SECTOR SUPPORT STRATEGY PAPER

TRANSPORTATION

Transportation and Water Department, January 28, 1983
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SECTOR SUPPORT STRATEGY PAPER: TRANSPORTATION

Summary

i. Efficient transport is a key factor in economic, social and political development. It is the cutting edge of economic activity in areas being opened up for settlement. Once established, it requires constant adaptation to the requirements of the economy and the society.

ii. Transport demand tends to grow faster than GNP at early and middle stages of development. This is particularly true on the passenger side, where demand often increases more rapidly than for any other major class of good or service. The importance of agriculture and manufacturing at those stages of development, and growing regional specialization, mean that total freight movements also usually increase faster than GNP. Current emphases in many countries on increasing exports, and food and fuel production, are likely to reinforce this tendency.

iii. Meeting these demands is costly and lays large burdens on development programs. Besides the growth of current demand, many countries also face the need to eliminate transport bottlenecks and to catch up with maintenance and rehabilitation backlogs. With few exceptions, provision of transport infrastructure is recognized everywhere as essentially a public-sector responsibility. The transport sector has typically been a major user of public budgetary funds. Yet sound planning of transport sector investments remains the exception rather than the rule. Due to its dependence on liquid fuels, the transport sector has now also become a significant burden on most countries' balance of payments. Of the oil-importing developing countries' total energy import bill of $74 billion in 1980 some 50% was for transport.

iv. Faced with tightening budgetary and foreign exchange constraints, Governments are seeking ways to economize. The transport sector does offer considerable potential for more efficient use of resources. Better project selection mechanisms and closer integration among modes are often required. Infrastructure is giving poorer service and lasting less long than it could, due to inadequate construction or poor maintenance. Maintenance equipment fleets are often poorly managed and underexploited. Construction design standards have often been excessive in some respects, and inadequate in others. Charges for use of infrastructure have not been guiding demand appropriately.

v. In many countries, development of transport services has suffered from excessive Governmental regulation and protection of established interests. State-owned transport enterprises have often required increasing operating subsidies. Incentives to efficiency in operations have been weak. Innovation and local initiative have been discouraged. Yet transport requirements are immensely complex and varying. Hence, appropriate allocation within and between modes is best achieved where, through a competitive market or through other means, the supply of services is made to adjust quickly and effectively.
vi. The Bank has played a major role in the build-up and strengthening of transport sector institutions in the developing countries. Its contribution has varied according to country needs and has ranged from the set-up of Highway Departments to the establishment of sectoral planning agencies. Its general aim has been to help improve the efficiency of the transport sector by encouraging:

(a) innovation and adjustments, usually through competition, to keep the industry dynamic, and costs as low as they can be;

(b) adoption of pricing structures and price levels that reflect real resource and social costs;

(c) development of regulatory environments that encourage enterprise, technical improvements, decentralized decision-making and adequate safety levels; and

(d) equitable treatment of all modes in their access to capital, foreign exchange, and markets.

These principles are neutral as to the public or private ownership of assets. They have been relevant in the Bank's work with both mixed and socialist economies.

vii. This paper deals essentially with the application of these principles to transport outside urban areas, since the Urban Development Department, which carries lead responsibility in the Bank for urban transport, is preparing a separate paper. It assesses Bank activity in transport over the last three years. It focuses on the next three years, outlining overall Bank strategy in transportation and developing a TWD strategy for support to the Regions.

Recent Bank Performance

viii. Bank transport activity of the last few years has been responding to the changing needs of the borrowing countries. Tools have been sharpened in fields like maintenance planning, improvement of operational efficiency, upgrading of rural infrastructure, and development of human resources. The same process is well along in areas that have newly become important such as techniques for saving energy in transport, and policies for effective operation of transport systems consisting of several interacting and competing modes.

ix. Bank staff have fashioned new types of projects and project conditions. And many, if not most, of the more traditional types of project have had new features and components, such as improvement of domestic construction capacities, enlarged training programs, more flexible sub-project selection arrangements, or increased assistance for policy studies.
Two important philosophical changes have also been underway. First, concern for the building of individual institutions has been replaced with the wider notion of capacity-building. This emphasizes networks of institutions in the private as well as the public sector. And it expresses a renewed commitment to the development of human technical and managerial capacities. Second, preoccupation with cost-minimization for meeting given transport demands is being replaced by broader resource-saving. This involves improvement of the policies which affect and channel transport demands, instead of taking those demands as given. And it requires consideration of a wider array of alternative solutions than were often examined in the past.

Improvement of the maintenance and operation of infrastructure has been the overriding theme of Bank transportation lending in the last few years. All the major modes have seen some projects entirely devoted to this purpose and numerous projects combining this with some upgrading of the infrastructure. Many dimensions require consideration in programs to improve maintenance, from staff motivation to spare parts control. Comprehensive Action Planning, which had been largely limited to railways, was applied more deeply there and extended to the other modes. The Bank's new model for planning road maintenance was used to help prepare more than 30 Bank projects and is now used in some countries for regular planning.

The Bank has had a major impact in the last few years in getting more adequate attention in its member countries to better maintenance. Some of the new loan covenants used have helped significantly, even if not always fulfilled to the letter. Many external seminars have been held on the basis of a 1979 policy paper on maintenance. But there is still a long way to go in bringing maintenance capacity to adequate levels — especially mechanical maintenance, axle-load control and maintenance of rural infrastructure.

Traditional institution-building work has continued with both central planning units and modal agencies. Procedures for data collection, planning, project selection and investment monitoring have been strengthened. More emphasis has been given, in particular, to staff training and to better Action Planning for improvement of operational efficiency. Steps have been developed to further increase the responsibility and powers of operating agency managements. Many railway and water transport projects have helped strengthen institutions which should be handling somewhat larger shares of total traffic following the energy price increases.

Transport projects have also helped to achieve the substantial adjustments of prices and user charges necessitated by the energy price increases and broader inflation of the 1970s. Railway financial performance remains a serious problem, but loan provisions for regular review of tariffs have helped reduce delays in tariff adjustments. Bank dialogue has contributed to adjustment of petroleum product prices and road user taxes in several countries. However, more systematic attention is still needed in highway project appraisals to the structure, as opposed to the overall level, of road user charges. A review of the potential for
energy conservation in transport has just been completed. A research project has been started to strengthen Bank capacity to advise on the pricing and taxation of transport fuels.

xv. Some 20-30% of recent highways lending has been devoted to rural roads, and about as much again has been provided by transport components of loans for Agriculture and Rural Development projects. Particular attention has been given to coordination of planning with that for other activities in the area affected. Numerous projects have helped shape a sound institutional structure, at the national or state level, for handling the planning, construction and maintenance of rural roads. A few have helped specifically to develop community-level involvement in planning and construction.

xvi. Most port, many railway and a few highway projects in the last few years have contributed substantially to easing the flow of international trade. Increased effort has been given in preparation of port projects, with some success, to overcoming the major constraints to operating efficiency that are posed by restrictive labor practices. Serious delays and cost increases continue to be problems in execution of port projects, but in a smaller proportion of cases than in the past due to emphasis on full engineering preparation. The Bank has provided a wide range of advice, not always connected with transport loans, on containerization and other international transport issues.

New Opportunity for the Bank

xvii. Recently Governments have shown increased readiness to consider significant policy reform and pricing changes in transport. This is an area where traditionally the Bank has been less successful than in building up better investment allocation mechanisms and appropriate technical standards. However, in face of the difficulties of the last few years, a number of borrowing countries have begun to introduce policy measures which had long been advocated by the Bank but had previously been considered too difficult.

xviii. Various Governments have reduced regulation of the trucking industry and abolished loss-making state-owned enterprises in this field. Others have opened up the road passenger transport industry. Several have made major adjustments in road user taxation and rail tariffs. A few have introduced scarcity pricing of certain state-owned transport facilities in short supply. A number of countries have initiated major reviews of transport policy.

xix. While continuing its traditional institution-building role, the Bank should be prepared to face new opportunities in the transport sector. Completed Bank-assisted projects have generally shown good rates of return, although somewhat weaker in sub-Saharan Africa than elsewhere and in railways and ports than in highways. Valuable contributions have also been made to the gradual improvement of countries' institutions, procedures and staff, in areas like planning, contracting, maintenance, accounting, and operational management. Now the long-standing concern to help improve
sector policies shows greater possibility of success and is worth more detailed attention than it has sometimes had in past operations.

xx. This has already begun to reflect itself in operations. Excessive regulation of the trucking industry was taken up in discussion of several loans. Studies have been started, and some relaxations have already been introduced. Some Highway Sector Loans (6 to date) and multi-modal projects (5 to date) have proven particularly useful for dealing with sector policy issues. But the effort needs further broadening and deepening. More attention must go to the legal and procedural constraints preventing or restricting competition with some of the Bank's large public-sector borrowers.

xxi. Progress in policy reform will not be fast or easy, any more than in the institutional area. But there is no major UN agency other than the Bank with a mandate across all modes. The Bank has a uniquely large and broad experience in transport. It has a clear responsibility to promote this progress -- in a consistent and realistic fashion. The Bank's experience in transport lending repeatedly demonstrates that significant change can be brought about, but only slowly. The effort therefore has to be steady and sustained, through a series of lending operations.

xxii. Pursuit of policy reform in the sector also fits with the Bank's concern to contribute both to growth and equity. Economies resulting from improved sector policies will increase resources available for poverty-oriented programs, including improvement of rural and slum roads to increase access to employment opportunities. Reduced regulation of transport services will provide greater scope for non-conventional solutions (ranging from animal-drawn carts to lower-priced off-peak services on major facilities) which can sometimes be run by the informal sector and would often be most used by the poor.

Six Main Needs in Transport Development

xxiii. A continuing top-priority need in most developing countries is to develop more adequate and efficient capacity for investment planning, project selection, contracting and maintenance in the transport sector. This involves questions of discipline, attitudes and incentives as well as skills and techniques. In mixed economies it involves finding the appropriate mix between the private sector, which can be used for effective construction, maintenance, operation and utilization of transport infrastructure and the public sector which has to plan and supervise. In socialist economies it is a matter of promoting appropriate institutional devices which can approximate market mechanisms.

xxiv. Important in most countries, and of overriding importance in some, is to further increase the efficiency of transport operating agencies, such as railway corporations, port and airport authorities and public trucking companies. More staff training is needed, both in the technical aspects of their work and in the management of others. At least as important is better structuring of responsibilities between and within agencies so as to give clear tasks and corresponding powers. More
effective competition needs to be encouraged. Central planning authorities have to give greater attention to policy planning. This kind of work often requires integration with broader efforts to improve the functioning of state-owned economic enterprises.

xxv. Energy economy has become a matter of concern to all countries. Arbitrary controls on vehicle operation are not useful, and large new railway investments intended to save energy have to be examined very carefully to ensure that they are in fact economically justified. Transport investments must still be selected on the basis of general economic criteria rather than merely energy-saving ones. But there is considerable potential for cost-effective energy saving in transport -- by better vehicle operation and maintenance, more efficient utilization of vehicle fleets, gradual conversion of fleets to more energy-efficient vehicles, marginal shifts of traffic to less energy-intensive modes, and improved urban traffic management.

xxvi. Transport is a major element of sound regional development. In this context rural transport improvements remain much needed. They are a vital component of development strategies emphasizing rural areas and agricultural growth, to provide more food and fuel, to incorporate the rural poor more effectively in the development process, and to generate increased export earnings. Rural transport investments have to be carefully planned in the context of broader development and with proper attention to alternative modes. Fuller attention should be given to simple tracks for non-conventional vehicles. More needs to be done to involve local communities in infrastructure planning and construction.

xxvii. International trade is likely to impose larger requirements for transport investment in the developing countries in the 1980s than in the 1970s. This is due to the growth of trade and, even more, the spread of containerization. Efficient planning and staging of the investments involved -- in ports, airports, railways, some trunk roads, and inland terminals -- will be particularly important. Special efforts are required to improve port operating efficiency. The trade and transport 'facilitation' measures that have been developed and applied so successfully in Europe -- such as document simplification, customs guarantees, and international licensing of vehicles -- must be spread more fully to the developing countries.

xxviii. A last particular priority is to help sub-Saharan Africa and other least-developed regions overcome their unusually difficult transport problems. To an even greater extent than elsewhere, the need is principally to improve maintenance and operation of facilities. This means capacity-building and training, with particular stress on capacities for managing and executing the maintenance of civil works and mechanical equipment and the operation of complex transport systems such as railways and ports.

Sector Work

xxix. Transport sector work should focus more directly on identifying ways to make the transport market function better. Generally, the four
most fruitful policy areas for attention at this time are: institutional
and legal structures affecting competition within and between modes;
pricing and taxing rules, practices and structures; other steps to improve
the energy efficiency of the transport sector; and measures to raise the
responsiveness to market demands of the public agencies responsible for
infrastructure provision.

xxx. Work on such policy issues should accompany continued strong Bank
emphasis on upgrading countries' investment planning capabilities and
helping them design sound investment programs. Current resource
constraints add to the importance of this work. Some Governments face
choices of great importance among alternative transport investments. Few
are providing adequately for maintenance. Bank assistance on such issues
is particularly important because other donors, sometimes motivated by
commercial interests, are seldom inclined to address difficult project
selection and investment programming choices. Which of the policy and
investment issues to give priority to in sector work can only be decided
for a particular country at a particular period.

xxxi. Sector policy studies should continue to be done increasingly by
borrowers and their consultants. Bank staff-time should be conserved
mainly for work to identify and delineate issues, guide those studying them
in depth, review and follow up conclusions, and discuss actions with the
responsible authorities. The link between ongoing Bank Research in
transport and relevant studies undertaken under loans should also be
strengthened. Bank Transport Sector Memoranda may need to be briefer, and
become rather Sector Strategy Papers. They should review and guide all
relevant project work, whether on transport projects or on the many other
types of projects which have transport components or can contribute to the
improvement of transport.

xxxii. Projects should be selected and formulated in such a way as to
help gradually bring about any needed policy reforms. What it is wise to
seek in terms of loan preconditions or conditions varies greatly, depending
on such factors as the state of the dialogue with the borrower and the
significance of the Bank as a lender.

xxxiii. However, loan preconditions and conditions are likely to range
wider than the investment and financial performance issues which have
generally been most important in the past. More attention should go to the
sector as a whole, including all modes and transport services as well as
infrastructure, in deciding upon loan conditions. Where action is still
outstanding on issues long studied and agreed in principle, clear progress
in their resolution should be expected before commitment of a new loan.
The burden of promoting appropriate policy reform should thus be shared
across the whole lending program.

