source: OED, 1992, "Annual Review of Evaluation Results 1991," Report No. 11062, August 21, pp. 7, 100.

5. However, the judgement on whether performance is satisfactory or not is based to a large extent on the economic rate of return (ERR), recalculated shortly after the project closes. Two considerations reduce the value of this measure. First, in three of the five sectors, cost benefit analysis uses revenues or actual tariffs, rather than economic prices, and thus is not in fact an economic rate of return. Second, the recalculated ERR is based on actual costs, but still on projections of the benefits; when it is recalculated a number of years after project completion, the results are frequently less encouraging. For example, a review of 21 irrigation projects carried out 5 to 12 years after closing raised serious questions about sustainability. While generally beneficial, the performance of these projects was significantly poorer than was expected at the time of their completion. Only a few projects were judged likely to reach the term of their expected useful life; agricultural production in 15 of them declined following project completion. The average ERR was

^{3/} OED's method of assessing satisfactory performance is based on achievement of at least a 10% economic rate of return (ERR), or other significant benefits if the ERR was lower, or an evaluator's judgement about performance if no ERR was calculated.

estimated to be only about half of its original expected value (9.3 percent compared to 17.7 percent at appraisal and 14.8 percent at completion).^{4/}

6. Institutional achievements, while less easily quantified, may be a better indicator of longer term benefits and developmental impact. OED has recognized the importance of institutional and policy objectives, and recently began to include these in the rating of whether a project is satisfactory. This is one explanation for the fall in success rates to 61 percent satisfactory in the 1991 cohort, slightly below the Bank-wide average (see last column of Table 1). Within individual sectors, the worst performers were telecommunications (43 percent satisfactory), power (53 percent) and WSS (56 percent).

7. Taking institutional achievements as an indicator, infrastructure projects have performed slightly better than the full range of Bank projects, but the proportion with substantial achievements is still only 30 percent (see Table 2; data for irrigation are not available). An additional 45 percent partially achieved their institutional objectives, and one-quarter of the infrastructure projects achieved negligible institutional results.

Table 2: Achievement of Institutional Objectives in Projects

Sector	# Projects	Evaluated During 1989-91		
		Substantial	Partial (%)	Negligible
Power	58	35	43	22
Telecoms.	20	30	45	25
Transport	86	20	49	31
WSS	41	44	39	17
Tot. Infra.	205	30	45	25
All Bank	843	28	48	24

Source: OED, "Annual Review of Evaluation Results 1991," p. 16.

8. Individual indicators of physical performance reflect these findings. For example, a review of 54 water supply and sanitation projects found that the average rate of unaccounted for water (UFW) held steady at 35 percent throughout the project period, despite a goal of reducing it to 24 percent; only 13 percent of the projects met or exceeded the expected reduction.^{5/} In the case of the first WSS project in Manila, UFW rose from 46 to 66 percent, leaving the equivalent of the

^{4/} OED, 1990, "Annual Review of Evaluation Results, 1989," Report No. 8970, August 14, p. 4-2.

^{5/} Harvey A. Garn, 1987, "Patterns in the Data Reported on Completed Water Supply Projects," INUWS, April, processed, p. 5.

entire output from the project unaccounted for.^{6/} After nearly 20 years of Bank involvement in the sector in Nepal, water is supplied to Kathmandu only 3 hours in the morning and 3 hours in the afternoon. Efficiency in the power sector has, with a few exceptions, deteriorated over the past two decades. In still another sector, locomotive availability failed to reach the projected level in 13 out of a sample of 17 projects; it actually fell during the project in 9 cases.^{7/} In the 85 countries receiving highway sector assistance from the Bank, recent estimates found more than a quarter of all paved roads to be in poor condition and 42 percent in fair condition, foreshadowing a major crisis; unpaved roads were even worse.^{8/} Telecommunications appears to be an exception: out of a sample of 18 projects, exchange capacity grew more than was projected in 15. Productivity gains, however, have been marginal.^{9/}

9. Financial outcomes also fell well below expected levels. In railways the working (or operating) ratio failed to reach its projected level in four-fifths of 47 projects examined; it was actually worse (higher) than before the project in two-thirds of them. Similarly in the WSS sector, governments of 42 countries, nearly four-fifths of those involved in Bank operations, have fallen short of financial covenants; and irrigation project covenants related to cost recovery were not met in at least two-thirds of a sample of 48 projects. Performance and viability of many borrowers in the power sector have deteriorated steadily since the mid-1970s. Only telecommunications fared somewhat better: the operating ratio approached or fell below its target in 7 of a sample of 20 cases, and deteriorated in only 5 of them; on average in this sector the actual financial rate of return has exceeded the covenanted one.

10. While it might not affect the immediate physical results of the project, weak financial performance has substantial implications for long term impact and service quality through its negative impact on operations and maintenance (O&M). It also affects the allocation of resources in the economy as a whole in several ways. If the government subsidizes either the operations or the debt service of an enterprise that could be self supporting, other sectors must bear the cost. The low prices that are often the source of financial distress create further misallocation of resources by increasing the demand for the service beyond economically efficient levels. Finally, when the service is an input to production, the distortionary impact on the structure of the economy is magnified. An example is the growth of energy intensive industries in countries where the price of electricity is subsidized (aluminum in Venezuela).

^{6/} OED, 1992, "Water Supply and Sanitation Projects: The Bank's Experience—1967-1989," Report No. 10789, June 19, p. 35.

^{7/} Alice Galenson and Louis Thompson, 1992, "The Bank's Experience with Railway Lending: An Evolving Approach," processed, p. 5.

^{8/} World Bank, 1988, "Road Deterioration in Developing Countries: Causes and Remedies," World Bank Policy Study, p. 7.

^{9/} OED, 1991, "Retrospective Review of Telecommunications," September 13, draft.

11. Institutional weaknesses—both within projects and in the surrounding environment—are key causes of project failure. Conversely, enhanced institutional capacity is common in successful projects.^{10/} For example, the average post-implementation ERR was over 20 percent for a Bank-wide sample of public sector projects where institutional objectives were substantially achieved (close to the appraisal estimate of 22%), but less than 10 percent for those where institutional objectives were not attained.^{11/} Similarly, in a Bank-wide sample of 41 projects with substantial institutional achievement, 40 were judged likely to be sustainable, and out of 34 unlikely to be sustainable, only 1 had substantial institutional development.^{12/}

12. While the findings in the above paragraph refer to all Bank projects, similar relationships can be found within infrastructure sectors. For example, poor performance in irrigation, WSS, and transportation projects has been closely tied to institutional failures.^{13/} Bank experience in the power sector has shown that, as elsewhere, when “projects appear technically sound but fail to deliver results, the reasons in many instances are conflicting social objectives, overall weak country institutions, lack of an adequate legal framework, damaging discretionary interventions by governments, uncertain and variable policy frameworks, and a closed command-and-control decision making process without adequate checks and balances.”^{14/} Similarly, poor telecommunications services have been attributed to an absence of financial and administrative autonomy.^{15/}

^{10/} OED, 1985, “Sustainability of Projects: First Review of Experience,” Report No. 5718, June 14, pp. ii-iii.

^{11/} World Bank, 1991, *World Development Report 1991: The Challenge of Development*. New York: Oxford University Press, p. 84.

^{12/} Samuel Paul, 1991, “Institutional Development in World Bank Projects: A Cross-Sectoral Review,” PRE WPS 392, April, p. 27.

^{13/} OED, 1981, “Water Management in Bank-Supported Irrigation Project Systems: An Analysis of Past Experience,” Report No. 3421, April 16; INUWS, 1991, “FY91 Sector Review: Water Supply and Sanitation,” Report No. INU-OR 9, December; INUTD, 1990, “FY90 Transport Sector Review,” Report No. INU-OR 5, December 7.

^{14/} IEN, 1992, “The Bank’s Role in the Electric Power Sector: Policies for Effective Institutional, Regulatory and Financial Reform,” June 29, p. 12.

^{15/} Bjorn Wellenius, “Investment in Telecommunications: Lost Opportunities,” processed, p. 6.

2

**PAST TREATMENT OF INSTITUTIONAL DEVELOPMENT
IN BANK PROJECTS**

13. Institutions are broadly defined in this paper to include all the factors influencing the environment in which a project or entity operates. Until recently, institutional components in infrastructure projects tended to be related narrowly to implementation. Institutional analysis focussed on technical aspects of service delivery, with much less attention to the impact of political, legal or bureaucratic constraints and the capacity of organizations and management to steer reforms. Institution building referred generally to changes—often reorganizations—and technical assistance within project entities, not to fundamental reforms in the operating environment for these entities. Similarly, conditionality tended to result in specific one-time changes, such as tariff increases, often with little lasting impact on or change in the underlying rules of the game. Many projects fell short of their goals—whether physical, financial, institutional, or economic—because the Bank either did not recognize or was unable to persuade the borrowers to come to grips with broader institutional issues, such as the relations between the enterprise and the government, the importance of a market orientation, or the critical need to reduce overstaffing, which influence not only the performance of enterprises, but also their ability to undertake the changes agreed with the Bank.

14. OED found, for example, that most irrigation projects prior to the 1980s placed little emphasis on institution building, even in the narrow sense of the term.^{16/} In the WSS sector, many of the public utilities the Bank has worked with over the past 23 years are actually in worse physical and financial shape than they were before Bank involvement, and the most frequent cause of poor performance is institutional and managerial shortcomings, including lack of autonomy, political interference, lack of continuity of top management, and weak incentives for performance.^{17/} Similar problems have affected the power sector.

15. In the early days of lending to the telecommunications sector the Bank focussed on investments to modernize plant; the 1970s saw broader efforts to improve organization and management, but with little attention to sectoral reforms. As a result, many attempts at institutional improvement have failed, and a recent review of 71 telecommunications projects had trouble finding any significant improvement in broad sector issues.^{18/}

16. In the transport sector, railway and public transport projects have been particularly vulnerable to the institutional environment. Although road projects have performed relatively better than other transport projects, they too have suffered from inadequate attention to institutional development.

^{16/} OED, "Water Management in Bank-Supported Irrigation Project Systems," *op. cit.*

^{17/} Carl Bartone, Janis Bernstein and Frederick Wright, 1990, "Investments in Solid Waste Management: Opportunities for Environmental Improvement," PRE Working Paper 405, April; INUWS, 1991, *op. cit.*; OED, 1992, *op. cit.*

^{18/} OED, 1991, "Retrospective Review of Telecommunications," *op. cit.*

Capacity of road agencies to implement projects has been overestimated, and the potential for private sector involvement overlooked.

17. The following sections examine different aspects of the institutional environment in which projects operate. Understanding the institutions and the way in which the government views them is critical to the success of a project. Within this framework, the degree of autonomy and accountability given an enterprise will often determine its ability to function efficiently. Projects often tend to view production of infrastructure services from the supply side, with insufficient attention to the level and structure of demand; one result is unrealistic projections of physical and financial variables. Pricing, a key input to the interaction of supply and demand, is often distorted; this contributes not only to inefficiencies in production and resource allocation, but also to financial difficulties in the enterprise and often in the public sector as a whole. Weaknesses in project preparation also contribute to physical and financial difficulties; one specific example is the failure to consider adequately the macroeconomic linkages. One of the most frequent barriers to institutional reform and restructuring is the need to reduce the labor force; the way in which a project deals with this issue may mean the difference between success and failure. Attempts to deal with some of the above issues through conditionality have not always been successful, due both to the design and to the timing of the conditions.

Understanding Government Goals and Institutions

18. Lack of government commitment to project objectives and inadequate concern for local institutions are common causes of unsatisfactory performance. Countless illustrations can be found of political pressure on institutions, interference in operations, delays in the execution of subsidiary loan agreements, excessive turnover of management, delays in allocating local funding or in appointing consultants, failure to recover costs, and government arrears. Sometimes agreement is reached with an enterprise or sector ministry, but not with the central finance or planning ministry, or vice versa. Governments may agree to conditions which later prove impossible to carry out. Conditionality which requires certain actions only during project implementation has often proved impossible to enforce, since few sanctions are available short of canceling the project. A brief look at the sectors demonstrates the wide range of problems that can arise.

