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STRUCTURE POLICY PAPER

The World Bank Group  
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Infrastructure Policy Paper



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## OFFICE MEMORANDUM

Discussed 7/29

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OFFICE OF THE VICE PRESIDENT  
SECTOR POLICY & RESEARCH

DATE: July 16, 1992

TO: Mr. V. Rajagopalan, OSPVP

FROM: Michael Cohen, Acting Director, INU  
*MAC*

EXTENSION: 31015

SUBJECT: Infrastructure Policy Paper/Review - Policy Brief

1. Attached please find a revised draft of the Policy Brief for what we have until now been calling the Infrastructure Policy Paper. In light of the recent Report on Board Procedures (revision of June 10), we would now propose to call the product a Sector Policy Review. This memo responds to the questions you raised in your comments on the last draft (our meeting of June 11), and considers the implications of this work in the context of the new Board procedures. We seek a decision from you on how to proceed with preparation of the paper in regard to the potential OD implications (see para. 7 below).

2. Relation of this work to other Bank work on privatization. One of the issues you raised concerned our paper's potential contribution on this topic as compared to the recent work by DEC on privatization. The proposed Infrastructure Policy Review will go significantly beyond the work that has already been done on privatization in the Bank. The recently published paper entitled "Privatization: The Lessons of Experience" focused on the question of ownership change. The analysis was based partly on a review of Bank experience with public sector reform in various sectors, and partly on twelve case studies of privatizations (mainly of infrastructure entities in telecommunications, power, and three transport subsectors) in four middle-high income countries. The paper presented some interesting and provocative findings, but it did not ground them in an analytical framework for approaching privatization in different sectors in all types of countries. By design, the paper also did not represent the full range of experience on other approaches to involving the private sector, short of divestiture. Because the analysis presented was not considered completely applicable to all situations, Senior Management hesitated to accept formally the recommendations of the Privatization Paper.

3. This Policy Review takes a different approach in a number of respects. For one, our paper tries to develop an explicit analytical framework for identifying the appropriate roles of both public and private actors, on the basis of examining each infrastructure sector as a set of distinct activities with different technological and economic characteristics. The framework leads to explicit criteria for choosing among possible institutional arrangements, of which privatization of ownership is but one alternative. Second, we have devoted considerable effort to assembling an extensive data base on the characteristics and performance of infrastructure (power, telecommunications, road and railways, and water supply and sanitation), which is larger and broader than that previously available within the Bank or from single sources elsewhere. Third, we have undertaken a comparative review of Bank operational experience and the performance of Bank projects across sectors. These activities build upon the efforts begun earlier by INU to examine infrastructure in a cross-sectoral perspective, as summarized in a forthcoming World Bank Discussion Paper by Arturo Israel ("Issues for Infrastructure Management in the 1990s).

4. This body of information and our analysis of it over the last months reveal some very interesting and potentially important new findings. For example, the data on the power sector for a large number of countries permit us to distinguish between the effects of ownership (totally public, totally private, or mixed) and multiplicity of entities (existence of multiple power companies) on performance, as measured by indicators of operational efficiency. The analysis suggests that the existence of a framework for competition is associated with efficiency improvements, even apart from partial changes in ownership. The policy implication may be that considerable efficiency gains can be had from competition between public and private entities, or among multiple public entities; this finding could be particularly relevant to the strategy for the transition period to more extensive privatization in some countries. The analysis also suggests that the increment in efficiency to be gained from full privatization varies in size across sectors; the data suggest a particularly strong case for full privatization in telecommunications and railways. Other data permit analysis of the separate effects on performance in roads and water supply of decentralization in the levels of government financing and implementation.

5. Implications for Bank practice. We consider that the empirical work, supported by the operational review and the analytical framework being developed, deepen considerably our understanding of the issues involved in reforming the public and private sectors' roles in infrastructure. Moreover, by taking a cross-sectoral approach, the paper enables us to clarify how certain general principles for policy reform can be applied more effectively to different circumstances. The paper will in this sense complement the recent Power Sector Policy Paper and the forthcoming Water Resources Policy Paper, but is quite distinct from them in scope and approach.

6. The Infrastructure Policy Review strengthens the basis for recommendations on Bank and country practices in these sectors, and will make the case for new decision criteria for lending. The paper will acknowledge the evolution in the Bank's approach to sector analysis and lending in infrastructure, and outline the further changes needed to establish new standards by which "best practice" in these sectors is judged. We consider that the conclusions are important enough to be brought to the Board's attention.