Future Lending Program

xxxiv. The most recent available consolidation of the Bank's lending
Program (March 1982) indicated that total lending for transport (including
urban transport) would represent about the same share of all Bank lending
in FY82-85 as it did in FY77-81. Of the total 17-18%, about 13-14% would be for transport projects, and 4% for transport components of other projects, principally Agriculture and Rural Development, Urban and Industry. This would mean a small increase in transport lending in real terms, entirely due to expanded lending in Asia.

However, transportation lending programs appear to have strengthened in several Regions since March 1982. As they then stood, it appeared that planned lending would be inadequate to sustain the dialogue with some countries on improvements in policies and practices. In three Regions the percentage of active borrowing countries to receive transport loans was to drop sharply between FY77-81 and FY82-85. The drop was most acute in Western Africa. Now it appears that, while the annual amount of lending would drop in that Region, it would remain sufficient to preserve an influential voice for the Bank in the sector in the same high proportion of borrowing countries as in the past. Other Regional lending programs have also strengthened. But it will be important to guard against the planned number of projects or funding level for a country again falling below the level needed to assure an effective dialogue in each case.

The transport sector should pursue co-financing more actively. This could help to compensate for slow growth in the Bank's own lending and would help to ensure a better use of external funds available for transport investment. Co-financing of Bank transport projects has increased substantially relative to Bank lending amounts in recent years. It has spread from railways to ports and highways and come from a wider range of sources, including private banks.

To further promote co-financing, three steps appear worthwhile. First, Regional programs and transport divisions should give high priority to technical contacts with potential co-financiers at early stages in the genesis of projects. Second, more attention should be given in appropriate cases (e.g., ports, and routes of great interest for international trade) to any possibilities for involving private foreign investors, whether banks through loans or bond purchases, or transport operating companies, through direct investments. Third, to foster common understanding on transport problems and help avoid undesirable inconsistencies that sometimes arise in independent operations, the Bank should continue to organize ad hoc meetings on particular subjects or problems, such as transport maintenance, which need joint pursuit.

Project Content

Highway projects will remain the most important single form of transport lending, affecting the largest number of countries. Their main focus should continue to be on building up capacity in the public and private sectors for maintenance, renewal and network management. They will therefore consist largely of specially tailored programs of financing, technical assistance and training to achieve the next stage in development of local capabilities. A somewhat more selective approach than in the past should be taken to equipment financing. The more flexible policies on financing of recurrent costs that the Bank has introduced in recent years will need to be applied more widely and extended.
xxxix. Highway loans, whether for projects or sector programs, should be used considerably more than previously to deal with policy issues such as taxation of road users, deregulation of transport services and reform of Government contracting procedures. All highway loan appraisals should include at least a simple analysis of the structure of road user taxation and a sound evaluation of economic regulation affecting the road transport industry.

xl. Improvement of rural transport infrastructure is likely to continue to account for about 4% of total Bank lending. A larger share than in the past will be through transport loans. Greater efforts must be made to spread the use of labor-intensive techniques of construction and maintenance for rural infrastructure, whether for transport or other purposes. Wherever the basic wage actually paid in the area affected is less than the equivalent of about US$4.00 per day in 1982 prices, and labor is available in adequate quantities, the alternative of using labor-intensive techniques should be seriously considered.

xli. Increased attention should also be given, in rural transport projects, to the development of arrangements for more effective local participation, at the village and/or district level, in the planning of works. Tracks and trails, as well as air, river and sea transport alternatives need more consideration, in addition to conventional rural roads. Also, obstacles to the spread of lower-cost, non-conventional vehicles, such as their ineligibility for credit and restrictions on their import and licensing, need to be examined, and serious efforts made to overcome them.

xlii. Railways may account for a substantially increased share of total transport lending, nearly one-third. But railway loans will be made to fewer countries than in the past. These changes reflect the combined impact of the recently agreed greater selectivity in railway lending, the increased comparative advantage of densely trafficked railway lines following the energy price increases, and large backlogs in modernization in individual countries. The main task within railways lending in the next few years will be to fully apply the more selective and focussed approaches outlined in the recent Bank policy paper on "The Railways Problem".

xliii. Seaports serving foreign trade may also receive a somewhat increased share of Bank lending in the coming years. Almost all the projects will involve introduction and expansion of modern bulk-handling methods and/or containerization. In the preparation of such projects, the Bank should continue to insist, and increase its advice, on resolution of labor problems which prevent efficient use of these new techniques. Attention should be further increased to preparation and follow-up of Action Plans, and underlying measures, to increase port operating efficiency. Improved costing, pricing and competitive subcontracting need additional emphasis in port operations. Trade and transport 'facilitation' efforts also warrant more frequent consideration.

xliv. Lending for domestic water transport remains the smallest among the transport categories but increases fastest. It includes national
inter-island services, most inland water transport, and facilities for national coastal shipping. Particularly where they can make an important contribution to increasing transport's energy efficiency, the Bank should continue its efforts to generate projects in these modes. They often suffered neglect in countries' earlier transport development programs. Main problems to be resolved include excessive Government economic regulation and restrictions on competition in service provision, restrictive port labor practices, neglected maintenance, and insurance and customs problems.

xlvi. Initial experience with projects that include components relating to more than one mode of transport suggests that they should be further encouraged. Intermodal interchange arrangements often offer particular opportunities for efficiency improvements. Projects involving several modes may form a useful framework for discussions, studies and action, by Government, on sector policy issues relating to competition and cooperation between the modes. The modern truck terminal is likely to be the centerpiece of some projects appropriate for Bank support in the coming years.

xlvi. Most loans will continue, however, to be for individual modes. The crucial point will be to assure proper attention to inter-modal considerations in the selection and design of pricing and efficiency improvements sought through them. To give more emphasis to policy issues, loans should move increasingly to a sectoral or subsectoral (modal) basis, contributing to the accomplishment of comprehensive investment programs. But advantage must be taken of experience to date with highway (sub-) sector lending to make policy objectives clearer in each case and policy conditions more rigorous, and to include better yardsticks for measuring progress.

xlvii. The transport sector should provide greater support to country economic work, especially in such areas as regional development planning, plan reviews, etc. Conversely, transport sector policy issues need to be pursued in the general country dialogue. Transport work on Plan Investment Reviews, and on Contract Plans between Governments and state-owned transport enterprises, serves both transport and broader purposes. Support at the macroeconomic level is particularly needed for resolving issues such as transport operating subsidies and the channelling of foreign exchange for purchase of spare parts. It will be important also for some of the issues arising in connection with development of the domestic construction industry.

xlviii. Training of borrowers' staff still needs fuller attention, earlier in the project preparation cycle, although efforts on this have increased significantly in recent years. Borrowing agencies' training programs need to be further enlarged. Well worked out plans for expansion should normally be ready by the time of loan approval, so that they can go immediately into execution. Particular attention should be given to management training. Development of borrowing countries' technical services and research capacity in transport engineering and economics
should continue to be fostered. EDI will continue to have a vital supportive role to the Bank's effort in transport, especially to spread capacity for sector policy analysis and reform.

Organization of Sector Staff

il. The Bank's transport staff face a difficult task, to foster and respond to the borrowing countries' increased readiness to consider sector policy reform, while still maintaining and improving the patient institution-building work of the past. The availability of additional appropriate staff resources would certainly help to speed implementation of the emphases described in the last pages. But the impossibility for the Bank to provide such resources at this time does not prevent steady implementation. The Bank's transport staff have demonstrated imagination and flexibility in the large number of innovative projects and project features developed over the last few years.

1. During 1982 there has been a slight reduction in the approximately 175 higher-level staff positions previously devoted to the sector. This reflects Bankwide budget constraints and a small decrease in the number of loans earlier programmed to be made each year, especially in highways. Staff numbers may have to be readjusted again with the recent revisions of Regional lending programs. In any event, however, projects and project thrusts will have to be chosen very carefully to ensure scarce staff-time is concentrated on operations making the greatest possible contribution to development. Greater reliance will have to be placed on borrowers and consultants for standard engineering economics work. More use will need to be made of technical assistance loans and loan components.

iii. The eleven Transport Divisions in the Regions are now organized in such a way as to give effective emphasis to sectoral issues. They account for about 85% of the Bank's transport staff. Several Regions have reorganized these Divisions recently so as to give them full responsibility for all modes of transport in a sub-group of their countries. This is an appropriate response to the borrowing countries' increased concern to improve the efficiency of the sector as a whole, although it involves minor difficulties in efficient scheduling of more specialized Regional staff.

iv. Of the other 15% of the Bank's transport staff about two-thirds are in TWD and one-third distributed among EDI, OED and EDC. Four of TWD's staff-members have been in the Department much more than five years, due to a combination of special talents and Bankwide difficulties in rotating senior staff. The other fourteen have been recruited almost equally from Regional Transport Divisions, other Bank assignments, and outside the Bank.

v. TWD is also making minor organizational changes to strengthen sector policy emphasis. The particular form of organization adopted in 1977 -- small units with comprehensive responsibilities for the different modes and project-types -- has helped to get a good interaction between operational, policy and research work. However, to strengthen treatment of sectoral issues, more of the resources in the Economic Adviser's Office are being devoted to review and support of Regional sector work. Also, economists in several of the subject-area units are being given an explicit cross-responsibility to the Economic Adviser for purposes of such work.
liv. The need for uncommon specialists, and the best organizational location for them, have to be kept under review. They now number less than ten, more than half being in the Regions. Increased diversity of projects to respond to countries' particular needs might in future require addition of a few more such specialists. Sufficient and appropriate specialists have so far normally been brought to bear on operations by flexible use of consultant arrangements, inter-Regional lending of staff, staff transfers and several TWD positions for staff who devote part of their time to direct support of the Regions in specialized areas. One new pool position, directly subscribed out of numerous departments' consulting budgets, has just been created in TWD. Even in the three main transport modes, fall-off in one or another Region's lending could eventually make it desirable to recentralize technical staff involved, for wider use.

Plan for TWD

lv. In the hard job ahead of Bank transport staff, the principal task for TWD is to help the Regional Divisions take full advantage of their new sector focus, and of the series of overview papers it has issued in recent years -- of which this document represents the culmination. TWD certainly should not expect to be the originator of all or even most innovation, any more than it has been in the past. Rather it should be the stimulator, patron and assistant to innovation, particularly that developed by the Regional staff with their borrowing countries.

lvi. The accent must be on quick-response support of Regional Division staff in the difficult task they now have to help countries bring about sector policy reform and improvements in the operation of the sector. At times the applicable solutions to policy and institutional problems will, of necessity, be of second-best variety. The emphasis of TWD Advisers must then be on helping the Regions to make the second-best as good as it can be. Supportive and constructive advisory style is even more important than it has been.

lvii. Amongst the various instruments of support to the Regions, increased emphasis should now be given to early advice on selection and shaping of projects and to assistance in sector work. 'Upstream' work on projects has increased greatly and accounted for about 50% of all the project-related advisory time spent on transport projects in FY81 and in FY82. But more should be done to help explore and develop the opportunities for projects to contribute to solution of sector policy problems. For sector work, broadly defined, review and advice needs to be more systematic, especially at the upstream stage, and more direct support should be provided, although it will have to remain selective due to limited resources.

lviii. Bank staff training also needs increased attention. The Bank's transport staff is generally highly skilled and experienced in technical, economic and institutional analysis of investment projects and programs. But the large majority, in TWD as well as in the Regions, have much less background in broader policy work. Principal subject areas that need to be more fully incorporated in Bank staff skills are analysis and assessment of
sector policies (especially regulation and pricing), negotiation of concession agreements and other contractual arrangements with private enterprises, and management of transport operations. Incremental training of existing staff should be the main means to fill the gap.

lix. TWD has considerably increased the share of its effort (currently about 4%) directly devoted to organizing and providing training, but there is strong demand from the Regions for more. Also a somewhat more systematic program needs to be developed. A joint TWD/Regional Committee on training has been formed, and results of a new questionnaire survey of all transport staff are being analyzed.

lx. A revised training program will be drawn up. It is likely to add to the existing program more formalized sessions on techniques of policy analysis as well as periodic multi-day meetings, perhaps outside Washington, to exchange experience in policy and institutional reform. External training, on an individual basis, should also be much more used. For this to be possible, budgetary arrangements are needed to compensate Divisions for staff absent on training.

lxii. In view of the need to devote a slightly increased share of TWD resources to Advice, Training and Direct Support, a very selective approach has been adopted in planning future Policy and Research work. Forthcoming Policy work will concentrate on the preparation of suggested methods and approaches, and policy notes, on fairly narrow subjects, including a review of experience to date with policy reform objectives in transport sector lending. The topics are essentially sub-aspects of the major issues discussed in the series of policy papers produced in the last few years. No more such major papers are envisaged at present.

lxiii. Beyond completion of the two major studies underway since the early 1970s (Highway Design and Labor-Intensive Construction), planned Research work emphasizes mainly studies on policy issues cutting across modes, such as fuel pricing, deregulation experience and policy reform in centrally planned economies. They are designed directly to bolster the Bank's operational capability for giving appropriate policy advice to its member countries. In addition several small-scale studies are envisaged on rural transport issues. It is intended to expand the link between TWD researchers and research projects and related studies being done by borrowers under loans. No further research undertakings approaching the scale of the Bank's efforts on Highway Design and Labor-intensive Construction are currently contemplated, but resources beyond those presently in view will be required to accomplish several of the studies that are planned.

lxiii. The relatively minor share of its time that TWD devotes to External Relations for transport may also slightly increase in coming years. The function is shared with Regional Division staff, many of whom attend conferences and present papers and statements. It is hoped that Regional participation will increase because it helps disseminate Bank views and also provides useful learning opportunities. The increased TWD effort would be devoted to policy contacts and discussions with potential co-financiers in the transport sector. It would also be devoted to the raising of external funds and expertise for research projects and related technical assistance to the borrowing countries.
SECTOR SUPPORT STRATEGY PAPER: TRANSPORTATION

Introduction

1.01 The purpose of this paper, as of others in the Sector Support Strategy series, is to outline a strategy of support from the relevant central, OPS department to the Bank's Regional Offices in the coming years. It can only do this on the basis of an assessment of recent trends in Bank activity and a definition of desirable future trends. Much of the text is devoted to laying this foundation, since no comprehensive paper on the Bank's strategy in transportation has been prepared since 1972. It focuses specifically on the last three years and the next three years. This paper is also intended to assist the Personnel Management Department as background for a staff planning study they have underway for the Transportation sector. In-depth treatment is not given to urban transportation since the Urban Development Department carries lead responsibility in the Bank for it and is preparing an updated policy paper on the subject.