19. Politics can play a major role in the outcome of a project. In Indonesia Irrigation X (FY78), for example, the government had made a political commitment to provide irrigation for transmigrants and wanted to begin construction of the upgraded distribution systems even though the dams had not yet been designed. The Bank agreed to go ahead on the basis of feasibility studies showing the project to be marginal with the two dams, and not justified without them. One year after Board approval, the cost of the dams more than doubled; reappraised without the dams, the project was unsatisfactory.^{19/}

20. Inadequate cost recovery, endemic in infrastructure projects (except roads), stems in part from a failure to take into account the political, and sometimes legal, barriers to raising prices, including the common view that public services must meet social as well as financial and economic objectives. Other considerations may also apply. In some countries, for example, governments fear

^{19/} OED, 1989, "Project Performance Audit Review: Indonesia Tenth Irrigation Project," Report No. 7956, June 1.

that higher port tariffs might induce diversion of traffic to competing ports in the region. Pricing policies will be discussed further below, but the difficulty in ensuring full government commitment can be illustrated by Thailand Irrigation XI (FY80), which included a covenant that the government would begin collecting user charges; enabling legislation was drafted and approved before negotiations, but it was never passed by the legislature, and a free water policy is still the official position of the Thai government.^{20/}

21. Failure by the government to provide agreed levels of local cost funding or to eliminate arrears to public enterprises may stem from severe budgetary pressures, but when these facts are not recognized and dealt with during project preparation they can seriously undermine the project's effectiveness. Closure of uneconomic segments of operations (e.g., railway lines or stations), downsizing of operations, and reduction of excess staff are all conditions which governments find very difficult to carry out; promises to do so are often not enough. Within the Bank, the momentum of project processing sometimes interferes with securing demonstrations of government intent at the earliest stages.

22. Limited contact with the Ministry of Planning and Finance during preparation of railway projects in Pakistan contributed to an incomplete understanding of the issues on the part of the government and of the political costs and benefits by the Bank; few objectives were met. In a series of railway projects in Yugoslavia, the Bank tried to encourage Yugoslav Railways to compete in a progressively freer environment, whereas the government wanted to foster national cohesion, preserve jobs and generate employment. The Bank conditions calling for comprehensive investment and financing plans and joint railway/government preparation of an action plan to improve management appeared reasonable but were impossible in a context where government responsibility for the railway could not be made explicit, firm financial commitments could not be expected from federal and republic authorities, and planning and coordination by the Community of Yugoslav Railways was in direct conflict with the spirit of decentralization.^{21/}

23. Good management, and managerial continuity, are particularly important for project performance and the realization of institutional goals. In Zambia Railways III, the Bank assumed that the railway's operational inefficiency resulted from insufficient or deteriorated physical assets, whereas in fact the major operational constraint was poor utilization of available assets. Even when good managers are in place, the Bank is relatively powerless to ensure that they stay there. During the Dominican Republic Power Rehabilitation loan, for example, managers averaged only about a six month tenure, and management of Argentine Railways changed 18 times during the first two projects.

24. The Bank and the government often place different relative weights on physical and institutional results. Expansion and modernization were successfully implemented under the China Three Ports project (FY83), but the government maintained a very restrictive view of the Bank's role, and the other two objectives—establishment of a dialogue and development by the government of a long term integrated port strategy—were not met.

^{20/} OED, 1990, "Project Performance Audit Review: Eleventh Irrigation Project," Report No. 9205, Dec. 21.

^{21/} INUTD, "FY90 Transport Sector Review," op. cit., pp. 21-2.

25. Incomplete understanding of institutions is also illustrated by the tendency for projects to be overly ambitious given the capacity of the institutions concerned and to underestimate difficulties of coordination. Cofinancing and implementation arrangements have sometimes proven to be too heavy an administrative and organizational burden on borrowers. For example, despite limited institutional progress in the first two WSS projects in Nepal, the third project showed great optimism on the implementation capacity of the water board.

26. Procurement is a frequent cause of delays in projects; Bank staff tend to underestimate the time needed for procurement by Bank rules, due to both the need for training and conflicts with the borrower. In the WSS sector, for example, one-third of the 120 projects examined had significant procurement issues; in many cases there was a lack of agreement between the Bank and the borrower on conditions and procedures. Procurement issues sometimes dominate supervision missions, contributing to the neglect of other factors.

27. Some problems are sector-specific. Irrigation projects have been delayed or inhibited by slow progress in land reform (e.g., in Colombia and the Philippines); lack of understanding of farmers' needs, goals or traditional beliefs and practices (which has resulted in a failure of farmers to adopt the new technologies promoted by a project); and inattention to traditional water rights or alternative uses for water. Land acquisition can also be an obstacle to power and road projects. Non-enforcement of axle load regulations (or a failure to reduce the incentives to violate them) has decreased the returns to road projects throughout the world. In several WSS projects in Nepal, progress was slowed by difficulty in getting permission to cut asphalted roads.

Importance of Autonomy and Accountability

28. The performance of public enterprises in Bank projects has been disappointing.^{22/} Projects have underestimated the importance of autonomy, accountability and commercial objectives for satisfactory performance of project entities. The ultimate expressions of autonomy—privatization and steps in that direction—were virtually ignored until quite recently. Government intervention in areas such as staffing, procurement, budgets, and, in some sectors, the right to disconnect users for non-payment has been a frequent cause of poor project performance.

29. In irrigation, traditional large-scale centralized projects were the rule, and in India, for example, much of the current weak performance of the sector stems from the fact that irrigation is largely managed by a government monopoly unresponsive to changing needs and lacking incentives to improve. (The same can be said for Indian Railways.) A series of irrigation projects in Indonesia led to increasingly subsidized government involvement in tertiary construction and groundwater development, where private initiative might otherwise have been expected to function efficiently; maintenance remained inadequate during 20 years of Bank involvement, due in part to the fact that those who constructed the schemes (the central government) were not responsible for O&M (provincial governments).

30. Lack of autonomy has been one of the main problems plaguing WSS projects. Most rural WSS institutions are weak because of an over reliance on the central government to the virtual exclusion of local government and the private sector. The predominant feature of the few success

^{22/} OED, "Annual Review of Evaluation Results 1991," Report No. 11062, August 21, 1992, p. 50.

stories (Singapore, Tunisia, Botswana) was the high degree of autonomy given sectoral institutions; in Tunisia performance deteriorated as autonomy was withdrawn, beginning in the mid-1980s. In spite of this evidence, there are few cases where the Bank has made recommendations on the most effective means of granting autonomy while also protecting consumers and investors.^{23/} A significant exception is the privatization of water supply services in Africa, most notably through lease contracting in Guinea, supported by Water Supply II (FY89).^{24/} Private sector provision can also significantly increase efficiency in solid waste services, but only a few projects have referred to this possibility.^{25/}

31. The Bank has played an important role in strengthening power utilities, but the traditional model of large, monolithic government controlled institutions does not provide adequate incentives to minimize costs and operate efficiently and reliably. Institutional performance has stagnated at relatively unsatisfactory levels; a key indicator of failure is the critical financial situation of most public power enterprises. As in other sectors, the Bank's approach has concentrated on treating the symptoms of technical and financial outcomes while neglecting the underlying institutional incentives and market forces. The resulting projects, designed to address mainly hardware limitations, are not effective because the enterprises continue to lack the autonomy necessary for efficient operations.^{26/}

32. In transportation the Bank has recognized for some time that government owned and run enterprises had serious deficiencies. The Railways Problem Paper of 1982 noted that railways had tended to become slow-moving public administrations and required extensive structural change.^{27/} The recommended reforms, however, concentrated on measures to strengthen existing organizations and did not broach the idea of private sector participation. In the roads sector, lack of accountability in the Bank-supported public sector road agencies contributed to the massive deterioration in road infrastructure over the past two decades.

33. During the 1970s institution building in the port sector took the form of encouraging governments to set up national port authorities to regulate, control and manage ports. The result in many cases has been overstuffed bureaucracies, with too much control of day to day decisions that should be made by individual port managers, resulting in inefficient ports. The national authorities have also been the frequent targets of political influence.

34. In telecommunications the Bank traditionally supported time slices of sector programs, with institutional development focussed on separation of post and telecommunications services and conversion of government departments to statutory corporations. The lack of financial and

^{23/} OED, "Water Supply and Sanitation Projects," pp. 39-41.

^{24/} Thelma Triche, 1990, "Private Participation in the Delivery of Guinea's Water Supply Services," PRE Working Paper WPS 477, August.

^{25/} Bartone, Bernstein and Wright, *op. cit.*

^{26/} IEN, 1992, "The Bank's Role in the Electric Power Sector," *op. cit.*, p. 12.

^{27/} World Bank, Transportation and Water Department, January 28, processed.

administrative autonomy in many developing countries has dampened incentives to improve performance.

Supply Orientation and Absence of User Involvement

35. One aspect of the institutional environment is the degree to which market forces are able to influence the quantity and quality of output. The lack of autonomy noted above has dampened the ability of producers to respond to market signals. Reinforcing this tendency, infrastructure projects in the Bank, like the provision of infrastructure more generally, have traditionally been supply oriented, based on projections of need that have more to do with fulfilling plans (often based on straight-line projections of past trends or on population growth) than with meeting the needs of consumers. This orientation is one reason for the emphasis on construction of new facilities, with relatively less attention to maintaining or otherwise improving the efficiency of existing ones. It can also be seen in the failure of many projects to consult or involve users in investment or operational decisions, and in the performance indicators chosen to evaluate projects, which concentrate on quantitative measures of output and rarely include measures of quality or user satisfaction. The failure to charge appropriate prices (discussed below) contributes to the difficulty of assessing demand.

36. The effects of this orientation are clearly seen in the roads subsector, where the Bank has calculated that over two decades an estimated US\$45 billion worth of road infrastructure was lost in 85 developing countries, a loss that could have been averted—with substantial additional savings in operating costs for road users—through preventive maintenance costing less than \$12 billion.^{28/}

37. The failure to assess consumer preferences and meet their needs is one of the main reasons for failure of rural WSS projects. Many rural WSS services have been underused or abandoned because of poor location, quality and reliability.^{29/} Operations and maintenance have been relatively neglected: in rural Pakistan, for example, only 10 percent of public standpipes were still functioning 10 years after installation. Users are not willing to pay for services that do not meet their needs—on average households in developing countries pay only 35 percent of the cost of supplying water—and this contributes in turn to the lack of maintenance. Willingness to pay is often quite high, however (100 percent of costs for the majority of urban residents), if the supply meets users' needs; such schemes are frequently well operated and maintained. Furthermore, experience with some water supply projects in Pakistan has demonstrated that when users are involved with system design, management and finance, schemes are more likely to be appropriate to their needs. Evidence has also been accumulating, in countries such as Brazil, Ghana and Pakistan, that willingness to pay for sanitation is higher than was earlier thought. Choice of technology has played a part: reliance on high cost conventional sewerage systems has impeded the extension of services to many low-income urban areas.^{30/}

^{28/} World Bank, "Road Deterioration in Developing Countries," *op. cit.*, p. 1.

^{29/} Anthony Churchill, et. al., 1987, "Rural Water Supply and Sanitation: Time for a Change," World Bank Discussion Paper No. 18, pp. i, xiii.

^{30/} World Bank, 1992, *World Development Report 1992: Development and the Environment*. New York: Oxford University Press, pp. 104-8.

38. Power projects have tended to be administered through the central electricity authority, with little direct contact with the beneficiaries. In some countries they have emphasized expansion of generating capacity, with the result that access has been increased, but at the expense of transmission and/or distribution, for example in Colombia and Sub-Saharan Africa. Quality, reliability and end-use efficiency have suffered. In telecommunications, as in other sectors, poor maintenance of facilities has taken a toll on the quality of service.

39. The experience in irrigation is mixed. The negative side is exemplified by a series of 14 projects in Indonesia which transferred large amounts of resources despite a continuing neglect of maintenance. Analysis carried out in Irrigation VII assumed a 30 year life for tertiary structures and canals, based on an assumption of regular maintenance by farmers; the audit for that project retained this assumption even though it was already clearly unjustified. By the time of appraisal of the fourteenth project in 1979 the problems with O&M were widely recognized, and project staff proposed inclusion of pilot O&M projects in nine areas; the government rejected this plan. In 1987 an agricultural sector review estimated that only 7 percent of the US\$400 million spent on irrigation in that year went to O&M. No link between irrigation and expansion in rice production has been established, and the audit for three of the later projects concluded that most of the true benefits of Bank lending could have been achieved with a much smaller resource transfer. A similar situation is found in Nepal, where in the late 1980s less than 2 percent of irrigation resources were used for O&M. As with roads, government—and donor—subsidies to capital, but not to recurrent costs, have led to a pattern of construction, deterioration and reconstruction. Problems in operating efficiency in a number of countries stem in part from a lack of farmer involvement, and in fact modifications by individual farmers are often a major part of the maintenance problem.