7. There do not yet exist Operational Directives covering the main issues that will be dealt with in this Policy Review, i.e. forms of private sector involvement for the sectors concerned, methods for incorporating participation of beneficiaries in project preparation and implementation, and the use of performance indicators to monitor the extent to which the project meets the needs of those beneficiaries. It will therefore be necessary to draft ODs, probably sector-specific, to incorporate the recommendations of the paper. However, if this is to be done in parallel with preparation of the Policy Review, it will require a substantial addition of time -- an extra six to nine months beyond the original schedule for Board presentation by end-FY93 -- and resources - 10 to 15 staff weeks from INU, plus input from COD and from other sectoral departments. We would appreciate your views on this matter.

#### Attachment

Distribution: Messrs./Mdmes. Pouliquen, Israel (INU); Salop (OSPVP); Annez, Kessides, Galenson (INURD)

Infrastructure Policy Paper  
Policy Brief

I. Background

1. The proposal to prepare an Infrastructure Policy Paper in 1992 is based on the growing recognition in both developed and developing countries that infrastructure problems pose significant constraints to their prospects for growth and achievement of development objectives. Investments in transportation, power, telecommunications, water supply and sanitation, and irrigation have accounted for one-third to one-half of public capital expenditures in developing countries, or roughly 2.5 - 5.0% of GDP; projects in these sectors have also absorbed 42% of World Bank lending over the past 45 years, and \$33 billion in the last five years alone. Yet strong evidence from all regions indicates that countries are not receiving the full benefits of these investments. The Bank's portfolio, while stronger in these sectors than in some others, raises serious questions about the long-term sustainability of projects.

2. The widespread dissatisfaction with sectoral performance is directed to four critical problems which have limited infrastructure's contribution to development. The most visible issue is that the supply, or availability, of infrastructure is inadequate given the level of economic development in many countries and thus creates a serious bottleneck to the growth of agriculture, industry, and services. In many cases, there is also an absolute shortage of infrastructure (especially water supply and sanitation) to meet basic needs. A second major problem is poor management of the existing facilities, resulting in low operational efficiency as evidenced, for example, by high rates of technical losses in power and unaccounted-for water, and low telephone call completion rates and equipment availability. Third, the inability to deliver services of adequate quality and reliability, coupled with poor financial management and inappropriate policies, have resulted in weak mobilization of financial resources, which further undermines operational performance. The cumulative effect of low operational efficiency and inadequate financing, combined with a consistent lack of maintenance, has led to frequent decapitalization of assets and physical deterioration of facilities.

3. While the inadequacy and poor functioning of infrastructure have been evident for some time, **these problems have taken on new urgency in the 1990s** in light of two related trends: (i) the increasing integration of the world economy, and (ii) the attempts of countries to resume growth after a decade of macroeconomic stabilization and structural adjustment. In global terms, the impacts of infrastructure problems are proving to be major factors in determining which economies will benefit from increased trade opportunities and which will be left behind. Reforms in the management and financing of infrastructure are prerequisites in many countries to the restoration of fiscal balance and creditworthiness. Adequate infrastructural support is essential to realize the productive potential of private investment and effective functioning of markets. There is also increasing concern that infrastructure is not making its potential contribution to environmental protection and poverty reduction. These issues have been highlighted recently in the Third Report on Adjustment Lending, in the 1990 and 1992 WDRs, and in an increasing number of research and ESW studies.

*Issues are related*

*See page 3 (ii)*

## II. Assessment of Infrastructure Performance

4. The above problems are essentially symptoms of a more profound issue, which is **an over-emphasis on the creation of infrastructure facilities or stocks (an orientation to supply) rather than on assuring the flow of services from these investments over time (an orientation to demand)**. This relative neglect of the quality and reliability of services has become increasingly costly as economies struggle to restore productivity and strengthen external competitiveness. The focus of infrastructure planning on the supply of physical facilities has diverted attention from opportunities to satisfy demand by influencing consumer behavior, through prices, and by improving service quality through better utilization of existing assets. The dynamic impacts of service use on the environment have also been neglected. Thus, traditional planning in the sectors has dealt ineffectively with, and even contributed to, problems such as congestion and pollution of air and water resources; it has also not addressed the diversity of users' needs, especially those of the poor. } Quality

5. This misplaced emphasis came about in large part from the traditional view that most of infrastructure is a public good and natural monopoly requiring public production and financing. The resulting reliance on public monopoly providers (supported by donor policies) led to a focus on centralized planning of physical stocks and on the investment process, rather than on ensuring that the services from those facilities would be sustainable and responsive to changing demands. However, recent institutional developments, for example, regarding the scope for exploiting contestability of markets, have revealed a broader range of alternatives for public and private sector involvement in infrastructure. Innovations in technology have facilitated new institutional arrangements for production and maintenance, as well as created demand for new and more varied infrastructure services.