1.02 The report proceeds in five chapters. This Introduction brings out key elements in the Bank's approach to transportation. Chapter II discusses the main areas where the Bank's borrowing countries need assistance in the 1980s. Chapter III assesses recent trends in Bank activity. Chapter IV reviews the current state of the future lending program and recommends substantive thrusts for Bank lending and advice. Chapter V deals briefly with organization and staffing issues for the sector Bankwide, and puts forward a program of activity in transportation for the OPS Transportation and Water Department (TWD).

Significance of Transport

1.03 History has shown efficient transport to be a key factor in economic, social and political development. It is the cutting edge of economic activity in areas being opened up for settlement and, once established, it requires constant adaptation to the requirements of the economy and the society. Lower transport costs and more reliable services provide opportunities for people to specialize production, to widen and deepen markets, and to exchange business and personal information and ideas. They also offer opportunities to government and private agencies to increase the availability and quality of social services, public information and cultural activities. They are a vital element in almost any strategy to improve people's lives. Besides serving income-growth and income-distribution objectives, transport facilities are essential to meeting valid political objectives, such as ensuring national security, cementing national unity and strengthening cooperation with other countries. The consequences of transport investments, in terms of the developments they induce, are sometimes much wider and more profound than the measured benefits expected from them.

1.04 As the Bank has grown and diversified, transport projects have accounted for a steadily diminishing share of its operations — some 35% of total lending in the 1950s, 25% in the 1960s and 15% in the 1970s. An important development in the 1970s, however, was the appearance of transport components in large numbers of projects principally oriented to other
purposes, such as rural and urban development and industrial and mining schemes. These components have aggregated some 3-4% of all Bank lending in recent years. Transport projects and components combined have accounted for a rather steady absolute amount of lending through the 1970s, of about $2000 million per year in 1981 dollars.

1.05 Whether in the form of transport projects or of components in other projects, Bank lending for transport has always been predominantly for infrastructure -- its construction, rehabilitation and maintenance. The relatively small amounts which have been loaned for purchase of ships or aircraft are far outweighed by lending for construction and expansion of sea-, river- and airports. Even in railways, where lending for locomotives and rolling stock has been more substantial, most of the Bank's funds have gone to line works, yards and workshops. Although technical assistance has been provided to railway and port authorities to help fulfil their operating responsibilities, the main thrust of the Bank's institution-building effort in transport has also been to develop local capacities to plan and maintain the infrastructure.

1.06 Nonetheless, the Bank has always recognized that the ultimate test of the effectiveness of any infrastructure provided was in the services that would make use of it, and in the benefits to be derived directly or indirectly from these services. This meant in turn a concern with such questions as: whether the vehicles which would use the infrastructure were contributing adequately to the costs of providing and maintaining it; whether the trucking or shipping companies using the facilities were motivated to minimize costs and prices, so that the cost-savings from infrastructure improvement would be passed on to the producers and consumers of goods and to passengers; and whether the various modes which were serving or could serve a route were reasonably free to respond to consumer demand, and motivated to do so by appropriate financial objectives. Answers to questions such as these -- for all relevant alternative modes -- were essential to derive sound traffic forecasts for sizing the infrastructure investment and to assess whether the scheme would yield sufficient benefits to make it worthwhile.

The Transport Market

1.07 As a direct result of its mandate to support only economically worthwhile development projects, the Bank has thus been concerned with the efficient functioning of the market for transport services as a whole. It has also recognized that this market is so complex, as to the range of demands -- in terms of timing, speed, regularity and security -- which need to be met, that efficient decisions can only be expected if the individual shipper or traveller is free to the maximum extent possible to choose among alternatives for the particular shipment or journey he has to make: perhaps one day a fast, expensive mode because time is precious, and the following day, for the same movement, to the same destination, a much slower or more roundabout route, because time is no longer so pressing. Therefore the Bank has steadily tried to help improve the efficiency of the transport market by encouraging:

(a) innovation and adjustments, usually through competition, to keep the industry dynamic, and costs as low as they can be;
(b) adoption of pricing structures and price levels that reflect real resource and social costs;

(c) development of regulatory environments that encourage enterprise, technical improvements, decentralized decision-making, and adequate safety levels; and

(d) equitable treatment of all modes in their access to capital, foreign exchange, and markets.

These principles are neutral as to the private or social ownership of production and distribution assets, and relevant to both socialist and mixed economies. They are consistent with the political objective of providing equitable access for all people to suitable transport. Application of them should lead to transport operating enterprises being financially viable if they are to remain in existence.

1.08 Current reality, in developed and developing countries alike, deviates from these principles in many respects due to traditions, sectional political pressures, and the power of established transport interests. Regulatory laws -- many of them dating from attempts to protect the transport industry against the Depression of the 1930s -- extend well beyond the basic requirements of proper safety and technical standards, to hinder competition with established transport companies and to dampen innovation. Pricing below real resource costs has been practiced on numerous grounds, such as national prestige or security, the fight against inflation, the protection of disadvantaged regions or classes, or the sheer difficulty of changing, all of more political appeal than objective economic merit. The provision of protection and state subsidies has raised the need for still further state supervision, which has sometimes added to the inhibitions to innovation and encouraged more direct intervention of political forces. Broader economic controls -- such as administrative rationing of foreign exchange -- have also impinged seriously on the transport sector in developing countries.

1.09 Given this background, the practical problem facing the Bank has been to help countries avoid the more extreme distortions and move in the direction of reducing protection, regulation and subsidization and facilitating competition and innovation. Even these objectives have been difficult to fulfil. The Bank has helped to reduce economic regulation of the transport industry in such countries as Pakistan (especially in the 1960s), Kenya, Korea and Brazil. Nevertheless, movement has often been slow and partial -- with particular improvements sometimes being later reversed -- mainly because of the considerable political power of the interests built up during the long periods of regulation.

1.10 The Bank has promoted studies to help rationalize the structure of road user charges in a large number of countries. While undesirable changes were thereby sometimes forestalled, positive improvements resulting from these studies have been very few. A few urban transport projects and components have helped to bring the real costs of car use closer to the economic costs -- by measures such as restriction of cars to certain lanes, control of parking and, in some cases, taxation of parking -- but nowhere, except possibly in Singapore, are car-drivers yet paying the congestion and environmental costs they impose on others. Almost all of the Bank's railway
borrowers have fallen short on financial objectives agreed with them, and many have received increasing state subsidization.

1.11 Now, however, there are numerous signs that this situation is changing and that governments are increasingly ready to undertake reforms. Moreover the dominant tendency is for these reforms to be in the direction of relying more on the market, and improving its operation. Just within the last few years, for example, borrowing countries which had hitherto been reluctant to act have begun to introduce measures long advocated by the Bank. These include reduced regulation of the trucking industry, closure of loss-making state-owned transport enterprises, and the encouragement of private-sector provision of public passenger services. Other steps have involved adjusting road user charges (by raising the tax on diesel fuel), reducing railway deficits, and introducing scarcity pricing of state-owned transport facilities where capacity is in short supply. While examples can also be cited of recent reforms tending to restrict competition and increase regulation, they are considerably fewer in number. Some major reviews of transport policy have been undertaken by governments themselves, and others started under new Bank loans.

1.12 Efforts to improve the functioning of the transport market can yield distributive as well as efficiency benefits. Existing imperfections in the market tend to discriminate more seriously against the poor than the rich. First, the inefficiencies and resultant extra financial burdens on public finances reduce the resources available for programs, such as improvement of rural or slum roads, which can do most to improve the access of the poor to employment opportunities. Second, the traditional regulatory measures often protect established large-scale operators and discourage non-conventional solutions (ranging from animal-drawn carts to lower-priced off-peak services on major facilities), which can sometimes be run by the poor and would often be most used by them.

1.13 Subsidization of transport, though often justified politically on grounds of protecting the poor and occasionally needed to compensate for other unavoidable market imperfections, has not generally been found an effective way of transferring income to them. Too frequently, it tends to discourage better adapted and more economical local initiatives. When transport reforms are introduced, accompanying measures are sometimes needed in other areas such as regulations governing the provision of credit, property-titling and control over monopolistic activities to assure equitable access of the poor to the market.

1.14 Reforms in transport are seldom easy, and they cannot be expected to be accomplished very quickly. While lagging economic growth and consequent shortage of resources necessitate more urgent action, they also create a political environment in which some reforms are harder to introduce. The weight of the evidence suggests, however, a new preparedness of governments painstakingly to build up the constituency for reform, and to introduce appropriate measures once such a foundation has been laid.

1.15 Three principal reasons probably account for this new receptivity to reform. The most important is the more difficult situation, as regards
both budgetary resources and foreign exchange availability, in which
governments find themselves as a result of the slower economic growth of the
last few years and the sharp increase in the relative price of imported
energy. The search is on for ways of saving resources, and especially in the
transport sector. It has traditionally been a major user of public budgetary
funds. It has now become a much more significant burden on the balance of
payments due to its dependence on liquid fuels and the large shares of export
earnings now spent by many countries on importation of such fuels.

1.16 Second, the important changes in relative prices, particularly for
fuel, affect the comparative advantages of the different transport modes in
such a way that in many countries there should be shifts of traffic at the
margin from one mode to another. Such shifts, and the equally or more
important fuel-economizing measures that can be taken within modes, will
result mainly from properly reflecting costs in prices and from removing or
reducing past regulatory and institutional obstacles to flexible operation of
the transport sector. Marginal shifts of traffic have begun to occur towards
coastal shipping and/or railways in several cases. This provides concrete
demonstration of the gains to be had from making the transport market work
better.

1.17 Third, transport networks have become more complex and more
integrated, with customers using increasingly sophisticated analytical
approaches to minimizing total distribution costs. This adds further to the
importance of pricing transport services properly and making markets function
more flexibly. As the infrastructures for different modes of transport are
built up, the services offered on each have to function in a more coordinated
manner, new types of intermodal terminal are needed, and special equipment
has been developed to facilitate intermodal transfer. The growing role of
international trade has required improved coordination of transport, and
increased standardization of equipment and procedures, across international
frontiers.

1.18 Containers, of internationally agreed dimensions, are a major
expression of this trend. When they are moved on a single contract covering
the total movement from point of origin in one country to final destination
in another, the transport operator responsible has great flexibility to
decide among alternative routings and combinations of modes. Methodologies
have also been developed in recent years to assist people who have to make
decisions about the movement of freight, whether national or international,
to compare alternatives more systematically. This is the discipline usually
called Physical Distribution Management (PDM) in North America or logistics
in continental Europe. It is often advantageous to consider, conjointly
with transport alternatives, changes in the subdivision of stages in the
production process and different locational patterns of plants and
warehouses. All these developments give the prices charged for transport
more practical significance than they had in the past.

Conclusion

1.19 There are thus new possibilities for the transport sector to serve
countries' broader development objectives considerably more efficiently and
effectively than in the past. The Bank has a special opportunity and responsibility to help achieve these possibilities, which are consistent with its concern to contribute simultaneously to improvement of growth and of equity. The opportunity results particularly from the emerging readiness of countries to implement reforms which have been considered politically too difficult in the past. The responsibility arises from the fact that the Bank, among all international, regional and bilateral aid agencies, has the widest mandate across the different modes and by far the largest and broadest experience in transport. Moreover, there is no World Transport Organization, or even Association; there are only modal bodies such as the UN's ICAO in aviation, the UIC (Union Internationale des Chemins de Fer) in railways, and the privately-financed IRF (International Road Federation) in roads. In the United Nations it is only the small transport units in the Regional Economic Commissions, and to some extent UNCTAD, which have responsibilities covering all the modes. To fulfil this opportunity and responsibility the Bank has built up a staff that includes at least some specialists in each of the major transport modes, and it has to further develop the capability of all the staff in the sector for transport policy analysis.

II. Needs of the 1980s

2.01 This chapter is intended to identify the borrowing countries' main needs in the development of transport during the 1980s. It serves as a background for discussion in the following chapters of recent past trends in Bank assistance, and of proposed future directions. First, overall perspectives are drawn regarding the growth of transport demand and the availability of financial resources to cope with it. Attention is then given, in turn, to each of the six most important areas of need: (i) reinforcing planning and maintenance capacities (including local civil construction industry); (ii) strengthening the performance of institutions in the transport sector; (iii) increasing energy efficiency in transport; (iv) improving rural transport networks; (v) supporting the expansion of international trade and; finally, (vi) overcoming the particularly serious transport problems of sub-Saharan Africa and other least-developed countries.

Transport Demand and Investment

2.02 Demand for transport in the developing countries is likely to continue to grow faster than GNP. This is particularly true on the passenger side. Considerable evidence indicates that, at low income levels, demand for mobility tends to increase faster than for any other major class of good or service. In countries ranging from Brazil to India mechanized passenger movements increase, on a per capita basis, at least twice as fast as average incomes. For freight the picture is more varied, but the importance of agriculture and manufacturing in early and middle stages of development, and increasing regional specialization, mean that total freight movements also typically grow faster than overall GNP. Current emphases in many countries on increasing food and fuel production, on the one hand, and exports, on the other, are likely to reinforce this tendency.

2.03 There is little evidence to date of the 1970s' fuel price increases having a substantial direct effect on the overall quantity of transport
demanded in developing countries, relative to GNP. Even today fuel
does not account for more than about 25% of the costs of transport. The
relatively modest further real increases in fuel prices currently projected
by the Bank for the 1980s are likely to be largely off-set by operational and
technological improvements, especially in vehicles, that are already
spreading.