40. Choice of technology also reflects a supply orientation in some irrigation projects where the Bank has promoted conventional gravity schemes, which are not sensitive to demand, over alternative schemes which could produce better results under certain conditions.^{31/} In a series of four projects in Malaysia, for example, the inability to fine-tune led to fluctuating canal levels and ad hoc innovations by farmers (such as pumping or breaching) to get the amount they needed at the right time. In other cases, however, such as Egypt and Thailand, the Bank has supported the alternative approach of low level canals with low lift pumps, where farmers pump the water the final meter. These schemes are not only much more responsive to demand, they also promote conservation and allow private manufacture and ownership of pumps. The Bangladesh Drainage and Flood Control project (FY79) demonstrated that privately owned low lift pumps could be self-financing, self-operated and self-maintained.

41. User involvement in project preparation and management is found more often in irrigation than in the other sectors, and the results are generally very positive. Water users associations (WUAs), although not universally successful, are gaining prominence in many countries, and the Bank has increasingly incorporated them into project design.^{32/} Cost recovery and physical results

^{31/} For a discussion of this issue, see Robert Burns, 1992, "Irrigated Rice Culture in Monsoon Asia: The Search for an Effective Technology," March, draft.

^{32/} Michael M. Cernea and Ruth Meinzen-Dick, 1992, "Design for Water User Associations: Organizational Characteristics," in Guy Le Moigne, Shawki Barghouti and Lisa Garbus, "Developing and Improving Irrigation and Drainage Systems," World Bank Technical Paper No. 178, pp. 45-56.

have been excellent in projects where water management and O&M are entrusted to users: in Brazil, Korea, and Niger cost recovery is at or near 100 percent. These cases are the exception however (see section on pricing and financing below).

Projections of Key Variables and Risk Analysis

42. Projections of output have been consistently over optimistic in almost all the infrastructure sectors, and even sensitivity analysis has often failed to encompass the actual outcome. This upward bias reflects a number of factors, including underestimates of the impact of institutional failings on an entity's ability to produce; and the traditional supply orientation of projects, with its inadequate attention to users' needs and willingness to pay and to the key importance of maintenance and service quality. Macroeconomic influences are sometimes overlooked or underestimated as well: trends in key variables are not incorporated into the analysis, and price contingencies often fail to cover actual inflation and devaluation.

43. The review of the impact of 21 irrigation projects cited above found performance to be significantly poorer than had been projected. Among the reasons for poor performance were over optimism on water efficiency, and therefore on cropping intensity and the adoption of new crops, and lack of access to other inputs. Inadequate O&M was also a frequent problem.

44. An old example from Thailand illustrates the lack of attention to key variables in the projections. Following severe implementation problems in a series of irrigation projects, the Bank undertook its first comprehensive review of the subsector in 1976. Despite a decline in per capita consumption of rice since the early 1970s, clearly in evidence by 1976, and which, if recognized, would have raised serious questions about the urgency of investment, this review projected an increase in the domestic consumption of rice. The entire discussion of domestic and export demand for rice received only one and one-half pages of text and one table, and in a 26 page annex on agriculture, there was no discussion of prices or of government policies affecting them.^{33/}

45. In the power sector the overestimation of future demand has encouraged over-investment and aggravated the financial strains in most public power enterprises. Many projects had to be revised as a result. In Colombia, inadequate attention to risk factors and sensitivity analysis tilted investment toward projects with long lead times and high front-end capital expenditures, leading to overcapacity.^{34/}

46. In the transport sector, railway projects have been particularly prone to unattainable forecasts. Competition from other modes or from the private sector, weakening national economies, and inattention to government policies are only some of the factors that have undermined Bank projects. For example, Zambia's shortage of foreign exchange and its import licensing and inspection procedures restricted the purchase of materials and equipment needed for maintenance in Railways III (FY80). The audit of Mexico Railways III (FY76) concluded that despite the fact that the Bank

^{33/} OED, 1990, "Project Performance Audit Report: Thailand—Eleventh Irrigation Project and Twelfth Irrigation Project," Report No. 9205, December 21.

^{34/} OED, 1990, "Colombia: The Power Sector and the World Bank, 1970-1987," Report No. 8893, June 28, pp. 15-16.

had issued an economic report documenting economic conditions and their future evolution shortly before appraisal, the main problem affecting smooth project execution was the lack of consistency between the railway's investment plan and the prevailing economic conditions. A failure to assess potential private competition in the Sri Lanka Road Passenger Transport project had disastrous ramifications for project performance when the public sector company it supported was unable to compete with private operators. The project was appraised in August 1979 and approved by the Board in March 1980, nearly a year after the government had lifted restrictions on private operators and freed vehicle imports, and yet the Bank did not consider the implications of these actions for public transport services.

47. Demand for water supply services is typically projected as a completely inelastic consumption trend, unrelated to the prices in the financial forecasts or the prices used for revenue projections in the economic justification. This may overstate revenue and economic rates of return and bias technical solutions towards larger, earlier projects than necessary. It also undermines the ability of institutions to generate the cash flows essential for operating and financial sustainability, and is a major cause of the failure of many projects, noted above, to meet financial covenants. Appraisal estimates of other critical variables—reduction in unaccounted for water, operating costs, amount of water sold, and new connections—are also far more optimistic than warranted by past experience; one review of 54 projects found that outcomes fell short of projections in a substantial majority of cases.^{35/}

48. Once more, telecommunications are the exception. Here demand tends to be underestimated, partly due to the large suppressed demand. Even in this case, however, analysis of demand could be broadened. When it is discussed (in 36 of 71 projects covered by one review), it is based on past growth, the degree of congestion, and waiting lists; macroeconomic factors, the degree of suppressed demand, and unrecorded demand in new areas are often neglected.^{36/} Completion periods are consistently underestimated.

Pricing and Financing

49. Bank policies for cost recovery in infrastructure projects stress the importance of efficiency prices based on long run marginal cost. It is recognized, however, that there are theoretical and practical difficulties in applying this principle in a number of infrastructure sectors. In fact, Bank infrastructure projects have often treated prices or tariffs mainly as a means to achieve reasonable financial projections, and have tended to overlook their economic role in relation to resource allocation, demand estimation and management, willingness to pay, and incentives for performance. The concentration on tariff increases often leads to a neglect of the potential for cost reduction. In three sectors, water supply, power and telecommunications, cost benefit analysis is done using revenues or actual tariffs rather than shadow prices. Even the cost recovery goals meet with little success: prices are usually a very politicized issue, and although covenants requiring tariff increases are ubiquitous, they are frequently ignored and rarely enforced. Governments fear inflation, but the Bank does little to dispel their fears and demonstrate that subsidies, especially with budget deficits, exacerbate inflation. Inadequate cost recovery substantially affects O&M and thereby the quantity

^{35/} Garn, 1987, op. cit.

^{36/} OED, "Retrospective Review of Telecommunications," op. cit.

and quality of output. This in turn affects revenues, since people are unwilling to pay for services that are not reliable or timely. Furthermore, the absence of a link between revenues and performance weakens the accountability of the managers.

50. In most countries irrigated water is not priced volumetrically, nor is it available on demand, so prices cannot be used to promote efficiency. Welfare considerations are often used to justify low cost recovery. In many of the Bank's largest borrowers for irrigation, including Bangladesh, India, Indonesia and Thailand, farmers pay little or nothing for the water they receive from large public schemes. In at least two-thirds of 48 projects covered in one review, cost recovery did not satisfy O&M requirements.^{37/} Weak cost recovery—and the absence of economic prices—stem from a number of factors, including policies based on social or political goals, unreliability in the supply of water, and the sometimes heavy burden of direct and indirect taxes already imposed on farmers, and not always taken into account in designing tariffs.

51. Similarly in the water supply sector, prices are rife with distortions and subsidies, and little effort has been made to bring economic efficiency principles to bear on the design of services. Cost-benefit calculations use revenues as a proxy for benefits because of the difficulty in quantifying economic benefits; the "economic" rate of return therefore is not a meaningful measure and gives no indication of whether the demand is worth meeting (i.e., what demand would be at an economically efficient price) and whether a project should go ahead, be delayed or be dropped. Rather, projects are justified by how well they meet observed service needs and whether they have a reasonable assurance of financial viability. Economists are only infrequently involved in project preparation or supervision, and Bank staff do not have a manageable technique to use the concept of long run marginal cost. Marginal cost pricing is often not raised as a serious issue: out of 120 SARs reviewed, only 49 referred to it, and then often only as a discussion point. In PCRs/PPARs, only 14 projects addressed the technique, and in 13 of these the tariff was less than the marginal cost (though still considered acceptable).^{38/} Most countries use block rate tariffs, which fail to recognize the existence of differentiated markets; the Bank has been unable to find one country where they work as intended.^{39/} In solid waste operations, lack of accounting data often precludes even financial analysis, and cost recovery gets little attention. It is commonly assumed that operating costs are recovered through taxes or central transfers, but O&M is frequently under funded.^{40/}

52. The variety of approaches used in the power sector reveals a lack of direction in the Bank's approach to electricity pricing. Cross-subsidies are common. For example, in Morocco Rural Electrification II (FY91) the Bank agreed to a national tariff policy which involves subsidization of rural by urban consumers, distorting electricity pricing and providing the wrong signals to consumers

^{37/} OED, 1986, "World Bank Lending Conditionality: A Review of Cost Recovery in Irrigation Projects," Report No. 6283, June 25, p. 8.

^{38/} OED, 1992, "Water Supply and Sanitation Projects: The Bank's Experience—1967-1989," p. 51.

^{39/} See, for example, Dale Whittington, 1991, "Possible Adverse Effects of Increasing Block Water Tariffs in Developing Countries: Some Evidence from Kumasi, Ghana," World Bank, Infrastructure Note No. WS-6, July.

^{40/} Bartone, Bernstein and Wright, *op. cit.*, pp. 25-6.

about cost and where to locate new consumption. Marginal cost pricing, which used to be the most important basis used by the Bank for conditionality, has been rejected by most developing countries. Many power utilities are now financially insolvent. A survey of 60 developing countries found that average tariffs had declined by over 25 percent in real terms during the period 1979-88, leaving the tariffs at about half the OECD level; tariffs for nearly 80 percent of the utilities did not cover the long-run average incremental cost of supply. Although most projects include financial performance and tariff covenants, the Bank generally has been unwilling to take the steps necessary to overcome government reluctance to raise rates or structure tariffs along commercial principles.^{41/}

53. Treatment of the water supply, irrigation and power sectors in the Bank suffers from an additional problem stemming in part from the Bank's organization. Mirroring the institutional set-up in most countries, the responsibility for water management in the Bank is split among agriculture, infrastructure, industry and energy and environment divisions, and these units have developed little consistency in their advice on pricing or other aspects of water use. For example, the marginal value of water is much higher for urban or power uses than for irrigation, but these alternatives are not factored into decisions about irrigation projects, nor are they reflected in pricing policies. This failure to consider the interdependence of different uses of water also hastens environmental degradation.

54. The approach to port pricing has been narrowly financial, and it has not been consistent across projects. With few exceptions, pricing has been that of a monopoly (cost-plus); deregulation and private sector involvement were not featured in projects until very recently.^{42/} In the railway subsector, efficiency pricing is encouraged, but, as elsewhere, rarely implemented; tariffs tend to be too low, and cross-subsidies are common.

55. Roads and telecommunications are in some ways exceptions to the general finding about inadequate cost recovery. The actual financial rate of return for 71 telecommunications projects averaged around 16 percent, compared to the average projected 10.5 percent.^{43/} However, users often demonstrate a willingness to pay far above official tariffs.^{44/} For roads, a recent review found that user charges were adequate to cover maintenance in all but 4 of 40 countries, and total expenditures in 40-60 percent of them.^{45/} However, because road user charges are not linked to maintenance expenditures, the latter remain too low in many countries. Earmarking, while not favored by Bank policy, is frequently used to try to solve the road maintenance problem. Furthermore the structure of tariffs is not efficient; for example, heavy vehicles do not cover the cost of their damage to the road surface. Congestion pricing is another unsettled issue.

^{41/} IENED, 1991, "FY91 Annual Sector Review: Energy," October 23, pp. 13-14; World Bank, "The Bank's Role in the Electric Power Sector," *op. cit.*, p. 8.

^{42/} Richard Scurfield, 1992, "Developing the Role of the Private Sector in Ports," June, draft, pp. 30-31.

^{43/} OED, "Retrospective Review of Telecommunications," *op. cit.*

^{44/} Wellenius, "Investment in Telecommunications," *op. cit.*, p. 4.

^{45/} World Bank, INUTD, 1991, "FY91 Transport Sector Review," Report No. INU-OR 8, November, p. 30.