6. In preparing the proposed policy paper, INU is analyzing data on infrastructure performance indicators for a large number of countries and is reviewing experience in past Bank infrastructure projects. This ongoing assessment, combined with other recent analyses of the sectors (such as the recent Power Sector Policy Paper and the forthcoming Water Resources Policy Paper), supports the above diagnosis and documents the consequences of the past approach:

(i) The emphasis on traditional planning approaches and public monopoly providers has resulted in rigid methods of supply which have allowed little role for users in the design, construction, and operation of infrastructure facilities. Partially as a consequence of their protected status, suppliers remain unaccountable for performance and unresponsive to changing demand by consumers. The cumulative effect of these patterns in many countries has been a seriously inadequate supply of infrastructure which has burdened rather than supported nascent private enterprises, particularly small/medium-sized enterprises, and thus reduced potential output growth and job creation.

(ii) The lack of competition and accountability in infrastructure provision has contributed to low operational efficiency, reliability, and quality of infrastructure services in

many circumstances, as well as a low rate of technological innovation. This conclusion is generally supported by preliminary analysis of data on telecommunications, power, roads, and water supply for a large number of developing countries, which suggests that multiplicity of providers, and decentralized financing and implementation, are linked to improved infrastructure performance.

(iii) Inappropriate public sector financial policies have resulted in weak mobilization of private resources for infrastructure. This has reduced the sustainability and diversity of infrastructure services. The dominance of public monopoly providers has also led to highly politicized investment and pricing decisions. Inefficient pricing and poorly-targeted subsidies have further contributed to patterns of demand which in many cases have been harmful to the environment, and reduced the access of the poor to an acceptable level of service.

(iv) The relative emphasis of public sector entities (and donors) on new investment has been a major reason for the frequent lack of attention to maintenance. This consequence completes the often-cited vicious circle of inadequate O&M, poor service delivery, low cost recovery, deterioration of assets, and increasing costs of rehabilitation.

7. While the Bank has supported the creation of a significant stock of infrastructure in developing countries, **the flow of services from many of these investments has not met expectations, and long term sustainability is questionable.** On the one hand, infrastructure projects have performed better than Bank projects as a whole, in terms of the recalculated economic rate of return; 85% of infrastructure projects evaluated by OED between 1974-90 were rated satisfactory upon completion, compared to 77% Bank-wide. However, longer-term sustainability is considered likely in only 59% of the infrastructure projects evaluated in 1986-90, which is slightly better than for the Bank as a whole (51%), but well under the share of projects rated as satisfactory. These formal evaluation results of the Bank's portfolio suggest grounds for concern about these sectors, given that Bank projects usually represent the "best" infrastructure projects available and the financial and economic costs of investment mistakes in this area are enormous.

### III. Major Policy Messages: A Framework for Improvement

8. In order to redress the investment orientation in infrastructure provision and improve the performance of services, **three fundamental policy and behavioral improvements must be encouraged by governments and donor agencies.**

9. First, policies should be adopted which create a market orientation to the provision of infrastructure, in particular by actively promoting competition. The establishment of a competitive environment for the provision of infrastructure services encourages greater productive, allocative, and dynamic efficiency. It is apparent that there are many opportunities for market incentives and private sector roles in this process if infrastructure is broken down into its many component parts (e.g., services versus physical facilities). Developing an appropriate

partnership between public and private sector agents to realize more efficient and effective forms of service provision would result in the following range of institutional alternatives:

(i) where infrastructure activities can be subject to competitive or contestable market conditions, liberalization of entry and divestiture of ownership (coupled with tax/subsidy policies where needed to address externalities) represent the appropriate policy stance. Institutional arrangements to foster competition, especially during a transitional period, may include various forms of leasing or concessioning;

(ii) where extensive intervention by the public sector remains necessary for efficiency because of the economic or technological characteristics of the activities (e.g., natural monopoly), policy and institutional reforms should ensure accountability and incentives for efficient performance. Depending on circumstances in the particular sector and country, appropriate alternatives may include commercialization and corporatization of public utilities, contracting-out of specific O&M functions, auctioning the right to operate monopoly infrastructure through concessioning, or promoting decentralization and "voice" in activities which must remain under government administration;