2.04 Thus, even the 1.5% per capita income growth rate adopted in the
1981 World Development Report as the 'low case' for the low-income
oil-importing countries in the 1980s is likely to mean, with a 2% population
growth rate, annual increases of about 5.5% in passenger traffic and around
4.5% in freight traffic. Successful accomplishment of macroeconomic
structural adjustment, and higher GNP growth rates, will mean correspondingly
higher growth of transport demand.

2.05 Prospective investment requirements are determined not only by the
future growth of traffic but also by various inheritances from the past. A
number of major countries -- such as India, Mexico and Peru -- have now
recognized that public investment in trunk transport facilities was allowed
to decline to excessively low levels in the 1970s. They are making major
efforts to prevent the recurrence of the bottlenecks to overall development
that resulted. Second, in many countries a major renewal and rehabilitation
cycle is imminent for the many large equipment purchases and infrastructure
works, especially highways and bridges, that were undertaken in the 1950s and
1960s. Third, most developing countries face strong pressures, economic as
well as social and political, to solve extensive problems of inaccessibility,
or isolation, that still remain -- in growing urban slums far from jobs and
services or from transport facilities for reaching them, as well as in rural
areas distant from existing networks.

2.06 It will be hard for most countries to find the necessary investment
funds, especially in foreign exchange. Domestic sources -- mainly tax
revenues from transport users and operating surpluses of transport agencies
-- already provide the large majority. But the transport sector as a whole,
and individual modes within it, will need to attain higher levels of
financial self-sufficiency in many countries. Public expenditures will need
to be more strictly planned, to ensure that overall resource shortage does
not result in transport becoming a bottleneck to broader development and that
effort within transport is concentrated on highest--return projects. The
burden on the public sector will need to be reduced by stimulating local and
private initiatives.

2.07 The limited amounts of foreign assistance available -- from Arab
and OPEC sources and export credit agencies, as well as from traditional
multilateral and bilateral aid sources -- must be channelled to uses of the
highest priority from the point of view of national transport development,
rather than to prestige projects or support of uncompetitive equipment
suppliers in industrialized countries. Foreign private investment has not
played a very significant part in transport development in recent decades.
But it could be encouraged to do more, especially in transport services (as
opposed to infrastructure), in lending to financially viable transport
agencies (particularly ports which themselves generate foreign exchange), and in providing facilities to handle international traffic (e.g., in ports and container stations).

Reinforcing Planning and Maintenance Capacities

2.08 Increasing the adequacy and improving the efficiency of planning and maintenance are now top-priority needs in most developing countries. Sound planning of transport sector investments remains the exception rather than the rule, even though the transport sector has typically been a major user of budgetary funds. Current resource constraints make it even more important to overcome this problem. Systems for registering transport demands (such as regular traffic counts) and for planning the allocation of scarce budget resources to meet them, by maintenance, improvement and new construction, need to be substantially further improved. Basic principles of cost-benefit analysis have to be applied more rigorously. Well-known techniques, such as stage construction, spot improvements, adjustment of design standards, and scaling of new capacity in light of risk analysis, have to be used more fully, and attention paid to changing perspectives, resulting from research, as to how these techniques can best be applied. Maintenance and construction needs have to be considered more often in light of the funds available for both, and more account taken of the future maintenance burden which will be imposed by new construction.

2.09 Growing shares of transportation budgets are going to maintenance: for routine maintenance and equipment servicing in the case of the operating budget, and for periodic work, overhauls, overlays and rehabilitation in the case of the investment budget. In the large expansion of transport networks over the last twenty years insufficient attention was often paid to the much more difficult job of building up capacities to maintain them over the long term. In addition, the present and prospective scarcity of resources for the transport sector means that existing facilities have got to be made to last longer. This often depends on regular preventive measures and timely remedial interventions, which in turn require staff attitudes and government procedures that are not built overnight. Thus institutional arrangements, financial mechanisms and human capacities have to be steadily reinforced for planning, budgeting, financing, supervising, executing and evaluating maintenance -- often on an increasingly decentralized basis, in order to deal adequately with the rural facilities as well as the trunk networks which contain most of the sunk investment.

2.10 To help limit the large budget increases inevitably required for maintenance, its efficiency must be increased substantially. Utilization of expensive equipment fleets is often appallingly low, sometimes one-fourth to one-third what could reasonably be expected. In many instances serious overstaffing of the public-sector maintenance organizations diverts funds from actual maintenance work. Both equipment- and labor-intensive methods have a cost-effective role to play, often in the same organization. But to achieve this, greater cost-consciousness and, above all, the will to take decisions on the basis of efficiency objectives, will be necessary. Policies of foreign lenders may sometimes have contributed to undermining efficiencies, e.g., in making finance for new equipment too easily available,
by promoting an uneconomic proliferation of different makes and models of equipment through tied aid or other procurement regulations, and by supporting capital projects which divert the country's own resources from more critical recurrent needs. Concerted action by borrowers and lenders, including enhanced collaboration among different aid agencies, is needed to address these problems.

2.11 Maintenance capacity is not only a matter of procedures in public administrations. It is also a question of the availability of other enterprises, usually in the private sector, to carry out civil engineering and mechanical work. Railway maintenance is sufficiently specialized that, in the circumstances of most developing countries, most of it has to be done in-house, except perhaps for major line overhauls. But in the other transport modes numerous maintenance activities can readily be contracted out. Many middle-income countries are having increasing recourse to this solution because they find it more efficient. In the case of those poorer countries which do not yet have strong private sectors, the regular annual maintenance load offers an excellent base for the development of small contractors and mechanical workshops. Achievement of these possibilities requires, principally, modernization of public-sector contracting procedures, increased training at both technician and management levels, and explicit recognition of the contracting industry as an important activity with its own problems and potential.

2.12 Two related aspects of transport operations which need increased attention in many countries, especially in the highways field, are safety and axle load control. Rapid expansion of highway transport has given rise to safety problems that are an increasing political issue in many developing countries, with annual losses of sizeable amounts, as much as 1% of GNP according to some studies. The development of new and larger trucks, combined with decreasing efficiency of railways in some countries, has caused axle loads on many highways to be substantially above the levels they were designed for. The economies of the new trucks, in addition to the difficulties of effective load control, indicate that the optimum long-run solution is to strengthen highway pavements sufficiently to carry them. In the meantime, however, more effective load control is essential to preserve existing pavements. Both issues again raise difficult problems of attitudes, discipline and enforcement which can only be overcome gradually.

**Strengthening Institutional Performance**

2.13 Important in most countries, and of overriding importance in some, is to increase the efficiency of transport operating agencies and state-owned enterprises, such as railway corporations, port and airport authorities and public trucking and shipping companies. Partly it is a matter of more staff training, both in the technical aspects of their work and in management of others. While much depends, of course, on the scale and quality of the national educational system, most agencies should increase their own training programs, especially in management and the use of modern financial controls.

2.14 At least equally important with training is the structuring of responsibilities in such a way as to give the people involved clearer incentive to fulfil their task in the provision of transport as efficiently
as possible. This applies at the level of allocating responsibilities among agencies as well as within them. The managements of transport service corporations need to be given clear overall financial performance targets, and as much flexibility as possible for deciding how to meet them, within an overall framework where others, operating in the same or different modes of transport, are equally free to compete with them. Within the organizations, financial management has to be strengthened and incentives need to be effectively tailored to inducing the best possible contributions from each employee to meeting the objectives selected by management in light of the corporate targets. Many state-owned transport companies are still run more like public administrations, hampered by slow and bureaucratic procedures and concerned less with meeting the demands of customers than with providing what they feel the public should need.

2.15 Thus policy reforms are needed in many countries to open up the transport sector to greater competition, to clarify and tighten the responsibilities of the state-owned enterprises, and to enhance managements' freedom of action for efficiently fulfilling those responsibilities. Such changes are relevant not only to mixed economies but equally to socialist systems, where the increased competition may be between own-account or specialist trucking enterprises, or among small para-transit (minibus, ridesharing and other departures from conventional modern bus service) operators, or between any of these and the railways. Since policy reform is necessarily a long and slow process, it is almost always a question of a step at a time in the right direction rather than reaching the optimum solution in one move.

2.16 Policy reforms themselves must be developed by central Government Ministries. Central planning authorities responsible for transport have thus both to broaden their horizons from investment planning to include also policy planning, at the same time as further strengthening the quality of investment planning. The policy reforms will help to steer demand more efficiently and to generate more effective response from transport operators. They will therefore affect the demand for infrastructure, and hence investment planning.

Increasing Energy Efficiency

2.17 Energy economy has become a matter of concern to all countries as a result of the sixfold increase in the real price of petroleum in the 1970s. The share of oil-importing developing nations' total export earnings devoted to energy imports rose from 9% in 1970 to 26% in 1980, and much higher figures for particular countries such as Brazil and Turkey. Transport accounts for larger proportions of total oil consumption in developing countries than in most industrialized countries. But in the great majority of developing countries not more than 20% of the transport use is for cars, compared with more than double this figure in industrialized countries. Of the oil-importing developing countries' total energy import bill of $74 billion in 1980 some 50% was for transport. A 5% saving by the transport sector would have released for other purposes an amount of foreign exchange about equal to Bank transport lending in that year.

2.18 There is scope for reducing the energy-intensity of transport in developing countries by considerably more than 5% -- by better vehicle operation and maintenance (driver and mechanic training and supervision),
more efficient utilization of vehicle fleets (e.g. less empty backhauls),
gradual conversion of fleets to more energy-efficient vehicles, marginal
shifts of traffic to less energy-intensive modes (usually water transport and
railways) and improved urban traffic management. Since trucks and buses
normally account for about half of transport's energy consumption in
developing countries, they warrant most attention. For these changes to take
place at an efficient pace, fuel prices have to reflect real supply costs,
and vehicle taxation must not distort equipment renewal patterns.
Information on the opportunities for fuel saving (e.g., by better driving
practices) needs to be disseminated. And institutional bottlenecks which
were previously less significant (as in urban traffic management, ports
dealing with coastal shipping, and railways) have to be broken. Effective
operation of the transport market has become considerably more important.

2.19 On the other hand, care has to be exercised to avoid simplistic
policy changes or administrative controls which may in fact turn out either
to be inefficient ways of saving fuel or not to save it at all. Experience
with arbitrary time or distance limits on car and truck operation has
generally been poor. Projections of traffic that will return to railways due
to the lower energy consumption of mainline railway operations must pay very
careful attention to the considerations of speed, regularity, reliability,
convenience and security which caused the traffic to move to other modes in
the first place. Even now railway electrification is normally economic only
with high traffic densities, in excess of 10 million gross tons p.a. Energy
considerations are seldom a convincing reason for not closing unremunerative
railway lines since lightly loaded trains are generally much less
fuel-efficient than trucks and buses. Transport investments must still be
chosen on the basis of general economic criteria, incorporating energy along
with the many other relevant dimensions of costs and benefits, rather than
according to narrow energy-saving ones.

Improving Rural Transport Networks

2.20 Rural transport improvements, especially the improvement of rural
roads, have been a major emphasis in many countries during the 1970s. They
should continue to be so, in support of development strategies emphasizing
rural areas and agricultural growth, to provide food and fuel, to incorporate
the rural poor more effectively in the development process, and to generate
export earnings. In many areas the need now is to carry earlier improvements
a step further, to cope with increasing flows of agricultural inputs and
outputs, and of passengers. Other extensive areas have still to be opened up
to modern transport in some countries. In such cases particular care is
needed to select economical routes and modes of transport: thus light
aviation services, with their flexibility and much lower initial capital
requirements and investment risk, can prove preferable in some cases to an
immediate commitment to building a long road. For local transport, which
accounts for the large majority of rural movements, more attention needs to
be given to building simple tracks suitable for non-conventional vehicles and
to encouraging the use of such vehicles.

2.21 For construction and maintenance of either rural roads or tracks it
is now clear that labor-intensive techniques, whether under management of
contractors, communities or Government departments, have great potential in
many developing countries. Such techniques are not only more efficient -- in the sense of accomplishing the job for lower cost -- but they are often more reliable (because less dependent on imports) and help meet the important need to generate local employment. Their use can also be organized in such a way as to reduce the financial burden on central Government. Successful experimentation took place in the 1970s with the use of labor-intensive techniques on a sizeable scale in a variety of countries where they had not been customary. Now they need to be applied in a larger range of works -- construction and maintenance not only of rural roads but also of many other forms of rural infrastructure, such as water systems, conservation works, rural electrification, etc. The key problem is developing local organization, foremen and supervisors; once developed, they can readily be applied to other works besides roads.

2.22 Two other tendencies that have emerged in rural transport improvement in a wide range of countries in the 1970s also need reinforcing and spreading: planning in the framework of broader development, and local participation in planning and construction. Evidently the areas where there is the greatest need for transport investments in a country, and where they can have the most substantial impact, are those where more than usual effort is being made at broader development, whether immediately productive or social, whether by public or private initiative. Institutional arrangements for local people to participate in transport planning, through a district development or village road committee, with a requirement that they also contribute part of the costs (e.g. land, local materials, part or all of the labor), help to indicate where the real needs are, to adjust designs better to local circumstances, and to improve the chances of adequate maintenance. The most promising solutions to the difficult problems of rural road maintenance appear to lie in cooperation and cost-sharing between the local community and the public technical agency.

Supporting International Trade Expansion

2.23 International trade is likely to impose larger requirements for transport investment in the developing countries in the 1980s than in the 1970s. First, the share of world output traded internationally has been expanding fast, from 12% in 1970 to 23% in 1980, and it has been projected that it could well reach 30% by 1990.1/ Second, the search for new energy sources is giving rise to some large investments in production of fuels for export in developing countries. Third, the containerization revolution has spread to developing countries more rapidly than expected only a few years ago, and full benefit of containers is obtained when they are stuffed and unstuffed at or close to the inland origin or final destination of goods rather than at ports. Fourth, larger proportions of international trade in some regions are tending to travel overland, by rail or road, partly because of the high energy costs of circuitous sea voyages.