Macroeconomic Linkages

56. One reason for project failure is the tendency to overlook the macroeconomic environment during project design and preparation. Tariff conditionality, for example, often underestimates the impact of inflation or devaluation. Forecasts of output are often based on straight line projections of past growth, failing to take into account expected changes in macroeconomic policies and trends. Sometimes the relevant information is available in the Bank, but the connections with country economic and sector work are not made. In other cases, the necessary work has not been done. Examples are abundant and varied; only a few will be mentioned here.

57. Over 20 years of lending to the power sector in Colombia, economic and sector work did not match the volume of lending; pressure to lend played a strong role in several projects. A persistent shortage of sufficiently prepared projects led to the implementation of projects that were at hand, and by the late 1980s the power utilities' performance was, with some exceptions, unsatisfactory, while the sector was still a heavy burden on the government.^{46/} The review of 120 WSS projects found that 70 of them were undertaken without a meaningful sector survey.^{47/} While nearly two-thirds of them did involve a sector strategy, this was mostly a response to immediate, localized problems, and sometimes to political pressures. The lack of sector work hinders the development of a Bank-country dialogue, leading to a lack of government commitment and a failure of project objectives.

58. Unanticipated problems in the irrigation subsector have included a contraction in credit available to agriculture in Colombia as a result of restrictive monetary policies in the mid 1980s; government pricing and exchange rate policies that resulted in low farmgate prices and constrained output in a number of countries; and rising labor costs in Malaysia, the result of rapid economic growth, that contributed to low or negative rates of return. In Thailand, tax and export policies discouraged surplus rice production, while irrigation investment and cost recovery policies tended to promote commercial production from a select group of farmers.

59. The Tanzania Trucking project appraisal (FY78) is one of many that did not take into account the macroeconomic improvement that would be needed to allow the procurement of spare parts and vehicle replacements, to permit reasonable rates, and to recruit and retain staff. Shortages of foreign exchange and import licensing and inspection procedures restricted the purchase of materials and equipment needed for maintenance in Zambia Railways III (FY80). Despite questions in the Bank about the size of the projects and the financial capacity of the transport and public sectors that brought into question the country's creditworthiness, Costa Rica Highways IV and V (FYs 76, 80) were approved; both loans were troubled by domestic resource constraints and ended up being restructured and financed with high levels of foreign borrowing.

60. Mexico Railways III (FY76) illustrates well the dangers of overlooking economic (and political) factors. The audit of this project concluded that despite the fact that the Bank had issued an economic report documenting economic conditions and their future evolution shortly before appraisal, the main problem affecting project implementation was the lack of consistency between the railway's investment plan and the prevailing economic conditions. The project straddled two

^{46/} OED, 1990, "Colombia: The Power Sector and the World Bank," *op. cit.*, pp. xiv, 47.

^{47/} OED, 1992, "Water Supply and Sanitation Projects," *op. cit.*, p. 7.

administrations, and its success depended on the continuation of the outgoing administration's economic policies, although there was no indication that this would be the case. In fact, shortly after loan approval, the outgoing administration enacted a drastic public spending control program, which was followed by another tougher program under the incoming administration; these actions necessitated a substantial reformulation of the project. The Brazil Power Sector project (FY86) assumed substantial tariff increases, even though appraisal took place at the same time as the government decided on the Cruzado Plan, supported by the Bank, calling for a price freeze.

Labor Redundancy

61. Overstaffing is pervasive in public agencies and enterprises in developing countries.^{48/} It constrains economic efficiency and commercial viability in the enterprises, as well as in the public sector budget and the economy as a whole. High and rapidly rising recurrent expenditures on unproductive staff squeeze out investment and expenditures on complementary inputs and have contributed to the financial crisis of the public sector in many countries. Staff reduction is frequently the key to successful financial, economic and institutional reform—putting the enterprise on a sound market-oriented footing—but until very recently it has been treated only obliquely in Bank projects. This is perhaps not surprising, given the strong political overtones attached to any efforts to reduce or even to prevent the hiring of staff.

62. Until recently, projects have typically treated this issue through the imposition of targets for increased labor productivity rather than retrenchment, even when it must have been clear that the latter was the only way to realize the former. Rarely was there any discussion of the factors that might contribute to or hinder the necessary reductions. Productivity targets were rarely achieved, but the Bank neither insisted on these goals nor accepted the situation and incorporate overstaffing in project design. For example, the rationalization component of a series of modernization projects in Indian Railways was driven by a developed country model, and the resulting technology assumptions failed to take into account the fact that the government had no intention of carrying out the drastic reduction in work force they would imply. Once a decision was made to accept overstaffing, a more realistic approach would have concentrated on technological change with a more benign impact on labor.^{49/}

Conditionality

63. Project covenants are a potentially powerful force for reform. In many cases, however, they have failed to bring about the desired changes. Often the problem is that conditionality does not reflect a broad common outlook by the Bank, the government and the borrower. Sometimes the project objectives are politically unrealistic and unattainable, and efforts at enforcement are pointless, raising the question of why they were imposed in the first place. In other cases covenants deal only with symptoms and not with the underlying causes, and thus give no guidance as to how their goals might be achieved. Deadlines for difficult conditions have often been left for the implementation

^{48/} See, for example, Alice Galenson, 1989, "Labor Redundancy in the Transport Sector," World Bank, PRE Working Papers No. 158, February.

^{49/} OED, 1987, "Project Performance Audit Report: India—Railway Modernization and Maintenance Project," Report No. 7020, November 30.

period, when the only sanction available is that of suspension or cancellation. Whether because covenants are basically unenforceable, or because the Bank is unwilling to take the steps necessary to enforce them, they often remained unfulfilled, sometimes time after time in series of projects in the same country. This not only represents the failure of individual covenants and projects, it also signals borrowers that they can ignore future conditionality.

64. One of the most common types of conditionality concerns financial targets, such as increased tariffs, reduced subsidies, lower operating ratios, and other measures to improve the financial situation of the enterprises concerned. The vicious circle of poor cost recovery leading to poor quality of output, leading in turn to lower cost recovery was noted above. In the WSS sector, the governments of 42 countries, more than three fourths of those studied with Bank operations during 1967-89, failed to live up to or ignored financial covenants; the Bank took remedial action in only one case. A number of public water utilities the Bank has worked with are in worse physical and financial condition following the completion of Bank participation.^{50/} In the case of Brazil, the Bank's participation in the WSS sector was justified on the basis of its capacity to encourage institutional and financial reforms. However, the government insisted that a side letter on revenues replace the standard tariff covenants; non-compliance was predicted by the negotiating team, and it occurred with no repercussions. In Nepal, the government promulgated a tariff increase to meet one of the conditions for effectiveness, but did not enforce it later; the Bank took no effective action. There are many other examples. Reasons for the failure to meet financial covenants include overestimates of the growth of consumption, prices that do not reflect financial or economic costs and unwillingness to raise them, large amounts of UFW, weak financial management (including failure to read meters or collect revenue), and government arrears.

65. Railway projects offer many examples of failed financial covenants. A series of loans to Yugoslav Railways repeated the same financial covenants in project after project with no success, and similar experiences can be found in Cameroon, Pakistan, and elsewhere. Telecommunications projects also present examples: in India (tariff increases), Mali (government arrears and tariffs), Rwanda (accounting and auditing, tariffs), and Zambia (tariffs, local cost contributions). There are, of course, cases where conditionality was successful: for example, telecommunications in Pakistan, where tariff increases led to greater revenues than forecast, and Sri Lanka, where the agreed tariff changes resulted in a hard currency surplus, but these are the exceptions.

66. A review of 48 irrigation projects^{51/} found that covenants related to cost recovery were sometimes ignored, seldom enforced, and often relaxed; they were not met in three-quarters of the cases. Covenants, especially with respect to investment costs, were often so vague that compliance was difficult to determine. Reasons for limited adherence to covenants on water charges included lack of government commitment, unreliable water supply (due to poor O&M), and the often heavy burden of direct and indirect taxes. (Beginning in 1976, projects were supposed to take account of indirect payment by farmers, but there is little evidence that this was ever done.) The Bank's response to non-compliance was not uniform, ranging from a refusal to consider further lending (in Turkey) to the more common no reaction at all. In the case of the Colombia Irrigation Rehabilitation project (FY81), the provision for automatic suspension of disbursements on a district basis when the

^{50/} OED, 1992, "Water Supply and Sanitation Projects," pp. iv, 44.

^{51/} OED, "A Review of Cost Recovery in Irrigation Projects." *op. cit.*

borrower failed to meet billing and collection of water charges proved easy to apply, but this model was not followed elsewhere.

67. Despite a considerable number of initiatives and an impressive record of action, the Bank has not been successful in achieving adequate price reform or phasing out of subsidies in the power sector. In Colombia, tariff issues caused persistent tension between the sector and the Bank, but until very recently the Bank did not act forcefully in favor of financially and economically appropriate prices; although it did informally suspend disbursements on a project in 1974-5 for failure to meet financial covenants, starting in the late 1970s, the Bank progressively lowered its standards of financial performance for the sector. Financial conditions also failed in Algeria, Brazil, Egypt and India, among others. A review of sources of finance for power system development in 60 countries found that the average level of cash generation of the utilities was only 12 percent of their investment requirements, compared to Bank targets of between 20 and 60 percent.^{52/}

68. Other types of conditionality have also frequently failed to achieve their objectives. Table 2 above showed that nearly two-thirds of infrastructure projects have accomplished only partial or negligible institutional success. Problems with timely contribution of local funding, land acquisition, adoption of necessary laws, appointment of consultants, and preparation of bidding documents have often caused long delays. In the roads sector non-compliance with axle load regulations is so common it is often barely mentioned in supervision reports. Covenants designed to reduce UFW in water supply projects or transmission and distribution losses in power projects have also been relatively unsuccessful.

^{52/} World Bank. "The Bank's Role in the Electric Power Sector." p. 9.

3

TREATMENT OF SPECIAL AREAS OF EMPHASIS

Environmental Issues

69. Infrastructure investment has the potential to produce large environmental benefits. For example, investment in water supply, sewerage and solid waste disposal not only improves health and water quality, it can also reduce the fuel wood consumption and air pollution that result from the need to boil water. Environmental benefits from transport projects include decreased dust pollution, better drainage, reduced flooding, lower traffic noise, lessening of soil erosion, and, in the case of ports, prevention or mitigation of oil spills. Low waste and clean technologies have the potential to reduce considerably the pollution resulting from fossil fuel generation of electric power. Environmental issues have received substantial attention recently,^{53/} and this paper will make only a few brief points.

70. Treatment of the environment in infrastructure projects has been mixed. Over half of the 21 irrigation projects evaluated by OED in 1989 had an adverse impact on the environment, even though at appraisal only 10 were expected to have an impact, and these mostly positive. Problems, which involved water shortages and drainage, stemmed from inadequate assessments of water resources and climatic data. Few projects recommend measures to reduce waste or promote conservation, and the Bank has not promoted technology, such as low-lift pumps or advanced modern control, that would encourage conservation.

71. Neglect of drainage has led to serious environmental damage in water supply projects. Of 104 projects that added very large volumes of water to urban areas, 62 relied on existing removal systems. Of the 42 that included sewerage components, water supply almost always took precedence; sanitation components were sometimes reduced or eliminated, especially in response to cost escalation. About half the projects had acceptable environmental assessments, but with insufficient treatment of the impact of providing additional water without sewerage. According to OED, "No urban area that was the site of a Bank-funded water supply project has an adequate sewer or sanitation system to remove the excess waste generated by the project concerned."^{54/} Furthermore, components to reduce UFW are often prepared only during implementation, rather than during project preparation, thus reducing the likelihood that they will be completed.

72. In the area of municipal solid waste management, while many project components have supported the purchase of collection and transport equipment, only about half provided facilities for environmentally safe disposal, despite the fact that open dumping was often identified as a serious

^{53/} For example, in World Bank, 1992, WDR, op. cit.