(iii) regulatory policy needs to adjust accordingly for the two categories above. Under competitive or contestable conditions, regulation of entry and pricing can be largely eliminated; where such conditions cannot be created, an independent and effective regulatory authority is needed. To minimize regulatory failure, especially given the weak administrative capacity in many countries, pragmatic approaches such as yardstick competition and regulation through contracts should be considered;

(iv) where communal interests exist in the provision of shared services and intermediate technologies, promotion of local user or "self-help" organizations, NGOs, cooperatives, etc. is appropriate.

The Policy Paper will elaborate in some detail a strategic approach and decision criteria for the choice of appropriate institutional and regulatory alternatives at the level of various infrastructure subsectors and activities.

10. Second, to strengthen incentives for a market orientation, there should be increased emphasis on linking costs and benefits of infrastructure services through pricing and financing policies. The Bank has been stressing tariff adjustment and cost recovery in the policy dialogue on infrastructure for years, with mixed results. In some cases (such as the four major irrigation borrowers), user charges are still not imposed despite Bank conditionality, or they exist formally but revenues are not effectively collected - sometimes because users are not receiving consistent services in return. Yet it is clear that pricing (including tax and subsidy policy) has the potential to become a key instrument to guide investment selection; to mobilize resources, especially for operation and maintenance; and to manage demand - particularly for infrastructure services subject to severe congestion and environmentally-damaging overuse. To make better use of pricing as a tool for planning and managing infrastructure, prices should reflect the costs of



capital and environmental externalities, and collection methods need to be improved. Once the private sector is involved more extensively in financing and managing infrastructure as discussed above, a more effective use of pricing for all of these objectives will be likely to follow.

11. The Bank has also expressed much concern in the past with making public utilities responsible for financing their current operations and at least some share of capital costs from internal revenues. This traditional emphasis of the Bank on commercialization of public entities becomes more important to implement effectively in the future, in the context of objectives to scale back government budgetary obligations and to permit fair competition between private and public suppliers of infrastructure. Another aspect of this "standard" Bank message which is relatively new is its relevance not only to utility-type activities, but also to subsectors such as road management, which can in many respects be operated commercially but are still commonly the domain of government departments. To operationalize financial autonomy and attract private sector financing to a greater extent in infrastructure, additional measures may be needed in many countries to develop instruments and legal mechanisms for the mobilization of medium and long-term capital from the domestic financial market. Finally, even with increased financing of infrastructure by the private sector, some community service obligations, such as access for low income users, may continue to require targeted budgetary transfers.

12. Third, there should be increased attention to the measurement of user demand and service performance to ensure more effective design of policies and investments. Greater competition in the supply of infrastructure will lead naturally to an increased emphasis on the quality and reliability of services in response to effective demand, by introducing the "marketing" function now absent from much of infrastructure. Where competition is not feasible, other instruments to elicit demand, such as user surveys and consumer representation on management boards of utilities, will be necessary. Giving users a major role in the design, operation and maintenance of infrastructure projects will help to focus attention on the impacts of given investments on the environment. The empowerment of users can also be a way to ensure that the needs of the poor for infrastructure are met.

of ports, roads  
& roads  
?

13. New approaches are also needed to measure the performance of infrastructure in relation to demand, and feed this information into planning decisions. As the provision environment for infrastructure becomes more competitive and diversified, performance measurement techniques will be needed which can monitor the quality of services, permit timely interventions for diagnosis and maintenance, and support necessary regulation.

#### IV. Implications for the World Bank

14. The Bank's strategies of assistance to infrastructure have evolved considerably over time, from pure investment projects to adjustment lending with greater attention to institutional development issues. The policy paper will argue that it is now time for a more fundamental change in approach, in order to achieve sustainable improvements in the flow of infrastructure services. **This change implies that the Bank should direct its technical advice and financial**

assistance towards promoting a more efficient market or system for service provision, rather than primarily supporting investment in facilities (traditionally those of a public monopoly) - although in many cases, lending to public agencies may continue to be the appropriate response.