2.24 Thus substantial investments will be required in bulk-handling facilities, in conversion of ports to handle containers efficiently, in expansion of airports (which already handle 25–30% of international trade, by value, in some countries), in strengthening road and rail facilities to cope with inland movement and international transit of containers and other international trade, and in development of container freight stations, 'dry ports' and terminals. Efficient planning and staging of these investments will be particularly important. Large capital costs are frequently involved, and the timely availability of efficient facilities for handling international trade will be one important determinant of developing countries' success in expanding their exports.

2.25 The rather capital-intensive nature of the new techniques for transport of international trade puts a greater premium than in the past on operating efficiency, particularly at ports and other intermodal exchange points. International sea-ports often enjoy semi-monopolistic situations, which have given rise to slow and bureaucratic procedures and severely restrictive labor practices. Special efforts will be needed to improve operating efficiency. In addition, there is a need to spread more fully to the developing countries the trade and transport 'facilitation' measures which have been developed and applied with such success in Europe over the past thirty years -- simplification of international trade documents and border-crossing formalities, the TIR (International Road Transport) customs guarantee system, international vehicle licensing and insurance, transit arrangements, harmonization of driving rules and signs, axle-load agreements, etc.

Assisting sub-Saharan Africa and other Least-developed Countries

2.26 A particular priority for the Bank, and indeed the international aid community more generally, in the 1980s is to help sub-Saharan Africa and other least-developed countries overcome their unusually difficult transport problems. On the one hand, the vast size of the African continent and of most of the countries, relative to their populations, mean that transport is a major consideration in almost any undertaking. On the other hand, extreme shortage of experienced technical and managerial manpower, and poor organization in some countries of that which there is, have caused many of the main transport systems to become less efficient over the years. Improvement of African transport has repeatedly been identified as a very high priority by the U.N., African regional bodies and the Bank's own report on 'Accelerated Development in sub-Saharan Africa.'

2.27 Most of the points made in the previous pages apply to these countries, but always with special emphasis on the aspect of improving maintenance and operation of facilities. For example, the international trade needs of the many landlocked countries in Africa require greatly improved operation and maintenance of the existing rail, road and waterway systems, including transport facilitation measures, rather than significant expansion of the systems. As regards the national road systems, while additions are needed in many countries to the secondary and tertiary network and in some to the trunk network, an even higher priority in most countries is to improve maintenance of what already exists. Indeed in some countries even existing networks are by necessity being cut back due to inability to maintain them.
2.28 Thus the overriding requirement in the transport sector in sub-Saharan Africa is capacity-building and training, with particular stress on capacities for managing and executing the maintenance of civil works and mechanical equipment and the operation of complex transport systems. Resolution of these issues sometimes has to take precedence over other improvements and reforms. The shortage of experienced managers makes it particularly important to break down tasks in transportation construction, maintenance or operation as much as possible into sub-units, with clearly defined goals and incentives, that can help develop the managerial capabilities of the personnel available. Many enterprises running one or a few buses or a small contracting operation have proven highly successful in Africa. Similar principles can be applied in restructuring of larger transport undertakings.

III. Recent Trends in Bank Activity

3.01 This chapter assesses recent trends in Bank transport lending and related activity in light of the needs and issues identified. Main statistical facts are presented first, followed by a review of transport lending in terms of the Bank's standard indicators of project performance. Then recent trends in the substantive content of lending and advice are evaluated under five main headings: (i) Infrastructure Maintenance and Operation, (ii) Sector Policy Reform, (iii) Energy Conservation, (iv) Rural Transport Development and (v) International Trade Support. Research and policy work is dealt with, as relevant, under each of these headings, and summed up in a final brief section devoted to Research and External Relations.

Distribution of Lending

3.02 Over the five years FY77-81 the Bank lent US$8.6 billion for transport, nearly 18% of its total lending. As shown below, approximately US$6.6 billion went to transport projects and some $2.0 billion to transport components included in non-transport projects:

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Transport Projects</th>
<th>Transport Components in Non-Transport Projects</th>
<th>Total Lending for Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Share of Total Bank</td>
<td>Amount ($ mln)</td>
<td>Lending (%)</td>
</tr>
<tr>
<td>1977</td>
<td>14.8</td>
<td>1,048</td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>13.0</td>
<td>1,093</td>
<td></td>
</tr>
<tr>
<td>1979</td>
<td>19.0</td>
<td>1,904</td>
<td></td>
</tr>
<tr>
<td>1980</td>
<td>12.6</td>
<td>1,444</td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td>9.1</td>
<td>1,124</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6,613</td>
<td></td>
</tr>
</tbody>
</table>

Weighted Average 13.4 4.0 17.4

a/ approximate.
The declining share of total Bank lending devoted directly or indirectly to transport reflects the increase of lending for agriculture and rural development, energy and structural adjustment.

3.03 About 30-32 transport projects have been approved each year, while the transport components are spread among some 70 projects in other sectors each year. Highways have been increasingly important among transport projects. The volume of lending for railways, ports and aviation remained steady between FY72-76 and FY77-81 in current dollar terms, but doubled for highways. In the second period highways have accounted for well over 60% of transport lending in all Regions except South Asia where railway lending led. As regards the components lending, about half is for rural (and forestry) roads, and fishing ports, included in agriculture and rural development projects, and about one-quarter for urban transport improvements. Other components are principally for transport infrastructure in industrial and mining projects, and for ships acquired through development finance companies.

3.04 Transport projects have become more complex, with larger numbers of elements, and more diversified. Highway Sector Lending started in 1977, and some features of the sector lending approach have also been incorporated in an increasing number of rural roads projects. Loans for other new types of project have been made -- for instance, within the last three years, multi-modal fertilizer distribution projects, construction industry projects, regional railway projects and a national bus services project. Many loans have represented the Bank's first involvement in a particular mode in a country -- such as ports in Uruguay, highways in Turkey, railways in Ghana, rural roads in India or highways in Romania.

3.05 Table 3.2 gives an approximate percentage breakdown of FY77-81 lending for transport by type of project in which it was included and by end-use.

**Table 3.2**

<table>
<thead>
<tr>
<th>Type of Project</th>
<th>Hiwaysa/</th>
<th>Rrl.Rds.</th>
<th>Dom. Water</th>
<th>Ports</th>
<th>Rlwyns</th>
<th>Aviation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highways</td>
<td>38</td>
<td>9</td>
<td>.b/</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>47</td>
</tr>
<tr>
<td>Other Transp.</td>
<td>..</td>
<td>-</td>
<td>3</td>
<td>8</td>
<td>17</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Rural Dev.</td>
<td>-</td>
<td>10</td>
<td>1</td>
<td>-</td>
<td>..</td>
<td>..</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>-</td>
<td>..</td>
<td>2</td>
<td>1</td>
<td>..</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>47</td>
<td>19</td>
<td>4</td>
<td>10</td>
<td>18</td>
<td>2</td>
<td>100</td>
</tr>
</tbody>
</table>

a/ includes maintenance and construction, inter-urban and urban.

b/ means more than 0 but less than 0.5%.
Urban transport accounts for a very small share of the transport projects, whereas rural roads have rapidly increased in importance. Thus it can be estimated that some 3.5-4.0% of total Bank lending (somewhat over 20% of all lending for transport) has gone to local rural transport infrastructure, compared with less than half these amounts for local urban transport infrastructure.

3.06 Transport lending provides mainly for infrastructure improvement and equipment purchase, but technical assistance is an important and growing feature of projects. It increased from $34 million in FY74 to $74 million in FY79 and $124 million in FY81, when 33% of the total was for supervision/implementation engineering; 16% for training; 16% for technical and feasibility studies; and 35% for costing, financial and management information systems and other experts. Many of the technical assistance components were related to maintenance and sector policy studies being financed increasingly in all modes.

3.07 In regard to geographical distribution it is noteworthy that over 40% of all transport projects approved in FY77-81 were for sub-Saharan Africa. These accounted for little more than 20% of total transport lending because the average loan/credit size ($22 million) was lower than in all other regions ($50 million or more). When transport projects in North Africa and the transport components of other projects are taken into account, about 50% of all transport projects and 30% of total lending for transport went to the African continent. LAC has been the largest recipient of transport lending in dollar terms, particularly for highways and railways. Port lending has been concentrated in EMENA and East Asia.

3.08 Co-financing has been very important for railway projects, which often show a higher ratio of co-financing to Bank lending than any other Bank-supported sector. It has been of increasing importance in ports and highways, spreading from the equipment elements of the projects to cover also part of the civil works in more cases. However, total amounts so raised, relative to the volume of Bank lending, remain below the Bankwide average for all sectors. The Bank's share in project cost financing averages about 40% in highways and ports, but only 14% in railway projects, reflecting the time-slice definition of these projects and the importance of co-financing.

Project Performance Indicators

3.09 Bank-assisted transport projects have usually yielded very satisfactory economic returns. For instance, the ex-post return estimates for the 61 transport projects re-evaluated by OED over the last three years (CY79-81) average 22%, the same as the appraisal estimates. About 25% of the projects are now estimated to yield less than 15% rate of return, compared with 15% which were expected to do so. Only 5 projects, or 8% of the total, are expected to yield less than 10% return. The projects covered in the OED audits were mostly appraised in the early 1970s, so they reflect the full impact of the economic vicissitudes of that decade.

3.10 Analysis of the OED results by mode and category shows that the significant distinctions among projects are between highways and other modes, and between sub-Saharan Africa and other parts of the world. As Table 3.3
shows, the highway projects tend to show noticeably better results than those for other modes, while, for transport projects generally, sub-Saharan Africa shows worse results than elsewhere.

| Table 3.3 |
| Economic Performance of Transport Projects Audited CY79-81 |

<table>
<thead>
<tr>
<th></th>
<th>No. of Projects</th>
<th>Av. Econ. Returns</th>
<th>Percent of Proj. w/Returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Appraisal Estimate</td>
<td>Estimated Actual</td>
</tr>
<tr>
<td>Highways</td>
<td>34</td>
<td>22</td>
<td>24</td>
</tr>
<tr>
<td>Other Modes</td>
<td>27</td>
<td>22</td>
<td>19</td>
</tr>
<tr>
<td>All Transport</td>
<td>61</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>sub-Saharan Africa</td>
<td>20</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>Other Regions</td>
<td>41</td>
<td>22</td>
<td>23</td>
</tr>
</tbody>
</table>

The relatively poorer showing of African projects reflects mainly comparatively slow traffic growth and continued operational problems in many cases. As regards the distinction between highways and other modes, worldwide, the main explanations are traffic shortfalls and limited efficiency improvements, particularly in some of the railway projects, and major cost overruns on some port and airport projects. It is noteworthy, however, that the substantial number of railway projects included, 14 in total, show better levels of economic return than those audited earlier.

3.11 Except in ports, borrower financial performance was much more disappointing than project economic return. Actual financial returns on average net fixed assets were below expected in all but one of the 14 railway cases. In the airport projects returns were lower in three cases and higher in one, as compared with higher than expected financial returns in four of the six port projects. While traffic shortfalls tend to reflect themselves in both economic and financial returns, the largest reason for the weak overall financial performance of the railway and airport borrowers was failure to move tariffs up in line with inflation.

3.12 In terms of general project implementation experience the 235 transport projects under supervision in late 1981 appear marginally better than two other large lending sectors and the Bankwide average:

| Projects under Supervision: % with "No"/"Moderate"/"Major" Problems |
|--------------------------|------------------|------------------|------------------|
| Agriculture & Rural Development | 27/61/12       | 28/62/10         | 23/65/12         |
| Electric Power            | 36/47/17         | 40/51/9          | 34/47/19         |
| Transportation            | 40/53/7          | 42/48/10         | 36/57/7          |
| All-Sector Average        | 36/54/10         | 36/55/9          | 31/58/11         |
However, disbursement performance has been deteriorating. Shortfalls of actual disbursements from predicted amounts rose from 25% in FY80 to 32% in FY81 for transport projects, at the same time as overall Bank figures improved from 28% to 26%. The main problem appears to be tighter-than-expected budgetary constraints in the borrowing countries, causing shortage of counterpart funds and consequent delay in project execution; sometimes the project has to be recast. Transport projects, in the Bank’s experience, have been particularly subject to serious time overruns — often leading to cost overruns, but sometimes also caused by them — and current budgetary stringencies in the countries appear to be exacerbating the problem.

**Infrastructure Maintenance and Operation**

3.13 Improvement of the maintenance and operation of infrastructure has been the overriding theme of Bank transportation lending in the last few years. All the major modes have seen some projects entirely devoted to this purpose, while numerous projects have combined the two objectives of improving maintenance and building new transport capacity. And most of the new capacity has been in the form of selective upgrading of existing facilities rather than building of entirely new works.

3.14 Perhaps the key change from the past was the full realization of two points: first, that better operation and maintenance depended on an active program of support (rather than general borrower commitment in a loan covenant) and, second, that such a program may have to cover several of many important dimensions. Workshops and carefully selected equipment and spare parts are often insufficient. Assistance has usually also to be provided on selected items drawn from a longer list, including planning tools and disciplines, technical and attitudinal training, staff motivation, equipment objective. Railway projects further increased the attention given to locomotive maintenance, and results have begun to show — even in Africa where earlier efforts had had least success.

3.15 The change in thinking was reported, and also reinforced, by a Bank paper on road maintenance prepared in 1979. It was based on the experience of past Bank projects and special case-studies of a few developing countries which had succeeded relatively well in developing maintenance capacity. Dramatic evidence was included of the high returns typically obtainable from incremental maintenance in developing countries. The Highway Design and Maintenance (HDM) model\(^2\) underlying that analysis — the fruit of TWD research begun in the early 1970s — has now been applied in preparation of more than 30 Bank projects and, in a number of countries, in regular planning; it has helped to win significant increases in the share of the national budget devoted to road maintenance in many countries. The paper also made numerous suggestions, on the basis of past experience, to help improve project design, and these are now implemented where applicable. It has been used as the basis for many seminars in borrowing countries (including several jointly with ECA for groups of African countries) — and for a special meeting with 18 donor agencies, which has enhanced

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collaboration on maintenance generally and led to greater co-financing of maintenance projects, especially in Africa. The paper was printed in 1981, including a brief statement of the main points of consensus reached at the co-donors' meeting.3/

3.16 An important dimension of the expanded approach to developing maintenance capacity is better and larger training programs in infrastructure agencies. Various new approaches have been applied in different projects, including particular attention to staff motivation. An increasingly widely used technique is the fully equipped Training Production Unit, which provides for learning by experience, with a skilled trainer to draw the lessons and correct mistakes.