^{54/} OED, 1992, "Water Supply and Sanitation Projects," op. cit., pp. 57-8.

problem. Institutional and financial requirements for effective solid waste management have also been relatively neglected.^{55/}

73. Most transport projects supported by the Bank have limited adverse environmental impacts, but some—generally those that provide completely new facilities or substantially expand old ones—produce significant impacts. A review of FY80-86 projects found that staff generally gave careful consideration to potential adverse impacts and took appropriate steps to avoid them.^{56/} Examples include attention to the major impact that port works can have on the ecology (Seychelles, Colombia, Vanuatu), safe handling of fuel oil and bulk LPG imports, the environmental and social consequences of rural roads (Mexico), and the impact of roads on wildlife (Nepal). However, the review identified some weaknesses, mainly in terms of vague provisions for dealing with adverse impacts, and, in particular, environmental issues were not well treated in urban transport projects. One project that has raised particularly serious environmental concerns was Brazil's Northwest Region Highway project. The project's road improvements, along with a number of other factors, stimulated heavy migration to areas incapable of sustaining agricultural production, accelerated deforestation and led to the invasion of some ecological and tribal reserves. The Bank suspended disbursements in 1985, and subsequent program reformulation resulted in institutional changes and improved protection of the environment and indigenous peoples.^{57/}

74. Inefficient pricing policies were discussed above; in addition to their other impacts, these policies can also indirectly harm the environment. Prices that are too low can lead to excessive consumption, inefficient production, and insufficient funds for the maintenance needed to keep the services operating effectively. Subsidies may also lead to imbalances in choice of mode. For example, low taxes on heavy vehicles may encourage their use at the expense of less polluting railways, and subsidized coal may increase air pollution relative to the use of natural gas.^{58/}

75. All seventeen of the power projects reviewed in 1991 addressed the possible environmental impacts of the facilities to be constructed, and the results were for the most part satisfactory. In Colombia, the Bank's insistence on addressing environmental issues contributed to the creation of an environmental unit within the borrowing utility, leading to better treatment of environmental issues in Colombia's power sector. However, some cases, such as the Elbistan thermal plant in Bangladesh, point to the need for Bank supervision beyond physical completion to ensure environmental soundness.^{59/}

^{55/} Bartone, Bernstein and Wright, *op. cit.*, pp. 19-20.

^{56/} Ian Heggie, 1987, "Transport and Environment: A Review of Current Policies and Procedures," Transportation Department Discussion Paper, Report No. TRP6, March, p. 4.

^{57/} OED, "Annual Review of Evaluation Results 1991," p. 38.

^{58/} Arturo Israel, 1992, "Issues for Infrastructure Management in the 1990s," World Bank Discussion Paper No. 171, pp. 28-9.

^{59/} OED "Annual Review of Evaluation Results 1991," pp. 41-2.

Poverty and Women in Development

76. The approach to poverty alleviation and women in development has been evolving in the Bank, and the record is quite mixed. Subsidized irrigation has been a major policy instrument for targeting assistance to the poor. However, it is seldom effective for this purpose, since irrigated farmers are seldom the poorest ones and often receive a relatively satisfactory and secure income. An example where such a policy failed is in Mexico, where the government expropriated land and granted it to communal organizations of landless peasants. The plots were too large, however, and only the larger farmers benefitted. In Morocco, on the other hand, equity of financial benefits, though unintended, was achieved, largely due to an efficient smallholder strategy.^{60/} Other good examples exist: among the projects evaluated by OED in 1989, many achieved or exceeded the main social goals of generating employment, containing rural-urban migration, and raising the incomes of low-income farmers. A number, however, increased the burdens for women and children; one unforeseen effect was a reduction in school attendance.^{61/}

77. In WSS, only 2 of 120 projects reviewed had any measurable success in reducing poverty; 20 others claimed success, but offered no way to measure it. The subject was not addressed in 52 projects (40 percent of these were appraised before this was identified as a major Bank objective). In the late 1970s many projects added poverty alleviation only as an afterthought. Projects in the 1980s did a better job by developing poverty-relief schemes early in projects for follow-on projects.^{62/} Nonetheless, a review of FY88 projects found no systematic attention to the provision of basic services for lower income groups nor to the role of women.^{63/} As of that time, few countries had WSS programs that were replicable on the scale needed to reach a significant part of the rural population within a reasonable time, and many of the services already provided had been underused or abandoned.

78. In the power sector, experience has shown that rural electrification has been very costly and has not met many of the expected goals; projects have not improved living standards or reduced migration to urban centers.^{64/} As with irrigation, farmers with above average landholdings have tended to reap the benefits. More generally, subsidized power has proven to be a costly and ineffective way of promoting social equity. It has further softened budget constraints on power utilities, and the resulting large deficits have usually been financed from regressive general taxes. The power shortages resulting from an inability to meet increases in demand lead to some form of rationing and usually the poor are the first to suffer. Even in FY91, it is difficult to find energy projects that pay significant attention to poverty.

^{60/} OED, 1989, "World Bank Experience with Irrigation Development; Socio-Economic, Institutional and Technical Impact Lessons," Vol I: "Overview, Mexico, Morocco," Report No. 7876, June 15, pp. 15-17.

^{61/} OED, "Annual Review of Evaluation Results 1989," pp. 4-3 - 4-5.

^{62/} OED, "Water Supply and Sanitation Projects," pp. 59-60.

^{63/} World Bank, INUWS, 1988, "FY88 Annual Sector Review: Water Supply and Sanitation," Report No. INU 32, November, p. 18.

^{64/} IENED, "FY91 Annual Sector Review: Energy," op. cit., p. 15.

79. The average transport project is not a good vehicle for addressing issues related to poverty and women in development. Nevertheless, some transport projects, particularly rural roads and urban transport, do affect these target groups or offer opportunities for intervening to help them. However, with some exceptions, these issues have not received much attention. One major exception is the work the Bank has done on labor-based construction and maintenance methods.^{65/}

^{65/} See, for example, Basil Coukis, 1983, *Labor-based Construction Programs: A Practical Guide for Planning and Management*. Oxford: Oxford University Press. Labor-based methods have been incorporated into a number of projects.

4

RECENT BANK EXPERIENCE

80. During the 1980s evidence from around the world demonstrated the potential benefits from fundamental reform of public enterprises and their environment. The fiscal burden of unprofitable public enterprises was mounting, and it was becoming clear that merely attacking the symptoms did not help. In the Bank, attention turned increasingly to issues of public enterprise reform. When project lending failed to bring about the desired changes, public enterprises were often included in adjustment operations, which could support a more systematic reform of policies and procedures.

81. Many structural adjustment loans (SALs) and all public enterprise reform loans (PERLs or PERALs) address the environment of the enterprises rather than just their internal organization. They start by elucidating the purpose of the enterprise and what is expected of it, then they clarify the roles and responsibilities of the government and the enterprise and consider the appropriate institutional and regulatory framework. This leads to a view of the enterprise in the broader institutional (including economic and political) context. In addition, recent projects put a greater emphasis on securing government commitment and treat conditionality in that light, often as a prerequisite for lending at all. Not all projects incorporate all of these changes, but the trend in this direction is unmistakable.

Institutional Development and Demand Orientation

82. Projects have concentrated increasingly on efforts to strengthen institutions, using the word in its broadest sense of the operating environment, rather than on organizational reform and enterprise-level solutions. When public enterprises are involved, it includes fundamental changes in the government-enterprise relationship through restructuring, commercialization and privatization, as well as regulatory reform. Reform is not an end in itself, but a path to the ultimate goal of providing efficient, reliable service at appropriate (market) prices. Achievement of this goal may require various forms or combinations of reform, depending in part on the existing situation. Greater attention to demand and the quality of service goes hand in hand with greater private sector involvement, autonomy and commercialization, and with efforts to encourage local participation in decision making, maintenance and operations. There has also been a shift in focus from new construction to maintenance of existing facilities.

83. One result of the new approach to reform is the emerging cross-sectoral approach. Once the focus is on institutional issues rather than enterprise specific ones, and the main interlocutor the central finance or planning, rather than the sectoral, ministry, the dialogue can be broadened to include enterprises in several sectors. A good example of this approach is the infrastructure strategy paper for Brazil,^{66/} which uses a common analytical framework to elucidate government and private sector roles, the design of the indirect government role and the transition from current approaches to a more appropriate mix in a number of infrastructure sectors. The Indonesia sector

^{66/} World Bank, 1991, "Brazil: Medium Term Strategy Paper for the Infrastructure Sectors," Report No. 9473-BR, July 31, green cover.

strategy paper^{67/} proposes a framework to promote private provision of services and enhance the efficiency of public services. The Nigeria private sector participation study examines the potential private sector role in WSS, solid waste, housing and land, and railways.^{68/}

84. There is also a growing awareness in the Bank of the need to address the multisectoral aspects of water resources management, culminating in a policy paper which suggests a comprehensive approach viewing water as a multipurpose resource with numerous complementary and competing uses.^{69/} This change will require policy reforms and major institutional changes in the way countries organize and manage their water resources, as well as in how the Bank addresses water resources issues. A second key recommendation is to delegate more responsibility for water management to autonomous utilities, private firms, and WUAs.

85. Structural adjustment and public enterprise reform loans offer appropriate vehicles for dealing with institutional issues in multiple sectors. The Argentina PERAL I (FY91), for example, has led to greater than 70 percent private ownership in two telecommunications entities and the railways divided into potentially profitable segments and offered as long term concessions. The planned Jamaica Private Sector Development Adjustment project will include privatization (and regulation) of the airline, railway, power, and water utilities (telecommunications and urban transport are already private); and the proposed Public Enterprise Reform Loan to Uruguay will support the development of a regulatory framework for the telecommunications, aviation, ports and power sectors that will promote private sector competition and regulate monopolies.

86. The new institutional and cross-sectoral approach has also spawned a series of projects that create infrastructure funds for subprojects initiated by local communities, sometimes administered by NGOs or local organizations. The AGETIP model involving private management of public contracts, first used in Senegal (Public Works and Employment projects, FYs90 and 92), proved so successful it has since been adopted in Niger, Burkina Faso, Benin, Mali and Mauritania. The Guinea-Bissau Social and Infrastructure Relief project (FY89) generates employment by contracting out all infrastructure works to the private sector, and the proposed Uganda Northern Reconstruction project will include a community action program, a social fund for community-initiated micro projects, and administration through NGOs. Across all sectors in the Bank, NGOs were involved in 50 projects in each of the years FY89 and 90, compared to only 15 in FY88.^{70/}

87. Other forms of local participation are also being used to help determine inter-sectoral priorities. A planned project in Morocco will establish village self-help organizations to select, manage and fund productive infrastructure in irrigation, roads, bridges, flood protection and hydroelectric plants; and the Mali Public Works and Capacity Building project (FY92) includes a

^{67/} World Bank, 1992, "Indonesia: A Strategy for Infrastructure Development," Report No. 9672-IND, June 22.

^{68/} "Private Sector Participation in Infrastructure and Urban Services Sector Study," draft.

^{69/} World Bank, 1993, "Water Resources Management: A Policy Paper," February 8.

^{70/} World Bank, 1991, "Managing Development: The Governance Dimension," Discussion Paper, August 29, p. 10.

program designed to increase grassroots participation through sample surveys that will identify priority needs and subprojects and later determine whether the needs were met; meetings with community representatives to discuss objectives and mobilize support; and a radio and TV campaign to rally public opinion.

88. Within individual sectors, irrigation projects are evolving toward lower cost rehabilitation and institutional strengthening to improve O&M, with only minimal improvements to physical infrastructure. They are increasingly national or regional in scope, focussing beyond the individual project area and treating important institutional development and policy issues. For example, the Irrigation and Drainage Sector project in Mexico (FY92) focusses on resource allocation issues such as pricing of water, beneficiary participation in funding of investment and operations, and adequate institutional arrangements; in order to ensure the selection of appropriate investment priorities, the project supports the government's four-year irrigation, drainage and flood control investment program. The Indonesia Irrigation Subsector II project (FY92) supports the government's action program for subsector wide O&M funding and cost recovery.

89. Most recent irrigation projects support WUAs: in Indonesia, small public schemes will be turned over to the users, and in Mexico management of about 60 percent of the area in 78 irrigation districts will be transferred to WUAs, which will be fully responsible for management, finances and O&M.^{71/} The approach varies, however. In Latin America, which has seen the greatest success, large WUAs with paid professional staff are responsible for all of the infrastructure, including main canals, whereas in Asia, smaller groups are responsible for tertiary systems only.

90. The Bangladesh National Minor Irrigation Development and Shallow Tubewell and Low Lift Pump Irrigation projects (both FY91) aim to promote increased private investment in minor irrigation development by introducing more affordable and manageable irrigation techniques; liberalizing trade; upgrading the capability of the Bangladesh Agricultural Development Corporation to support the private sector through advice, market information and quality enhancement; and opening ownership of tube wells to various forms of association. Privatization of tubewells and other forms of private investment and O&M are also supported in projects in Mexico, Pakistan, Mali, Brazil, Colombia, and Nepal.