15. The proposal to support an orientation to "service markets" in infrastructure implies a change in the objectives of Bank assistance. This has significant requirements for all modes of Bank involvement in these sectors, and implies changing the standards by which good practice is judged in the following activities:

16. Country Economic and Sector Work. CESW should provide the analytical underpinning for assistance strategies aimed at improving the system for delivering infrastructure services to a specified market or markets. The "market" can be defined broadly or narrowly - for example, by geographic area (urban/rural) or by user group (e.g., exporters) -- depending on the particular country priorities; but what is important is that the analysis of sector development needs be clearly derived from an explicit consideration of the nature of demand from particular users. In this analysis of the "market" for infrastructure, ESW should (i) assess the existing system for service provision, including informal networks and sources of supply; (ii) assess the effective demand for services from specified user groups; (iii) determine the most efficient and workable structure of provision for each activity comprising an infrastructure service subsector; and (iv) identify the improvements in public policy (including regulatory, pricing, fiscal and financial sector policy) needed to support this structure of provision.

17. Country Strategy Formulation. CSPs should demonstrate how the assistance strategy in infrastructure enhances the sector's contribution to key developmental objectives, in particular by indicating the linkages between infrastructural improvements and the expected sources of growth in the economy (e.g., international trade), poverty reduction and environmental protection.

18. Project Design and Evaluation. An explicit analysis of the rationale for public or private responsibility for the various functions to be supported under the project (financing, regulation, construction, operation and maintenance) must become a basic feature of project appraisals. Where it is determined that the public sector role is not sufficiently justified or is overextended, project design should include measures to shift activities to the private sector and reduce or eliminate the public sector role. Where public sector provision is supported, projects should incorporate strong incentives for improved performance, preferably through some competition in the delivery of services. With this approach, the design of projects may combine elements of financial support, policy reform, and technical assistance to promote both private and public sector involvement in different areas of activity. It must be demonstrated that the necessary regulatory capacity will be available to make these arrangements workable and that access of the poor to essential services will be protected.

19. Project appraisals must also demonstrate that demand for services delivered have been adequately assessed and that measures are in place to monitor user satisfaction throughout

Should we do sector work as of now eg. Transport, WSS, Power?

which?

to be

would be part

the life of the project. Related to this requirement, the Bank should use a broader set of performance indicators, including service quality as determined by users, as a key feature in sector policy dialogue, in the design of projects, and in the evaluation of development effectiveness.

20. Research. The Bank should give greater support to research on infrastructure, which has been relatively neglected in the past. Priority topics for research would include the impacts of different types of infrastructure services on productivity, poverty, and the environment; the relative effectiveness of various ownership and regulatory regimes in particular circumstances; and approaches to assessing demand and quality of services.

21. Procurement. Basic operational procedures regarding procurement need to introduce greater flexibility in contract packaging to ensure that they are compatible with the objectives of actively promoting private sector involvement and focussing on efficient delivery of infrastructure services rather than creation of infrastructure facilities. This need for flexibility may imply some revision to the Operational Directive on procurement.

What does this mean?

22. Other Implications for the Bank. Basic operational procedures regarding modes of financial support to non-public entities should be re-examined to ensure that they are compatible with promoting private sector involvement in infrastructure delivery and mobilizing private funds for infrastructure investments. There do not yet exist Operational Directives covering the main issues to be raised in the Policy Paper (i.e., regarding forms of private sector involvement for the sectors concerned, methods for incorporating participation of beneficiaries, and the use of performance indicators to monitor user satisfaction); these would have to be prepared as an outcome of the Paper.

23. All of the above actions also imply a substantial change in the skill mix needed for sector analysis, project design and supervision. An assessment of the skills required of staff in the infrastructure sector and investments in training are necessary complements to implementing the new approach described above.

ANNEX

Proposed Schedule

Policy Brief:

To OSP Divisions, Regional SODs, Lead Economists, DEC divisions	March 12, 1992
Regional Working Level meeting	March 31, 1992
To OSPVP	May 15, 1992
OSPVP to RVPs	Sept. 18, 1992
OSPVP to EXC	Oct. 16, 1992

Policy Paper:

Draft to INU Director	July 31, 1992
To Regional COD/SOD Chiefs, Lead Economists, OSP and DEC divisions	October 16, 1992
Regional Working Level meeting	November 2, 1992
To OSPVP	December 7, 1992
OSPVP to RVPs	December 30, 1992
RVP meeting	January 15, 1993
OSPVP to EXC	February 15, 1993
To Board	April 1993

Parallel Activities:

Operational Support and Peer Review: Starting October 1992  
Training Seminar: February 1993  
Consultations outside the Bank: November 1992-March 1993

July 15, 1992