3.17 The Bank has also been giving much greater attention to the development of private-sector capacity to carry out road maintenance operations -- and civil works construction more generally. While it has long been Bank policy to encourage the use of private contractors for periodic maintenance, recent evidence suggests that the difficulties of contracting out routine maintenance can be overcome, with resultant improvements in the quality and efficiency of work over that typically done by a public works department itself.4/

3.18 Since 1974, when a Bank policy on domestic construction industries was first issued, reviews have been undertaken in about 50 countries, most of them in the last five years. Follow-up actions have taken place in about half these cases, including provision of technical assistance through transport projects in 17 countries. Particularly important has been the combination of technical and financial assistance, normally channelled through local development banks, as undertaken in highway loans to Ethiopia, Ghana, Pakistan. In Nepal, Bangladesh and India (Bihar), recent road loans have included provisions for purchase of selected equipment for lease/rental to small local labor contractors, as well as technical assistance to the highway department to improve contract supervision and adherence to design standards. Where Government requires construction to be in the public sector, the Bank has provided concentrated technical (and some financial) assistance to the parastatal, as in PDRY, Burma and Algeria. In many cases improvement is also particularly needed in Government contracting procedures and administrative systems, and this has received attention in the cases mentioned and in others, notably Colombia and Indonesia. A review, distilling the lessons of Bank effort to date and setting main lines for future work on domestic construction industries, is currently underway.5/

3/ World Bank, The Road Maintenance Problem and International Assistance (December, 1981), now available also in French and Spanish.

4/ TWD, An Appraisal of Highway Maintenance by Contract in Developing Countries (March, 1982).

5/ TWD draft, The Construction Industry in Developing Countries (December, 1982).
3.19 Following its major research project on the applicability of labor-intensive construction techniques, in the first half of the 1970s, and the highly successful results of pilot projects in Kenya and Honduras in 1976-79, the Bank has also continued to encourage wider use of such techniques, especially for maintenance and construction of rural roads. It assisted the Mexican Ministry of Works to organize a conference to disseminate its extensive experience to other developing countries. Principal Bank project assistance has been in Benin, Malawi, Chad, Lesotho, Rwanda, Dominican Republic and the Philippines. The main constraint to a more rapid spread has been shortage of Bank staff-time for convincing countries to depart from past practices -- and a partly warranted, but nonetheless unfortunate, concern on the part of Regional Division Chiefs that they could not afford project components with relatively high administrative cost per dollar lent. The final written product of the Bank's research effort -- a manual on planning and managing labor-based construction -- is now with the printer.\textsuperscript{6}.

3.20 A subject on which the Bank had done little but where project components are now rapidly increasing is highway safety. A review in 1981\textsuperscript{7} found that as many as 42 projects underway -- urban as well as highways -- had included some contribution in this area, often studies. In the last few years more projects have included more substantial actions, such as traffic regulation measures, road safety education and committees, vehicle inspection facilities, black spot improvements, police training, rescue equipment and driver training programs. The Bank has organized several seminars on the subject, and contributed to outside conferences. A consultant study was commissioned on the valuation of road accident costs, to help in further development of policy and intervention in this area.\textsuperscript{8}.

3.21 In sum, it is clear that the Bank has had a major impact in the last few years in getting more adequate attention in its member countries to better operation and maintenance of transport infrastructure. Some of the new loan covenants it has used, such as those specifying the annual budgetary contributions that would be required for maintenance and the foreign exchange that would have to be provided for regular purchase of spare parts, have helped significantly, even if not always fulfilled to the letter. Progress has been made in most borrowing countries. But there is still a long way to go in bringing maintenance capacity to adequate levels. Mechanical maintenance -- whether of maintenance equipment fleets, railway rolling stock and locomotives, or port cargo-handling and dredging equipment -- remains a weak area in large numbers of borrowers, especially in Africa. Excessive axle-loads on highways are still a serious problem in many countries. The effort to strengthen maintenance has been largely concentrated so far on trunk transport facilities, and needs to be spread more fully to rural transport infrastructure.

\textsuperscript{6} TWD, Labor-Based Construction Programs: A Practical Guide for Planning and Management.

\textsuperscript{7} TWD, Road Safety Components in Bank-Financed Projects (October, 1981).

\textsuperscript{8} TWD consultant report, The Costs of Road Accidents and the Valuation of Accident Prevention in Developing Countries (December, 1981).
Sector Policy Reform

3.22 The potential for making the transport sector function better, and with less burden on the public exchequer, by policy reform has been a matter of rapidly rising concern in the Bank in the last few years. Mainly, this is the product of the same factors, noted in Chapter I, which have made Governments much more ready to consider reform. It was also stimulated by a 1980 review of the Bank's transport sector work\textsuperscript{9/}, which recommended increased focus on transport services, especially regulation, pricing policies and subsidies, as opposed to infrastructure, with a view to increasing the sector's productivity and economizing on investment funds. The concern has been further fueled by a recently completed review of past lending to railways\textsuperscript{10/}, where loss of traffic to other modes and rising state subsidies have been so frequent -- and so contrary to the Bank's projections when the loans were made.

3.23 Principal Bank effort until now has been directed to strengthening the individual modal agencies, making them more self-sufficient financially, and improving policies and processes regarding the planning of infrastructure investment. Over the years there have been notable results, which are continuing to occur. Creation of investment planning units, both in modal agencies and centrally, and gradual build-up of their competence and authority have been a persistent emphasis, supported by direct staff technical assistance and by relevant loan provisions. Another constant emphasis is on increasing the powers of agency managements to run their affairs efficiently, without excessive intervention by outside bodies. Important steps in that direction are being taken, for instance, under recent railway loans to Korea, Pakistan and Senegal.

3.24 Railway financial performance remains a serious problem, but the regular annual reviews of tariffs provided for in many recent railway and port loans have helped to reduce the Government delays in approving tariff adjustments for inflation which had had such adverse impact on financial viability. Increased attention has been given in railway loans to strengthening costing services, to help identify the scope for economies or the need for tariff adjustments. Some of the more recently completed studies of road user taxation have also contributed to the formulation of tax changes that became necessary in face of inflation. Although they affect a total of only about 15 countries to date, urban transport projects and project-components have made important contributions to improved urban traffic management and more efficient bus company operations; in a few cases, such as Costa Rica, they have helped secure more adequate urban parking charges to help ration scarce road space.

3.25 Results have also begun to accrue from the increased concern with the operation of the transport market as a whole, the environment within which any particular modal agency operates. The first sector report to follow the broader approach recommended in the 1980 review, on Indonesia, identified serious problems of heavy subsidization and excessive government control and regulation of transport services in almost all modes. Agreement

\textsuperscript{9/} TWD, Review of Transport Sector Work (October, 1980).

\textsuperscript{10/} TWD, The Railways Problem (January, 1982).
was reached for the Government to prepare, with the help of studies under various Bank transport loans, an action program of reforms to improve the performance of the transport system.

3.26 Highway Sector loans can present particularly appropriate opportunity to deal with policy issues. Such a loan for Mexico in 1979 identified several priority issues, and a recent review indicated that significant action had been taken, particularly to make trunk road-freight services more competitive by licensing many more operators. Late in 1981 both Indonesia and Mexico took major actions to reduce road-transport fuel subsidies, which had also been an important subject of discussion. In 1979-81 the Bank gave extensive support to a major policy-oriented transport planning effort in Argentina, which was to be followed by a sector loan. A principal focus of a recent Highway Sector loan, to Colombia, is to resolve, with the aid of studies included in the project, regulatory problems and tax distortions which constitute serious obstacles to sector efficiency.

3.27 Multi-modal projects, which are largely new to Bank lending, have also been useful for dealing with sector policy issues. For instance, the Bangladesh Fertilizer Distribution Project, approved in 1981, helped improve transport market operation by strengthening procedures for award of transport contracts and by ensuring more adequate remuneration for transport serving remote areas. The Romania Land Transport Project (for roads and railways) provided for the development of more realistic and sophisticated methodologies for selecting optimum modes of transport and routings for shipments.

3.28 The Bank's renewed concern with sector policy has thus begun to reflect itself effectively in operations, and to assist reforms, particularly in Latin America. Bank transport sector work is being gradually extended to deal more adequately with policy issues wherever they are important. Various public statements have been made by Bank staff drawing attention to these areas\(^\text{11/}\), and a limited amount of supportive research undertaken.\(^\text{12/}\) Studies much fuller than the Bank itself can do are generally required to deepen understanding of a problem, analyze alternative solutions appropriate to a particular country's circumstances, and develop support for the chosen one. Nevertheless, Bank sector work has an important role to play in identifying priority issues for attention. Particularly crucial is Bank staff effort to follow up substantively on studies agreed to be made under loans, and to encourage, and assist, implementation of the results.

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\(^{11/}\) e.g. "Key Issues of the 1980s" at World Conference on Transport Research, April 1980; "Maximizing the Contribution of Highways to Development in the 1980s" at Latin American Conference on Highway Technology for Developing Countries, February 1981; "The Future of Road Transportation: Restraint or Release" at International Road Federation World Conference, June 1981; "Agenda for Partnership" at World Congress of International Road Transport Union, May 1982.

\(^{12/}\) e.g. on practical approaches to the rail line closure problem and, still on-going, on road user taxation and road transport regulation.
Energy Conservation

3.29 The main emphases in the Bank's approach to energy issues in transport have been, on the one hand, to encourage countries to price fuels at least at their opportunity costs and allow the transport market to respond freely and, on the other hand, to urge great caution about major infrastructure investments narrowly designed to save fuel. Fuel pricing is a subject of such importance, political as well as economic, that it is often taken up not only in discussion of transport loans but also, and sometimes more, in general policy dialogues with Governments, or in connection with energy and structural adjustment loans. Excessively low prices of liquid fuels have been prevalent in oil-producing countries, and Bank dialogue has helped to bring about significant increases in several, especially in Latin America. The more widespread problem has been diesel fuel prices either somewhat below opportunity costs, or so much below those for gasoline as to cause uneconomic diversion of demand to diesel. Adjustments have been made in several countries recently -- for instance, Haiti, Korea and Zaire -- as a direct result of Bank advice. Unrealistic investment schemes propounded as major energy-savers generally involve substantial expansion of railway capacity (in the hope of drawing traffic away from road and air) or railway electrification; Bank analysis has helped a number of Governments, especially in middle-income countries, to see the flaws in such proposals.

3.30 The Bank has also contributed to breaking the institutional bottlenecks preventing better fuel efficiency in transport. Projects financed in recent years which directly served this purpose include creation of an electrified suburban surface rail system in Porto Alegre (Brazil), modernization of inland water transport facilities on the Chao Phya river in Thailand, and urban transport projects stressing traffic management in Abidjan and Bangkok. All have direct energy-saving impact, and potential broader 'demonstration' effects. Most railway projects and project-components also contribute to the same general objective by helping overcome the managerial weaknesses constraining the development of railway traffic, and by introducing technical changes -- e.g., use of unit and block trains -- that are cost efficient overall and energy-saving. In addition, the Bank has actively promoted the preparation of innovative projects which could have useful energy-saving effects, such as inter-modal transport, making more use of coastal shipping, between north and south in Brazil and along the coast of Peru. Bank-sponsored studies on energy conservation in transport have been undertaken in a number of countries, particularly India and Indonesia.

3.31 Staff seminars on energy problems in transport were organized in early 1981 and 1982, and an overall review of the subject, with special emphasis on conservation measures for developing countries, has just been completed.13/ The review demonstrates that efficient use of energy in transport is so intimately tied with general operation of the transport market that the issue is best taken up within broader transport sector work. The market does need to be assisted by more active dissemination of conservation techniques, such as by driver training programs which have only begun to feature in Bank projects.

13/ TWD draft, Energy and Transport in Developing Countries: Towards Achieving Greater Energy Efficiency (August, 1982).
More attention is also needed to import, excise and license fees on vehicles and spares, to ensure they do not inhibit fleet modernization, which is likely to be one of the most significant means to save fuel.

3.32 Assessments of road user taxation in Bank transport sector work and highway appraisals have been limited too often to consideration of the overall budget balance between highway revenues and expenditures. Little attention has been given to the structure of road user taxes, in terms of how they relate to the costs imposed by different classes of road user and how the different charges may affect user decisions. Road user taxation has long been a controversial area both within and outside the Bank. It is complicated by gaps in basic knowledge of road deterioration processes and by the fact that one of the adjustments most needed -- to charge more adequately for congestion -- has proven politically very difficult to introduce. However, a broad consensus has been developing in the Bank over the last few years around the principles of basing charges affecting direct road usage on avoidable (short-run marginal) costs, collecting other attributable costs in the form of fixed annual taxes, and distributing any residual cost among users in inverse proportion to demand elasticity. The main vehicle for charging avoidable costs is fuel tax, which raises complex substitution and distributional issues, exacerbated by the fuel price increases of the 1970s. Thus, while more attention should be given now in appraisals to ensuring that all major classes of vehicle pay at least their avoidable costs in the form of use-related taxes, research is needed to refine the Bank's capacity to advise on road taxation structures more fully. This research has been put underway.

Rural Transport Development

3.33 Bank lending for rural transport infrastructure steadily increased through the 1970s, both in absolute terms and as a share of total lending, rising from less than 2% in the early 1970s to some 3.5-4.0% in the last few years. Agriculture and Rural Development projects (mainly the latter which tend to have larger road components) have risen from accounting for a quarter to one half of the total rural transport lending. But also as much as 20-30% of annual highway project lending is now devoted to rural roads.

3.34 There have been two main substantive thrusts in this lending in recent years. First, more effective arrangements have been sought for building and subsequent maintenance, especially in the Rural Development projects where these aspects had sometimes been neglected previously. Second, more emphasis has been given to planning more integrated with that for other sectors, and to action to ensure that the complementary agricultural activities needed to secure full benefits do take place in timely fashion. The latter point was part of the reason for handling an increased proportion of rural roads through Rural Development projects and it needed particular attention in the transport projects in view of poor earlier experience. The vast majority of the investment has been in rural roads, but individual loans have also included components for small general-purpose and fishing ports, rural aviation facilities, and occasional complementary assistance for purchase of specialized or adapted (appropriate technology) vehicles and vessels. Transport dimensions of Rural Development projects
have not always received expert attention on aspects such as construction standards, phasing of investment and integration with existing network. Cooperation between the Bank's Agriculture and Transport Divisions has now improved considerably, though it needs continuing attention.