91. The Bank's approach to the power sector has evolved from an initial focus on the basic issues of setting up a national electric company (up to the mid 1970s) through the development of an increasingly sophisticated and efficient utility (to the early 1980s) to the present stress on wider issues of the sector and its setting in the national framework, e.g., regulation (including environmental) and pricing. As with irrigation, the newest projects show a distinct trend toward improving operations and the efficiency of existing systems in preference to installing new plant (e.g., Bangladesh, Burundi, Indonesia, Morocco, Togo, Turkey.) The recent electric power policy paper^{72/} recommends inter alia that the Bank encourage countries to set up an independent, arm's length, transparent regulatory process; encourage commercialization of power entities; and focus lending on countries with a clear commitment to improving sector performance.

^{71/} World Bank, AGR, 1991, "Annual Sector Review: Agriculture and Rural Development, FY91," January, p. 40; AGR, 1992, "Annual Sector Review, FY92," draft, p. 4.

^{72/} World Bank, "The Bank's Role in the Electric Power Sector," op. cit.

92. Power projects and sector work are promoting reform in countries such as Argentina, where generating plants were sold and 99-year concessions let for power distribution; Venezuela, El Salvador, Trinidad and Tobago, where the legal and institutional framework was reformed; Hungary and Czechoslovakia, where regulatory arrangements are being developed; and Benin, Togo and Turkey, where performance contracts were adopted between the governments and the utilities. Shares in Malaysia's national power company were listed on the stock exchange. In Pakistan an energy development fund set up under the Private Sector Energy Development project (FY88) finances up to 30 percent of the total cost of private sector projects to be built under build/own/operate/transfer (BOOT) arrangements; and the India Private Power Utilities Project for Bombay Suburban Electric Supply Ltd. (FY91) supports a private utility (with a government guarantee) and is attempting to mobilize private savings through the issue of convertible debentures to help finance the project. The Jamaica Energy Sector Deregulation and Privatization project (FY92) includes a private sector energy fund to finance private power projects; development of a contractual framework for BOO projects and a regulatory framework for operation of the power sector; and the implementation of a privatization strategy for the public power utility. The Honduras Energy Sector Adjustment Program (FY92) will establish a regulatory agency for the power subsector as well as possible co-generation and independent supply to the grid by the private sector. An increased demand orientation is emerging, for example, in Pakistan Rural Electrification (FY90), which used the expenditures by consumers on fuels to be displaced by electricity as a proxy for their willingness to pay.

93. Telecommunications projects and sector work began in the mid-1980s to emphasize sectoral reforms, including privatization and more rational regulation, and the Bank has increasingly given explicit recognition to telecommunications in economic reform programs; in recent years about 20 percent of all non-sector Bank lending has included support for telecommunications. Development of the sector is expected to hinge on diversifying supply and competition, participation of private capital and enterprise, and appropriate public regulation. For example, Sri Lanka Telecommunications II (FY91) establishes a new commercially oriented, autonomous operating entity and a regulatory agency and facilitates private participation through the use of subcontractors and private installation and maintenance of subscriber equipment. The Argentina PERAL and Mexico Road Transport and Telecommunications Sector Adjustment project (FY90) are helping the respective governments privatize national enterprises. A number of loans (e.g., Indonesia, Hungary) are helping to establish the legal framework for private participation and for strengthening regulatory capacity. For countries that are less advanced on the path to privatization, the approach involves the separation of post and telecommunications functions, and various steps toward commercial orientation and autonomy. The Mozambique Telecommunications Sector Memorandum (FY92) recommended the use of a management contract, with the government responsible for regulation and the providers for operations; the government adopted the recommendations even before the final draft was completed. The sector study for China recommends decentralization, separation of ownership control and functions from government functions, establishment of a board of directors, and the introduction of commercial accounting and some competition.

94. The latest (FY92) transport projects concentrate almost exclusively on improving the performance of existing infrastructure, with a focus on maintenance and institutional development; only a few projects, in China and India, have significant new capital investment.^{73/} The private

^{73/} World Bank, INUTD, 1992, "FY92 Transport Sector Review," INU Report No. OR13, October, p. 6.

sector has gained much attention in sector work, for example, in urban transport in Nigeria; road transport in Bangladesh; services, construction and maintenance in Uganda; railways and buses in Eastern Europe; and trucking deregulation and privatization in Hungary, Poland and Yugoslavia. The transport sector employs a number of different approaches to institutional reform. The approach for railways and ports is generally one of mixed public and private ownership with at least a surrogate market mechanism. Common features are the establishment of a commercial orientation in identifying appropriate markets and users, greater autonomy and the privatization of ancillary activities. Some large port authorities are being dismantled or severely reduced in scope: several projects, including Brazil Port Technical Assistance (FY88) and Indonesia National Ports Development (FY85) dwelt heavily on decentralization of port functions and the introduction of corporate management principles and procedures. Very recently, there have been exceptional cases of private involvement—Ghana, Malaysia Port Kelang (FY86), and the Manila International Container Terminal (IFC equity participation, FY88). The Pakistan Port Privatization project (FY91) encourages the private sector to take over the handling of general and bulk cargo and invites it to purchase or lease and operate container cranes.

95. Brazil's Federal Railway - Export Corridor project (FY85) contained a strategic planning action program which focussed on an explicit definition of the railway's objectives and policies, preparation of a corporate plan, closure of non-viable services, and compensation from the government for those lines required to be maintained. Kenya Railways II (FY87) and the Sudan Railways Emergency Recovery Program (FY88) instituted corporate plans, commercial orientation and, in the case of Sudan, privatization of some ancillary services. A number of recent projects feature performance contracts (Morocco Port Sector, Costa Rica Transport Sector for the railway, Tunisia PERL for the railway). The Argentina PERAL and the Sri Lanka Economic Restructuring Credit call for an increased private sector role in railways and buses respectively, and the Public Sector Reform loan in Colombia aims to establish a level playing field between the public and private sectors in railways, ports and shipping. In Poland over 60 subsidiaries of the state railway are being restructured into joint stock companies, privatized or transformed into autonomous, commercially oriented state owned enterprises.

96. In roads, the trend is toward decentralization and contracting out operations to the private sector. Recent road projects that attempt to increase private involvement include Ghana Transport Rehabilitation II, with rehabilitation by labor based methods and sub-contracts administered through NGOs; Niger Transport Sector II and Zaire Pilot Feeder Roads, with a wide range of assistance to the private sector, including simplified contracting procedures; and a number of projects in sub-saharan Africa and Asia which support equipment rental pools. In Guinea, the National Rural Infrastructure project (FY90) created two private pilot public works companies with contract plans for emergency road maintenance, and the Transport Sector project (FY87) provided technical assistance to establish a regulatory framework for privatized transport sector operations. Mozambique's First Roads and Coastal Shipping project addresses the reforms needed to facilitate the privatization of trucking. Over the last five years, about half of the road projects in Africa, Asia and EMENA have focussed on the transfer of maintenance works to contract, with success in EMENA and mixed success elsewhere; in LAC both the focus and the success were widespread. In the case of urban transport, the Bank's present philosophy calls for very limited lending to the public sector, and then only in order to induce fundamental change and on condition that there be no subsidies (save those explicitly intended to cover routes maintained for social reasons).

97. Finally, in the WSS sector, the Bank has helped governments structure arrangements with the private sector in a number of countries, including Cote d'Ivoire, Guinea, Malaysia, Argentina, Brazil, Chile, and Venezuela. WSS Sector projects in Argentina and Mexico (FY91) provide for sub-loans to both public and private water and sewerage entities. As in the other sectors, attention to maintenance and service quality has increased: over half of the projects of the last few years give adequate attention to optimizing the use of existing assets, including well thought out rehabilitation and operations management components.

98. A demand orientation is clearly gaining ground. Guinea's National Rural Infrastructure project includes a nation-wide willingness to pay study to help define national policy with respect to the financial participation of beneficiaries in the purchase of handpumps. Rural projects in India, Pakistan, the Philippines, and Mali include community involvement in maintenance. India agreed, in the context of the Maharashtra Rural Water Supply and Environment/L Sanitation project (FY91) to transfer all water supply schemes, along with the responsibility for O&M and the power to set and collect tariffs, to local authorities and NGOs, and Nigeria agreed in its Multistate Water Supply project (FY92) to devolve responsibility to the local government and community level. The Brazil NE Rural Development project (FY85) was modified in early 1992 to increase beneficiary participation through legally formed associations. In other efforts to increase responsiveness to demand, the Chile Valparaiso WSS II (FY91) and Uganda Water Supply II (FY90) projects include customer surveys, and a sanitation project in Indonesia will elicit the views of future beneficiaries of a new sewerage system on the level of technology and the design; they will then be expected to pay the O&M costs. Current research on the household response to unreliable infrastructure and on willingness to pay should lead to more user orientation in projects. Some projects (e.g., Mombasa and Coastal Water Supply Engineering and Rehabilitation II, FY92) have looked at the affordability of higher tariffs for low income groups, noting that the latter often pay well above the official price to vendors.

Projections of Output

99. Forecasts of output in projects appear to have become somewhat more realistic in recent years. Poland's First Transport project (FY90), for example, forecast no growth in traffic for the railway (in fact, during the period 1989-91 freight traffic fell by about 40 percent), and railway traffic was also projected to fall in Sudan, with sensitivity analysis carried out on the rate of decline. Projections for the latest railway project in Yugoslavia (before the outbreak of civil war) were very modest, recognizing the fact that the demand for transport would grow more slowly than GDP, to a level more in line with other western European countries, as the Yugoslav economy became more market oriented. Irrigation projects in the last few years appear to be similarly more forthright and realistic in their production forecasts.

100. Recent projects also appear to contain a more realistic assessment of risk, as in the Sri Lanka ERC, which noted the high risk of policy slippage for the privatization of public transport, given the political and social environment. Sensitivity analysis for Tanzania Port Modernization II showed that relatively small decreases in the projected growth rate of traffic would result in unacceptably low financial and economic rates of return, so orders for certain equipment will be placed only when a trigger level of traffic is reached. In the case of Mexico's Railway Sector project (FY85), the financial evaluation was based on the low end of the traffic projections to confirm that if the

investments were premature, they would not have a significant impact on the financial status of the railway.

Macroeconomic Linkages

101. There are several recent examples of improved incorporation of macroeconomic factors, still mainly in sector work. The Philippines Infrastructure Assessment Study looks at the role of infrastructure in development, the impacts of constraints and deficiencies on growth and competitiveness, and the policy implications for the formulation and development of an infrastructure strategy to support growth. Several recent transport reports have focussed on the link between trade and transport. The Turkey Water and Sewerage Strategy Paper (FY89) discusses the Bank's role in the context of macroeconomic objectives, including the support of foreign exchange earnings by provision of services in tourist areas. The inclusion of infrastructure reforms in adjustment loans also facilitates a stronger link with macroeconomic factors than in the past.

102. The deteriorating financial condition of many public enterprises has been the catalyst for much of the reform movement, and this issue continues to attract attention. Recent statements on the power sector point out that sector finances cannot be tackled independently of public or external accounts; there are no examples of successful reform that ignore these linkages. Good examples of reform undertaken in the context of broader public sector reform are found in Ghana and Mexico, whereas there has been little success in countries such as Nigeria, Brazil and Argentina which have underlying structural imbalances. Financial sector reforms are needed as well to provide domestic savings.^{74/} A number of recent transport reports examined the financial performance of the sector and its link with the country's macroeconomic balance (Zambia and Bangladesh, for example^{75/}). The Indonesia strategy for infrastructure development sets out a plan for the efficient development of infrastructure aimed at securing adequate financial resources within a stable macroeconomic framework and setting appropriate priorities for public infrastructure investment.^{76/}

Labor Redundancy

103. Substantial progress has been made in recent years in the treatment of labor redundancy in infrastructure projects, in parallel with increasing attention to this issue in civil service reform. The trend toward increasing private sector participation and commercialization has highlighted the central role of eliminating excess staff in allowing an enterprise to become efficient. Project conditionality now deals with this issue directly: for example, the Sudan Railways Emergency Recovery project (FY88) included a condition that the 32,000 strong labor force be reduced by 9,000, with an agreed formula for severance pay; and the Argentina PERAL conditioned disbursements on evidence that

^{74/} Anthony Churchill, 1991, "Implementing Reforms: Strategy and Tactics," Paper presented at a Conference on Overcoming the Crisis of the Electric Power Sector in LAC Countries, Mexico, Sept. 4-6, pp. 3-4.

^{75/} Ian Heggie, 1992, "Zambia: Financial Performance of the Government-Owned Transport Sector," February.

^{76/} The strategy is incorporated into the CEM, World Bank, 1992, "Indonesia: Growth, Infrastructure and Human Resources," Report No. 10470-IND, May 26.

public enterprises (including the railway) had laid off 30,000 workers. Many upcoming projects are treating labor force reduction and the resulting need to provide severance pay as a key to enterprise reform, and a number of them have raised the issue of whether or not the Bank should finance severance pay directly.

Conditionality

104. Conditionality is becoming increasingly front loaded as governments are asked to take substantive steps prior to Board presentation or negotiations. The growing attention to the critical need to secure government commitment is confirmed by a recent report which attributed the decade-long stagnation of Bank lending in real terms in part to the growing importance of difficult policy conditionality in areas such as private sector and institutional development.^{77/}

105. Many projects now carry important conditionality before implementation begins. After serious non-compliance in the first four Nepal water supply projects, the Nepal Urban Water Supply and Sewerage Rehabilitation project (FY91) required a satisfactory tariff increase before Board presentation; effectiveness conditions included payment of government arrears, a 50 percent increase in water revenues, and an increase in sewerage rates.^{78/} In Kenya, a 20 percent increase in water tariffs was made a condition for negotiations, and the Nigeria Multistate Water Supply project (FY92) was processed only following a tariff increase. The Bank has also recently been refusing to disburse on new rural water systems until the old ones are in working order.

106. Adjustment loans front load much of their conditionality, and disbursement by tranches helps enforce strong conditionality. Under the Argentina PERAL, most of the analytical work and preparatory activities, as well as the legal framework and strategic enterprise restructuring decisions were in place before Board presentation. Steps to be taken for the railway included sequential targets for divestiture and closure of uneconomic lines and services that would end all operating responsibilities of the existing organization and development of a labor redundancy plan; implementation of the latter was a second tranche condition. The Colombia Public Sector Reform loan (FY91) included as conditions of Board presentation the completion of plans to dismantle the railway monopoly; initiation of efforts to attract private participation in the new rolling stock company; a policy statement setting a new basis for port tariffs; and definition of the restructuring of the public port enterprise. Conditions for Board presentation of the proposed Costa Rica SAL III include approval of the Public Works Concession Law which allows the private sector to construct and operate major infrastructure. The proposed Zambia Privatization and Industrial Reform Credit requires the establishment of managerial autonomy for key public utilities—including Zambia Electricity Supply Corp. and Zambia Airways—and removal of routine subsidies by Board presentation, and the institution of a price adjustment mechanism for the second tranche; and one of the conditions for Board presentation of the proposed Jamaica Private Sector Development Adjustment Loan is to bring Air Jamaica to the point of sale. The proposed Public Enterprise Reform loan to Uruguay will include a port component only subject to final approval of a Port

^{77/} World Bank, *Financial Policy and Risk Management*, 1992, "Factors Affecting IBRD Lending in the Eighties and Implications for the Nineties," August.

^{78/} In fact, however, these conditions have not yet been met (see para. 130 below).

Reform Law which would eliminate the monopoly of the stevedoring association and allow franchising of port activities to the private sector.

107. Many countries have agreed to raise energy prices and review tariff structures as conditions for lending, and to the extent that this conditionality is more front loaded than in the past, it may be more effective. The Polish government, for example, in the context of a SAL, has agreed to phase out subsidies to coal and to increase energy prices to international levels by the end of 1992; and Egypt Power IV (FY89) requires satisfactory progress in tariff reforms prior to approval. In Honduras, large tariff hikes and a system of monthly increases were put in place before Board presentation of the Energy Sector Adjustment Program (FY92). However, although all FY91 projects contained provisions about electricity pricing—three had tariff studies—only Indonesia has agreed to review long run marginal costs and discuss the results with the Bank.

108. The impact of the firmer stand being taken by the Bank can be seen in lending for power in LAC, which was less than half its planned volume in FY91. An OED review of power lending to Colombia during the period 1970-87 recommended that the Bank continue to support the sector only if the government was willing to tackle much broader and more fundamental institutional and organization issues than in the past; subsequently one-third of the Bogota Power Distribution II project was canceled after the entity failed to put into effect a program to eliminate large electricity losses. The Dominican Republic Power Rehabilitation project was suspended for more than a year following a failure to comply with most of the covenants, including tariff increases and reduction of government arrears.

109. Several other projects in Colombia were also questioned. One, in water supply, was canceled over its failure to carry out institutional reform; another was suspended for 18 months when it failed to reduce staff, increase tariffs or implement the sewage component; and a third is under threat of suspension. The Bank refused to extend the closing date for Colombia Ports Rehabilitation, leaving ongoing civil works stranded, after the port agreed to excessive staff benefits; and a railway project was canceled in 1987 after the government failed to implement most of the covenants, including financial targets, compensation for unprofitable services and a reduction of passenger services.

Environment

110. Environmental concerns are now central to Bank thinking, as witnessed by the 1992 WDR, and treatment of environmental issues in infrastructure projects has improved considerably in recent years. In addition to carrying out environmental assessments as a standard practice, a number of projects have special environmental components; a CEM in Thailand is focussing on infrastructure and the environment. The growing attention to pricing as an instrument of efficiency encourages conservation and discourages waste.

111. Most recent irrigation projects included serious discussions of their environmental impacts, and a number have had environmental components, including a study of mangrove management in Ecuador, a program to minimize environmental impact during infrastructure construction in Sri Lanka, measures to control salt water intrusion in Bangladesh, and special erosion and siltation control provisions in the Philippines, China and Sri Lanka. A new irrigation project in Nepal allows local WUAs to undertake environmental improvement activities on their own.

112. Brazil's Power Sector project (FY86) included a master plan which helped to turn around the sector's attitude toward environmental impact and contributed to the establishment of institutions to deal systematically with environmental issues. The Czech and Slovak Power and Environmental Improvement project (FY92) is expected to reduce air pollution through increased efficiency and reduced emissions. The Bangladesh Industrial Energy Efficiency project (FY88) provides a line of credit for energy conservation subprojects. Many other recent loans have environmental components (e.g., in Burundi, China, Egypt and India), and resettlement and environmental issues have discouraged some recent hydroelectric projects. In the FY92-95 lending program, almost 6 percent (US\$1 billion) of the total lending is for projects, mainly in Eastern Europe, that specifically target environmental protection.

113. Awareness is growing that the provision of water creates an associated cost for the collection and disposal of wastewater. Environmental issues were addressed in several major FY90 WSS projects, a marked improvement, and the environmental impact was analyzed in almost all FY91 projects. Two innovative water quality and pollution control projects in Brazil (FY92 and 93) are assisting the government in developing a cost-effective approach to the control of water pollution. A methodology was developed during project preparation to ensure both financing of the project and internalization of pollution costs by polluters. Furthermore, the projects use a water basin, rather than the traditional political or administrative unit, as the management unit. The Mexico WSS Sector project (FY91) includes a pilot water pollution control program to develop and test national water pollution control policies and regulations, to strengthen the agencies concerned, to build monitoring systems and to ensure sound environmental assessments of all projects and programs. The draft Water Policy Paper recommends the integration of environmental concerns into a comprehensive water management system.

114. Some recent transport projects have made serious efforts to minimize adverse environmental impacts and enhance beneficial ones.^{79/} The Morocco Port Sector project (FY91) not only dealt with the obvious problems of disposing of dredge spoil, but also addressed issues of dust release (caused when handling bulk cargoes), safe handling of hazardous cargoes, provision of facilities to receive ship waste, introduction of restrictions on dumping urban waste water into the port area, and training of staff to raise environmental awareness and impart needed skills. China Ship Waste Disposal (FY92) will reduce pollution through improved monitoring; an improved policy, regulatory and incentive framework; and infrastructure to receive and safely dispose of ship wastes. Bangladesh Inland Water Transport III (FY91) provided for the preparation of an environmental map of the waterway system and equipment and training to enable local staff to test bottom sediments and dredge materials and to develop plans for safe disposal.

115. Railway projects, which as recently as four years ago did not routinely include any statement on the environment, are now addressing the impact of bridge rehabilitation on flood drainage

^{79/} INUTD, "FY91 Transport Sector Review," op. cit., pp. 16-20. A number of recent papers have provided the framework for improvement: G. Carlsson and K-O. Hedman, 1990, "A Systematic Approach to Road Safety in Developing Countries," Report No. INU 63, January; Asif Faiz, et. al., 1990, "Automotive Air Pollution: Issues and Options for Developing Countries," PRE Working Paper No. 492, August; John Lethbridge, 1989, "Environmental Considerations for Port and Harbor Development," INU Discussion Paper No. 5, January; S. MacKnight, et. al., 1989, "The Environmentally Sound Disposal of Dredge Materials," INU Discussion Paper No. 54, October.

patterns, encouraging the use of environmentally safe engine coolants, providing facilities for recycling waste oil, promoting the use of environmentally sound degreasers and cleaners and safe herbicides, and introducing and enforcing appropriate occupational health and safety regulations. Recent examples include FY91 projects in Tanzania and Zimbabwe.

116. Road projects show a growing awareness of motor vehicle noise and exhaust pollution and the need to address them through regulatory and market-based interventions; examples of good treatment of this issue are found in the Bangladesh sector review, Thailand Highways Sector III and IV (FYs90 and 92) and Yugoslavia Highways Sector III (FY91). The "Mexico—Transport Air Quality Management in the Mexico City Metropolitan Area Sector Study" is the first sector report to be prepared by the Bank on this important topic.^{80/} There is also increasing attention to road safety (e.g., Jamaica, Comoros), reduction of erosion, soil conservation, and reforestation/revegetation.

Poverty and Women in Development

117. Special labor-intensive public works projects have been designed to create temporary employment to alleviate the short term social costs created by adjustment programs (under the assumption that the beneficiaries will then be absorbed by the sectors to be spurred by adjustment). The more recent projects often establish social investment funds and many promote grassroots and community participation through NGO, church, and other private and local agencies. Countries with such programs include Benin, Bolivia, Burkina Faso, Ghana, Guinea Bissau, Madagascar, Mali, Niger, Sao Tome, and Senegal.

118. Poverty alleviation is a major focus of recent irrigation lending. Half of the ten FY92 loans have significant analysis of poverty alleviation, and all are expected to have a positive impact. Several operations target small farmers through the use of simple small and medium scale techniques, such as tube wells. Many also include complementary investments, such as building or upgrading rural roads to improve access to marketing and distribution outlets. Projects in Ecuador and the Philippines provide opportunities for poor farmers to obtain access to land. Bangladesh provides food for work in the construction and maintenance of earthworks for irrigation and road maintenance, aiming to raise standards of living, especially for landless people and women. Only a few projects pay increased attention to the role of women.

119. Recent transport sector work and a few projects have dealt more effectively with poverty issues. For example, sector work on urban transport in Nigeria and Uganda stressed the large amount of travel by the poor on foot and bicycle and the need for better facilities for them. Work in Sri Lanka looked at the desirability of targeting subsidies. Ghana Transport Rehabilitation I and II (FYs 87 and 90) provide appropriate means of transport for the rural poor, distributed through user groups, mainly women, who are also the main beneficiaries. The most comprehensive treatment can be found in Ghana National Feeder Roads Rehabilitation and Maintenance (FY92), which includes labor based feeder road construction, training for small scale labor based contractors, and a rural mobility component to start hire-purchase schemes for non-motorized vehicles.

^{80/} INUTD, "FY92 Transport Sector Review," p. 9.

120. Many WSS projects target the poor as the main beneficiaries, and some recent projects have innovative approaches; several pay special attention to the enhancement of women's roles, an aspect that was ignored in the past.^{81/} For example, Kenya Mombasa WSS II (FY92) encourages women to form associations as water retailers (kiosk owners) and Pakistan Rural WSS (FY91) provides support on a pilot basis to women's income generating activities. India's Maharashtra Rural Water Supply and Environmental Sanitation project (FY91) uses NGOs to ensure community participation and the involvement of women.

^{81/} INUWS, "FY91 Sector Review: Water Supply and Sanitation," *op. cit.*, December, p. 24.

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EVALUATION AND LESSONS FOR THE FUTURE

121. The Bank's approach to lending in the infrastructure sectors has progressed from a narrow technical and organizational orientation to a broader institutional orientation focussed on the structure of the productive entity in the context of its operating environment. While it is possible to identify many improvements in project content and implementation, it is too early to judge their effectiveness. It is clear, however, that frequently the improvements do not go far enough. Many of the old problems are still unresolved, and in some cases the new measures create still newer problems.