3.35 Institution-building efforts in this field, which have naturally been carried mainly by the transport projects, have tended to stress (a) creation of a separate rural roads unit within the responsible central Ministry, (b) decentralized arrangements for road selection and planning, under national guidelines, at the province or county level, (c) gradual build-up, with the help of the central unit, of decentralized capability for administration of construction and maintenance, and (d) maximum reliance on private (or community) enterprise for carrying out the construction and maintenance work and providing transport services.

3.36 Particularly important contributions on all or several of these dimensions have been made in Colombia, Ecuador, Ethiopia, India (Bihar), Indonesia, Kenya, and Tunisia, as well as in several West African countries which benefitted from the services of the Feeder Roads Unit in the Bank's Abidjan office. A few projects in rural roads and rural development have helped specifically to develop community-level involvement in planning and local contribution to construction, whether in the form of materials and land, or of labor paid at less than national wage rates: principally Kenya Rural Access Roads, Korea Rural Infrastructure, Mexico PIDER and Haiti Rural Development.

3.37 The expansion of the Bank's rural roads effort has been supported by policy and research work following lines identified in a 1977 paper\textsuperscript{14}/ but limited by budget constraints. Particular attention has gone to appraisal techniques emphasizing complementary agricultural activity, to less expensive means for effectively screening and selecting roads before embarking on full economic analysis\textsuperscript{15}/ and to better understanding of rural roads' impact on passenger movements and access to public services\textsuperscript{16}/. One result has been agreement with Government in several projects on use of

\textsuperscript{14}/ TWD, Note on Rural Road Lending (December, 1977).

\textsuperscript{15}/ TWD, Rural Roads Screening and Simplified Economic Appraisal Procedures (August, 1982).

\textsuperscript{16}/ The rural transport work has been done in connection with Bank-assisted projects where possible and independent of them where necessary, and has been mainly in Brazil, Colombia, Honduras, India (Bihar), Indonesia, Mexico and Tunisia. An important recent report separate from normal Bank project documents was that on the Mexico Rural Mobility and Communications Study (August, 1981).
various measures of social and distributional benefits as a supplementary criterion in selecting roads, helping emphasis on the relief of poverty. A paper was issued summarizing results of an extensive comparative review of countries' institutional structures and arrangements for handling rural roads17/. A broader review on rural transport services, bringing in regulatory and pricing aspects and the user viewpoint, as well as issues of appropriate vehicles and track technology, was recently completed18/. The role of aviation as a less expensive alternative to rural roads for opening up remote areas was explored, and analytical methods developed, in a widely circulated 1980 paper19/. Rural roads work has also benefitted substantially from the research on labor-intensive construction techniques.

**International Trade Support**

3.38 Most port and waterway lending, major parts of railway lending and significant fractions of highway lending serve international trade. Port lending has greatly fluctuated from year to year in recent times, partly reflecting instability in trade prospects. A much higher proportion than in the past, about half, has been for facilities to handle containers and bulk traffic. Most railway projects are important for international trade flows, some such as recent ones to Zaire and Ghana are vital to countries' exports, and a few (e.g., Kenya, Zimbabwe) are also significant for carriage of traffic to and from landlocked neighbors. A relatively new phenomenon has been road projects with exceptional importance for international trade, particularly those for major transit routes in Turkey, Yugoslavia and Ivory Coast. Recent lending for international shipping has been significant (around $30 million per year) but entirely through DFCs, and a thorough review20/ undertaken in response to frequent criticism of the Bank's small role in this field concluded that more advice should be offered but not an expanded pace of financing. The previously mentioned aviation paper highlighted the importance of international airports in modern trade. Large transport investments in support of international trade, including those undertaken as components of mining or agricultural projects, have often involved substantial co-financing -- so far principally from official sources, except in the rather particular circumstances of the Suez and Black Sea-Danube canals.

3.39 The Bank has been making special efforts in its ports work to improve engineering preparation of projects and to strengthen borrowers' operating efficiency. Although in a smaller proportion of cases than in the past, serious delays and cost increases that should have been avoidable with thorough soil and hydraulic studies and fuller engineering preparation have unfortunately continued to arise. There are, of course, limits to the

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17/ TWD, Institutional Aspects of Rural Road Projects (December, 1981).

18/ TWD draft, Rural Transport Services: Comparative Review Study (November 1982).

19/ TWD, Aviation and Development (April, 1980).

expenditure on engineering investigations that is worthwhile, and the cost overruns have seldom been such as to eliminate the economic justification for the project. But benefits have been lost, and for very poor countries lacking financial flexibility it may be necessary to go a stage further than usual in the past, and await actual receipt of bids before Board presentation.

3.40 As regards operating efficiency, increased effort has been given in project preparation to overcoming the major restraints posed by restrictive port labor practices, with some success. Also, port projects now make much more use of agreed action plans, performance targets and technical assistance for improvement of cost accounting and other management information systems, but more active Bank follow-up is required. To strengthen Bank and borrower capacities to prepare and appraise container port projects, the Bank commissioned a state-of-the-art review which has been well received and widely circulated.21/ To improve assessments of the adequacy of port maintenance capacity and advice on ways to upgrade it, a guide has been prepared by consultants, drawing in a wide range of experience.22/

3.41 In 1979 the Bank published seminal research, outlining systems of port pricing which could contribute directly and substantially to greater port operating efficiency.23/ This was followed by extensive internal discussions, supplementary practical research, and a task group report24/ supporting the philosophy and outlining ways it should be applied. The principles involved have been used, for instance in a radical restructuring of port storage charges at Karachi, but effort is still underway to identify an appropriate case for pilot application of the approach as a whole. Several countries have shown considerable interest, but not ones where the Bank has been involved in ports lending in this period.

3.42 International transport has also involved Bank advice to its member countries, not necessarily linked to transport loans, on a larger and more varied range of topics than in the past or in other areas of transport. The Bank has been particularly concerned with helping a number of countries, such as India and Colombia, adapt to containerization, stimulating attention to issues like port handling arrangements and tariffs, decongestion of land-side access to the port, competitiveness among and within modes for inland movement of containers, and establishment of inland container depots. Dialogues on countries' macroeconomic policies and structural adjustment loans have also required special Bank studies in the international transport field -- for instance, of the economics of proposed large investments in international airports, and of international air access to island countries heavily dependent on air services for trade and tourism.

21/ Liverpool University Marine Transport Center, Container Logistics and Terminal Design (September, 1981).

22/ Port Operations Consultants, Port Maintenance (referred to Civil Works and Cargo Handling Equipment) (September, 1982).

23/ E. Bennathan and A. A. Walters, Port Pricing and Investment Policy, OUP 1979.

3.43 In the area of trade and transport facilitation, and document simplification, the Bank has begun to promote studies, the first of which, for Bogota airport, had dramatic effects in improving cargo flow without any investment. It has analyzed the problems of several of the landlocked countries, especially in Africa, discussed the conclusions with the Governments, and urged more effort on facilitation. It has carried out a special survey of the potential for intermodal transport in the countries of the southern cone of Latin America.\textsuperscript{25} It was instrumental in fomenting the movement which now seems to be well underway for these countries to adhere to the TIR convention, which will substantially ease inter-country movement of trucks and containers. Some of these efforts, especially in the facilitation area, have involved close collaboration with UNCTAD and the UN's Regional Economic Commissions.

Research and External Relations

3.44 Research has been broadly following the path mapped by the 1979 Transport Research Review Panel, but with increasing shortfalls since it proved impossible to provide any of the additional staff positions recommended by the Panel. The largest resources have been devoted to completing and applying the results (paras. 3.15 and 3.19 above) of the two elaborate co-financed studies -- on Highway Design and Maintenance Standards (HDM) and Labor-Intensive Construction -- which had been started much earlier. While the latter is now largely completed and ready for widespread application of the results, crucial results of the highway design research will be coming together over the next 12-18 months, following final completion of the major field studies that have been undertaken by the Brazilian and Indian highway research authorities.

3.45 Principal contributions of the highway design research to date have been to quantify for the first time the returns to road maintenance expenditure and to develop, and empirically validate, a rigorous methodology for determining highway program priorities. Forthcoming contributions will have major implications for Bank advice to its member countries on highway budget allocations and engineering issues. They are likely to suggest substantially increased expenditure on main road pavements, both by strengthening those already existing and by building new ones to higher standards than typically used to date. Economies in geometric design are indicated, particularly by building narrower pavements and giving less attention to improving alignments. But the pavement needs may be so large and so urgent as to impinge on countries' presently envisaged programs in rural road improvement, and even outside the roads field.

3.46 A number of the smaller studies and reviews recommended by the Research Review Panel have also been carried out. But no start could be made on the larger and deeper evaluation effort that the Panel urged on rural transport. Besides disseminating computer software developed earlier, the Bank has completed a flexible tool for financial analysis (FAST) which is now widely used.\textsuperscript{26} It has also brought to the pilot stage a railway planning model suitable for project preparation and appraisal. A comprehensive list of research and policy documents produced in the last three years is given in

\textsuperscript{25} LAC Regional Office, Intermodal Transport: A Regional Survey (June, 1982).

Annex I. To supplement internal resources, the Bank has persistently encouraged industrialized countries to undertake more research oriented to transport problems of developing countries. Identifiable results to date have included a few direct arrangements between bodies in industrialized countries and institutes in developing countries, and some recently started small-scale studies jointly financed between the Bank and European countries.

3.47 The EDI role in transport is highly appreciated by developing member countries. EDI gave 10 transport courses, of more diverse focus than in the past, in Washington in FY76-81 covering about 250 officials from 60 countries. Eleven regional courses were also held, and short senior-level regional seminars were introduced for Chairmen and Directors of public transport corporations and officials of similar rank from Government departments. An innovative venture in FY79-80 was use of EDI to provide intensive supervision and support for a loan-financed one-year training program for younger staff from the different modal agencies gathered in the National Transport Plan unit in Argentina. EDI has also assisted other parts of the Bank in delivery of brief seminars initiated by the latter in member countries.

3.48 The Bank has attempted to maintain relations with a large number of UN agencies, public and private international bodies, multilateral and bilateral aid agencies, professional organizations, universities and research bodies, with interests in transport. The intensity of relations naturally varies greatly among entities and over time, depending on the scope for constructive interaction. Particular attention has been given to the UN Economic Commission for Africa (ECA), because of the crucial role it could play and its need for advice.

3.49 Bank staff attend a fairly large number of international meetings on transport over the course of the year, with the purpose varying between learning and disseminating, and generally combining both. This is facilitated by TWD's monthly updating and circulation of a list of forthcoming seminars and conferences on transport. As for involvement in the organization of meetings, the policy has been to respond actively to requests for assistance from developing countries desiring to organize worthwhile international meetings on transport topics, since these can be highly valuable in disseminating and building up interest in appropriate techniques and approaches. On the other hand, involvement in meetings organized by developed countries has normally been limited to presentations on topics of current concern to the Bank. Bank staff also talk from time to time at universities offering courses in transport specially oriented to students from developing countries.

IV. Future Bank Activity

4.01 The Bank has responded actively to the emerging needs of its member countries in transport. Faced with rapidly rising demand for movement and stagnating financial resources for coping with it, Governments are seeking solutions that will make better use of what is already available and increase national, and local, self-sufficiency. The Bank has sharpened its capacities and tools in key fields like maintenance planning and administration, improvement of operational efficiency, upgrading of rural infrastructure and
development of human resources. It is well along with the same process in areas that have newly become important such as techniques for saving energy in transport, and policies for effective operation of transport systems consisting of several interacting and competing modes. Bank staff have fashioned new types of projects and project conditions for particular situations. Governments in turn have begun to respond to Bank advice with changes in policy and approach that would have been, and sometimes were, rejected out of hand a few years ago.

4.02 Even with Governments' increased readiness to consider new approaches, change will not normally take place easily or quickly. The Bank's experience in transport lending repeatedly demonstrates that significant change can be brought about, but only slowly, as convictions spread about the needs, suitable local solutions are discovered, institutions reorient themselves, human capacities adapt, and appropriate skills become more widespread. Bank staff themselves have to deepen their understanding and develop relations of confidence and trust with the borrower. The effort therefore has to be steady and sustained, through a series of lending operations that will normally show a high degree of continuity in basic emphasis but important changes of focus in light of the evolving situation and deepening knowledge. The results of institutional and policy change are seldom fully captured by project rates of return because their main impact is beyond the scope of the project itself. Yet it is these changes which really represent the impact of Bank involvement, as opposed to financing by another source.

4.03 In the selection of projects for Bank financing somewhat more emphasis needs to be given to the differential impact that Bank involvement can have. The basis for selection of transport projects is a complex amalgam of this together with rate of return and distributive considerations, mediated by country priorities and preferences, and by Bank staff availabilities. Distributive impact often enters into selection of transport investments by countries, and by the Bank, normally in a general way -- for instance, to give higher priority than would be indicated merely by unweighted economic return to road improvement in a relatively deprived area or to expansion of a service designed to meet the needs of the poor, or to assign relatively low priority to projects serving mainly wealthy farmers or rich commuters. The true distributional impact of most transport projects is much too complex to be identified at all easily. For instance, transport services widely believed to benefit the poor sometimes turn out to be serving the relatively better off, or the wealthy farmers just mentioned may in fact be the main potential source of additional basic foodstuffs whose expanded production would significantly reduce prices for the poor.

4.04 While these questions sometimes need careful investigation, it is even more important in selecting projects for the Bank to consider the policy and institutional changes that may be brought about by Bank involvement. For instance, a Highway Sector Loan that can help bring forward reforms of the type discussed in Chapter I may do far more for the poor than a rural roads project extending approaches already known and used in the country to a poor province. Equally, a rural roads project introducing in a country for the
first time more appropriate design standards, rural vehicles, construction techniques and organizational arrangements for local participation might represent a much better use of Bank resources than even an unusually high-return pavement strengthening project which could be financed from other sources.