122. A Bank-wide review of institutional development work found that the increasing breadth and complexity of such work has been accompanied by a decline in the achievement of institutional objectives. In some cases these complex interventions are handled by sector specialists without the necessary experience to deal with broader issues, and in others the available managerial skills are not adequate.^{82/} This is the case, for example, in the WSS sector, where all projects now contain institutional components, but where project performance is declining, most frequently because of institutional and managerial shortcomings.^{83/} In irrigation, an audit of a recent project for construction and operational improvements in 24 medium scale irrigation projects found achievements to be unsatisfactory due in part to disproportionate size and scope (i.e., too many subprojects) relative to the capability of the implementing agencies.^{84/}

123. Although private sector development and participation have received growing attention in Bank projects, the scope for private sector involvement is still not always addressed adequately or with sufficiently strong conditionality. In the power sector, for example, experience in Pakistan has demonstrated that build/operate/transfer arrangements can be extremely time consuming, difficult to negotiate, and do not necessarily provide least cost projects. Efforts in Indonesia to attract private generation plants to become cogenerators selling to the national power company were disappointing, and the Bombay Suburban Electric Supply Co. and Tata Electric Co. projects (FY90) had government guarantees and IFC cofinancing, but did little to attract other private funding. For fear of slippage, the Bank did not push hard enough in these projects to encourage long-awaited legislation in support of private investment. Private development in the power sector will continue to be limited until greater opportunities for participation can be made available, i.e., through legislation reducing barriers to entry, requiring public utilities to buy from private producers and establishing regulatory arrangements reducing government involvement. Until very recently, power projects paid surprisingly little attention to regulation; in the FY91 cohort, only projects in Benin and Togo had covenants on the subject, both supporting legislation to reduce the government's role and

^{82/} Samuel Paul, 1990, *op. cit.*, pp. 15, 29-30, 37.

^{83/} OED, "Water Supply and Sanitation Projects," *op. cit.*

^{84/} AGR, 1991, "Annual Sector Review FY91," December, p. 38.

establish boards of directors in order to improve accountability. However, the power sector policy paper has apparently had a substantial influence on the latest generation of projects.^{85/}

124. In the transport sector, too few of the most recent projects have examined the scope for private involvement, with some notable exceptions mentioned above. Rarely do projects ask whether the balance between the public and the private sectors is appropriate, whether there are constraints to private sector development that might be removed, or whether markets are sufficiently competitive to produce efficiency gains. Too much road maintenance is still carried out by force account, despite evidence that contract maintenance can almost always lead to substantial cost savings with no deterioration in quality. Lending for equipment procurement is falling sharply, but few projects focus on reducing equipment fleets.^{86/} The Costa Rica Transport Sector project (FY90) encourages private participation in road and equipment maintenance, but the audit for the project is not optimistic about solving such a deep-rooted problem through an action plan; as long as new projects and deferred maintenance in the form of rehabilitation continue to be financed with foreign resources, the government will not have to make the appropriate, but difficult budget decisions.

125. Users' needs are considered more frequently than in the past, but the demand oriented approach is still not standard. Institutional development work that might facilitate matching of beneficiary needs and demand to the design of projects and institutional alternatives is limited, and Bank supported participatory projects are still the exception.^{87/} An examination of FY91 urban projects which directly increase the supply of infrastructure, for example, found that none analyzed deficiencies from the point of view of their costs to users. Rather, all of the projects used general coverage or supply targets based on demographic or spatial projections. All of them included institutional strengthening, but in most cases, this was simply training.^{88/} Of the eight FY92 urban projects with infrastructure components, only one had participatory elements.^{89/}

126. In irrigation, where water users associations are increasingly common, the results are not uniformly positive, and involving local participants, village groups and regional institutions has often proved difficult. Evaluation of the few projects that took this approach earlier shows they often performed no better than traditional ones. In the Indonesia Irrigation Subsector project (FY88), where management of the schemes was turned over to WUAs, farmers' participation in rehabilitation and maintenance did not increase, and the proportion of farmers paying village level water fees declined. Many recent projects give farmers responsibility for O&M of irrigation and drainage systems only at the tertiary or quaternary level, and only after construction is complete. Experience in the Brazil NE Rural Development project (FY85), which included both irrigation and water supply schemes, showed that some systems quickly went out of operation because their location was not

^{85/} IENED, "FY91 Annual Sector Review: Energy," op. cit., pp. 6, 8, 12.

^{86/} INUTD, "FY91 Transport Sector Review, op. cit., pp. 20-23.

^{87/} Paul, 1990, op. cit., p. 12.

^{88/} INURD, 1991, "FY91 Sector Review: Urban Development," Infrastructure and Urban Development Department General Operational Review Report No. INU-OR10, December, p. 24.

^{89/} INURD, 1992, "FY92 Sector Review: Urban Development," December, p. 7.

always based on a decision by the beneficiaries, who were then unwilling to bear the O&M costs. In contrast, support to small rural communities for 2400 small infrastructure schemes successfully mobilized beneficiaries to organize themselves by giving them a voice in planning and decision-making. This project was amended in 1992, following a mid-term review, to increase beneficiary participation.

127. Bank attention to pricing beyond its implications for financial viability has grown, but this has yet to be matched by a commitment to action by most governments, and even within the Bank the role of prices in equilibrating supply and demand is not generally given great weight. In WSS most utilities do not cover even their recurrent costs, and some large borrowers still do not charge for irrigation water. There is a growing trend in the power sector to target average prices at the long run marginal cost, but the variety of conditions still found in power projects shows a continued lack of direction in the Bank's approach.^{90/} Conditionality still often fails to support substantial reform in this area. For example, despite the often serious deterioration of infrastructure and public services, adjustment loans have only recently tried to support non-wage spending for O&M through conditionality, and the number of loans with such conditions was still only 14 percent of all adjustment loans during the period 1986-88.^{91/} The proposed Costa Rica SAL III calls for the government to improve the regulatory framework to ensure that public utilities' tariff decisions adequately reflect economic costs and provide incentives for improved efficiency, but has no explicit tariff conditionality.

128. Bank treatment of labor redundancy has improved considerably, but is still deficient, in part because of the prohibition, against direct financing of severance pay. Bank staff sometimes spend much time and effort establishing severance mechanisms acceptable to governments and workers and finding donors to finance the severance pay only to find that the staff reduction never takes place because the funds do not materialize or because alternative mechanisms, such as capital grants or training, prove to be ineffective. Thus the staff reduction scheduled under the Sudan Railways Emergency Recovery project (FY88) took place several years late, with major financial implications, when bilateral funding for severance pay fell through. It has been said that reducing the staff of the Bolivian railway by at least 1,000 (out of 8,000) would have a higher rate of return than any other investment, yet the FY89 Export Corridors project did not even have any conditions on staffing. The project did include a US\$3.5 million technical assistance component to improve management and make the railway profitable, but the railway could not afford the lay-offs that would help make this possible. While the funding problem is sometimes solved through indirect Bank financing in the context of adjustment lending, as was done in Argentina and Bolivia, this may not always solve the problem. In some cases, the Bank's lack of direct involvement in and close supervision of redundancy programs has left many in doubt as to the benefits; in other cases there may be no justification for adjustment lending.

129. A Bank-wide review of all FY91 projects found that project assumptions about government implementation capacity, macroeconomic performance, availability of local cost financing, and other

^{90/} IENED, "FY91 Annual Sector Review: Energy," *op. cit.*, p. 14; IENED, 1992, "Annual Sector Review for Energy," November, p. 21.

^{91/} World Bank, Country Economics Department, 1992, "The Third Report on Adjustment Lending: Private and Public Resources for Growth," February, draft, p. 23.

key operational variables are still not factored into calculations of the economic rate of return, nor does sensitivity analysis cover adequately the risks raised in SARs.^{92/} Inadequate resources for supervision may also be responsible for the declining performance of projects.^{93/}

130. Conditionality by itself is unlikely to bring about lasting reform, but the requirement of meaningful action up front is a good way to gauge the commitment of the various actors to the reform process. If that commitment is lacking, then there is no point in going ahead with a project that depends for its success on the reform. However, many projects still have no up front conditions: although the Indonesia Telecommunications Sector Study, completed in June 1989, identified major deficiencies in sector management, limited private participation, and a lack of commercial orientation, Telecommunications III (FY90) calls only for a timetable to establish a legal framework for private participation and strengthening the government's regulatory capacity. Even up-front conditionality is not enough when care is not taken to ensure that the government will be willing and able to carry out its commitments: although tariff increases were approved by the Cabinet in time for Board presentation of Nepal Urban WSS Rehabilitation (FY91), they have not yet been implemented. In this sector, the most important failure relating to service and O&M is the very high level of unaccounted for water. The design of actions to reduce UFW is still often left until project execution, and until the Bank insists on effective leak detection and prevention programs being in place before lending takes place, a sometimes considerable quantity of water to be provided by the proposed project will be wasted or at best not paid for.

131. The experience with conditionality suggests that lending should be concentrated in countries with a clear commitment to improving sector performance. Government commitment to reform is essential, because the reform process is long and often has major political and economic consequences. A review of major transport policy reforms, for example, concluded that their implementation requires ten to fifteen years.^{94/} Although such commitment can never be certain, and what seems like clear commitment can disappear, strong up front conditionality, including substantive steps in the reform process, is an important way to gauge the willingness of the government to undertake difficult actions. Issues likely to be serious constraints to implementation should be settled during project preparation, and actions on such difficult matters as land acquisition or tariff reform should be conditions of Board presentation.

132. Experience further shows that conditionality should be focussed on how to bring about change, rather than on mechanical indicators of progress, i.e., on changes in procedures or rules of the game rather than on one-time actions such as tariff increases. Specific conditions to be considered include steps toward autonomy or privatization; legislative or regulatory reform to permit ownership changes and promote competition; hard budget constraints and prohibition of subsidies, except those explicitly retained for social purposes; and actions to eliminate surplus labor. Although

^{92/} Joanne Salop, no date, "Economic Analysis of Projects: Towards a Results-Oriented Approach to Evaluation," Discussion draft, p. 29.

^{93/} World Bank, Portfolio Management Task Force, 1992, "Effective Implementation: Key to Development Impact," September 22, pp. 18-19.

^{94/} Ian Heggie, 1991, "Designing Major Policy Reform: Lessons from the Transport Sector," World Bank Discussion Paper No. 115, p. 4.

problems can never be averted completely, greater care during project preparation in the dialogue with the government and more up front conditionality can improve the probability of success. Tranching of loans is a useful way to enforce conditionality, and follow on projects should never be processed, or even prepared, while serious problems remain in earlier projects. Closer attention to government policies and intentions may also lead to the conclusion that certain conditions are completely unrealistic. The Bank cannot enforce institutional covenants not perceived as essential by the borrower and not deemed crucial enough to justify credit suspension, so a decision should be made at a very early stage whether the project makes sense without them. In some cases, small preliminary projects with limited goals might be justified. In cases of serious non-compliance, future lending in the sector should be made contingent on prior and full implementation of a list of specific actions.

133. Weaknesses remain in Bank treatment of the environment. Bank-wide, a review of 90 projects approved by the Board in FY91 found that of the 24 with environmental assessments, only three (in the area of flood control) referred to environmental issues in the economic analysis.^{95/} In the power sector treatment varies widely: in a few cases inordinate attention to the environment carries the risk that important technical, financial and economic components receive inadequate attention, but on the whole greater efforts are still needed to evaluate the costs and benefits of reducing adverse environmental impacts.^{96/} Projects in the WSS sector continue with few exceptions to deal superficially with the water resources issue, despite increasing incremental costs per cubic meter for system expansion. Relatively little has yet been done to explore pricing and technical aspects of water conservation, waste reduction, and environmentally sound disposal.^{97/} In the transport sector, while the treatment of environmental issues in some projects is outstanding (see above), weaknesses remain: some projects pay too little attention to road safety issues, even though road accidents are now the second most common cause of death among the economically active population in developing countries; transport components of urban projects are uniformly weak on environmental issues, failing to assess impacts; and there is too little emphasis on promoting sound environmental management practices. Economic and sector work also pay too little attention to the environment.^{98/}

134. As noted above, labor based construction and public works projects have been used to attack poverty, but there has been little analysis so far of whether these projects are cost effective. The treatment of poverty in the transport sector has improved, but on the whole attention to poverty—and WID—issues in that sector is still inadequate. In irrigation, despite the new approach, which favors low income farmers, poverty and women are still not always given sufficient attention: of the ten FY91 projects, three barely mentioned poverty and only two referred to the role of women.

^{95/} Salop, 1992, op. cit., p. 29.

^{96/} IENED, "FY91 Annual Sector Review: Energy," op. cit., p. 7.

^{97/} INUWS, "FY91 Sector Review," op. cit., p. 22.

^{98/} INUTD, "FY91 Transport Sector Review," op. cit., p. 19.