4.05 Sharp alterations in the direction of the Bank's effort in transport are not called for at this juncture, but rather reinforcement of new emphases already chosen. Concern for the building of individual institutions has been replaced with the wider notion of capacity-building, emphasizing networks of institutions and organizations, in the private as well as the public sector, and a renewed commitment to the development of human technical and managerial capacities. Preoccupation with cost-minimization for meeting given transport demands has been replaced by broader resource-saving, involving improvement of the policies which affect and channel demands and consideration of a wider array of alternative solutions than were often examined in the past.

4.06 The purpose of this chapter is to discuss the substantive thrusts of the Bank's future transport work and, in particular, the ways in which the new emphases should be applied in different types of operation. Hence, after a review of the Bank Lending Program, and some consideration of Co-financing, the exposition is by category of operation: Sector Work, Highways, Rural Infrastructure, Railways, Seaports and Airports, Domestic Water Transport, Multi-modal Dimensions to Projects, Structural Adjustment Loans, and Training of Borrowers' Staff.

The Bank Lending Program

4.07 Review of the Bank Lending Program for the next few years indicates that, in most countries, Bank resources available for transport lending (both direct and indirect) will be scarcer relative to needs than they have been in the 1970s. There should be some increase in total lending in real terms, but it will be at a pace below the minimum likely increases in traffic that were established in Chapter II. Moreover most of the increase is accounted for by the provision for China which has not previously borrowed from the Bank for transport. The problem results mainly from constraints on the Bank's overall volume of activity since the most recent consolidation of the Lending Program shows that the share of transport would remain approximately the same for FY82-85 as it was in FY77-81. Plans for lending during this four-year period were reasonably well delineated in the country-based Lending Program assembled in March 1982 and used as the basis for FY83 budget presentations.

4.08 According to that program total lending for transport would amount to some 17-18% of the Bank's overall lending volume in FY82-85. As in the recent past, about 13-14% would be for transport projects, and some 4% for transport components of other projects. Transport lending through agriculture and rural development projects may account for about one-and-a-half of these four percentage points, a little less than in the
recent past due mainly to the reduced share of lending for such projects in total Bank lending. One percentage point would likely continue to come from urban development projects (including those wholly devoted to urban transport), with the possibility that a higher level will be reached at the end of the period, when two or three urban transport loans might be made each year. The remainder -- some one-and-a-half percentage points, a little larger than in the past -- would represent lending for transport components in other types of projects, most importantly a few major mining and industrial schemes under the charge of the Industry Department. This also allows for the small but significant lending through DFCS, where increases may be expected in provisions for on-lending to civil construction and road transport enterprises.

4.09 As it stood in March 1982, the lending program for transport projects showed major changes in pattern from the recent past, several of them brought out in Table 4.1. The share of such lending accounted for by Western Africa and EMENA would approximately halve, reflecting equally a halving of the shares of transport in these two Regions' total lending -- in EMENA to reach only 8%, significantly lower than any other Region. The shares of Eastern Africa and LAC would remain stable. But those of the two Asian Regions would increase substantially, reflecting a doubling of transport's previously unusually low (5%) share of total lending in South Asia and, in the case of East Asia, substantial expansion of total lending with a constant percentage devoted to transport.

4.10 Particularly in Western Africa, but to some extent also in EMENA and LAC, the March 1982 lending programs would probably have been insufficient to sustain the dialogue with countries on improvements in policies and practices. In all three Regions the percentage of active borrowing countries which would receive transport loans would drop sharply between 1977-81 and 1982-85. The drop was sharpest in Western Africa, from 90% (18 out of 20 countries) in the recent past period -- approximately the same as achieved, and also planned, for Eastern Africa -- to less than 66% in 1982-85, or only 14 out of the 22 countries expected to be active borrowers in the period. As a result, the share of sub-Saharan Africa in total transport lending would decline from 23% in 1977-81 to 16% in 1982-85, and average annual amounts of such lending would fall some 20% in real terms between the two periods. Africa's prime need for small projects emphasizing improved operation and maintenance, and availability of increased co-financing for larger projects, could make some reduction desirable in the general context of great needs also in other sectors. But the reduction implied by the March 1982 lending program seemed to go beyond this.

4.11 These problems have now been recognized, and transportation lending programs have been strengthened in several Regions. In particular in Western Africa it now appears that, while the annual average amount of lending may drop from the level reached in 1977-81, it will remain sufficient to preserve an influential voice for the Bank in the sector in the same high proportion of borrowing countries as in the past. Significant additions have also been made to several other Regional programs. But it will be important to guard against the planned number of projects or funding level for a country again falling below the level needed to assure an effective dialogue in each case.
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**MARCH 1982 PLAN FOR FOUR YEARS 1982-85**

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<tr>
<td>Annual Average</td>
<td>14.3 734.9</td>
<td>3.0 222.6</td>
<td>5.8 309.0</td>
<td>2.0 139.8</td>
<td>4.8 609.5</td>
<td>29.8 2016.0</td>
<td>100.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Annual Average Amounts in 1977-81 US$ 2/ | 365.3 | 171.2 | 237.7 | 107.5 | 468.8 | 1550.8 |

---

2/ An Increasing proportion of projects have components in more than one mode. They are assigned here to the mode which accounted for 50% or more of the loan.

3/ Domestic Water Transport includes Inland Water Transport (IWT), Coastal Shipping and Interisland Shipping.

4/ Preceding line deflated by 30%, based on Bank's commitments deflator, as given in FY83 Budget.
Meantime it should be borne in mind that the discussion in the following paragraphs remains based on the March 1982 program, so that the breakdowns given should be treated as orders of magnitude rather than precise figures.

4.12 Future lending may be somewhat more concentrated in terms of countries than was 1977-81 lending. Half the total lending planned in March 1982 was to go to six countries — in order of their importance in the program, India, Brazil, China, Indonesia, Thailand and Colombia. In 1977-81 the top six transport borrowers accounted for only a little over a third of total lending and were a substantially different group: Yugoslavia, Korea, Brazil, Algeria, Philippines and Mexico, again in descending order of amounts borrowed. This change reflects addition of China to the Bank lending program, special efforts to overcome the bottleneck to development that Indian Railways have become, increased highways lending to Brazil, and moves to greater selectivity in Bank railways lending. Railway loans are presently projected to only 13 countries in 1982-85, compared with 23 to which loans were actually made in 1977-81.

4.13 The March 1982 program also showed significant changes in the distribution of lending among modes. This needs to be interpreted carefully since the historical record demonstrates that planned loans for ports and water transport have had a lower likelihood of actually being achieved in a given period than those for other modes — because of the difficult and extensive preparation required for many such projects and frequent changes in expectations about international trade. Therefore, based on the relationship between actual lending in FY78-81 and the May 1978 Lending Program, the following table includes a 25% downward adjustment to the future figures for ports and domestic water transport shown in Table 4.1.

Table 4.2

<table>
<thead>
<tr>
<th>Mode</th>
<th>Actual 1971-81</th>
<th>Program 1982-85</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amounts ($ mln)</td>
<td>Percent of Total</td>
</tr>
<tr>
<td>Highways</td>
<td>703.9</td>
<td>53.1</td>
</tr>
<tr>
<td>Rural Roads</td>
<td>109.2</td>
<td>8.3</td>
</tr>
<tr>
<td>Ports</td>
<td>142.2</td>
<td>10.8</td>
</tr>
<tr>
<td>Domestic Water</td>
<td>45.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Railways</td>
<td>292.2</td>
<td>22.1</td>
</tr>
<tr>
<td>Airports</td>
<td>30.2</td>
<td>2.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1322.7</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Lending would increase in real terms for all categories except highways (and airports for which no future separate lending is presently shown), with particularly strong increases for railways, rural roads and domestic water transport, each of which would substantially increase their shares of the total. It should be stressed that the breakdown in Tables 4.1 and 4.2 is by main category to which a project belongs and is therefore not comparable with
the end-use estimates of Table 3.2, splitting individual loans by allocations to modes.

4.14 Despite the fall in the amount shown for highways, and a reduction from 21 to 17 in the number of loans made each year for rural roads and highways, this mode would nonetheless remain the largest use of transport lending, accounting for some 50% of the total. Africa and Latin America would be the principal Regions for highways lending, but there would be a great expansion of rural roads lending in East Asia. Further separate lending for rural roads was not envisaged in Western Africa, where effort would rather be concentrated on roads included in agriculture and rural development projects and on continued support for the recently created central institutions through such loans and those for highways.

4.15 Port operations would be more widely spread in the coming years than they have been, with notable increases in West Africa, LAC and South Asia. Loans for domestic water transport would be particularly important in East Asia, mainly in the form of river transport in China and perhaps Thailand, and shore-based facilities for inter-island transport in Indonesia.

4.16 Railways lending would be much more heavily concentrated in Asia than in the past, and especially in China ($500 million) and India ($815 million), which together account for more than half the total railways lending shown. No railways lending is currently foreseen in Western Africa, the Region which made the largest number of railway loans in 1977-81, partly because of this relatively large amount of recent past lending and partly because of difficulties in reaching effective agreement with borrowers on appropriate railway development policies.

Co-financing

4.17 Recent experience suggests that there is potential to compensate for the lagging growth of Bank transport lending by more recourse to co-financing. This would also serve the equally important purpose of getting a better use of whatever funds are available from other foreign sources for transport investment in developing countries. Co-financing carried by Bank transport projects has risen substantially from about 33% of the amounts lent by the Bank in 1979-80 to nearly 50% in 1981-82, although this remains below the Bankwide average percentage. There have also been important changes in the sources and applications. Where the sources used to be limited to a few bilateral aid and export-credit agencies and the regional development banks, they now include more of the Arab funds, with larger amounts, and a growing number of private banks. Moreover the co-financing is much less concentrated on railway equipment sales; indeed in FY82, when it reached over $700 million in total, it was mainly for port and highway projects, including substantial private bank loans for civil works as in the Cameroon highways project.

4.18 Three steps should be taken to further promote co-financing in transport. First, Regional programs staff, who have overall responsibility for co-financing, should actively promote technical contacts with potential co-financiers at early stages in the genesis of projects, and the Regional
transport divisions should give high priority to meeting this need. Transport sector memos and reviews and project briefs should be sent to principal agencies which might provide or organize co-financing for Bank-supported projects or which have on-going activities in the transport sector of the host-country. This may be done either formally (after revision in light of host-country comments) or informally. Wherever there is good prospect of co-financing being secured, the responsible projects staff should have early discussions with the agency's technical personnel. The purpose would be to make sure that the latter's concerns will be dealt with in preparation/appraisal, to seek to have them carry part of the work-load, and to minimize the number of different documents that will have to be prepared.

4.19 Second, more attention should be given at original conception of transport projects to any possibilities for involving private foreign investors, whether banks, through loans or bond purchases, or transport operating companies, through direct investment. Port authorities, as mentioned earlier, should be particularly well placed to secure private foreign loans -- even, as the Singapore Port Authority does, without Government guarantee. Toll highway authorities, or entities concerned with transport routes of great interest for international trade, may sometimes be able to follow the same course. Some Bank transport projects also offer opportunities for facilitating the inflow of foreign direct investment and expertise. Examples include the provision of certain port services (e.g., container-handling), operation of river and road transport services, supply of specialist services to a railway company or its customers, or even operation of some railway services (e.g., for a mining company). Too often in the past Bank assessments have either assumed that the public authority must continue to try to provide all the services itself or failed to consider the legal and procedural constraints preventing or restricting development of competing private services.

4.20 Third, the Bank should organize from time to time ad hoc donor meetings -- which might sometimes also be attended by representatives of aid recipients -- on particular subjects or problems, such as transport maintenance or railway issues, which need common pursuit. This would help to avoid inconsistencies that sometimes now arise in independent operations -- such as provision of excessive amounts of new equipment, insufficient help for spare parts, different institutional arrangements for maintenance in different parts of a country. As the Bank gives more emphasis to changes in countries' transport sector policies as means to improve efficiency, it will be increasingly important to avoid such inconsistencies and to secure as much understanding and agreement as possible among donors on appropriate approaches and policies in transport. The need for more regular contact at the technical level among donor agencies was raised by several participants at the donors' meeting on road maintenance that the Bank organized in Paris in 1980.

Sector Work

4.21 Governments' increased readiness to act to improve the efficiency of the transport sector, as discussed in Chapter I, means that good transport sector work is more important than it was in the past. It also means that
sector work needs to focus more directly on identifying ways to make the transport market function better. This involves substantially more attention than in the past to transport services and Government policies affecting their development. The increased emphasis that has been given to these issues in work on some countries in the last two years needs to be spread more widely and further deepened. The Bank should also be increasingly selecting and designing projects in such a way as to help bring about significant policy reform.

4.22 The ways in which sector work is best carried out will continue to differ among countries, but more attention is needed in most Regions to follow-up discussion with Government of studies undertaken or promised. The studies themselves are increasingly done by borrowers' own staff, often with the aid of local or foreign consultants or technical assistants, sometimes still largely by such outsiders, and sometimes by staff of other international agencies. Bank staff-time devoted to sector work is therefore recorded under project preparation, appraisal and supervision, technical assistance and other miscellaneous categories, as well as under sector and economic reporting. The latter relates mainly to the preparation of sector memoranda drawing together the results of work done and shaping a strategy of lending, advice and technical assistance.

4.23 Clearly Bank staff-time should be conserved mainly for work to identify and delineate issues, to guide those studying them in depth, to review conclusions, and to discuss actions with the responsible authorities. The last step in particular may require much patient dialogue, and it is crucial to allow adequate staff-time for this. Sector memoranda themselves may need to be briefer as a consequence, and to take more the form of country Sector Strategy Papers. They should reflect the experience, and help mobilize the potential, of other Bank lending, such as for Agriculture and Rural Development, DFCs, Structural Adjustment and Urban projects, in contributing to the improvement of transport.

4.24 Subjects most in need of additional attention in sector work will naturally vary between countries. But within the general thrust toward ways of making the transport market function more effectively, there are four policy areas which often best repay effort at this time:

1. Institutional and legal structures affecting competition within and between modes and hence the responsiveness of transporters to customers' needs. This includes such diverse issues as: economic regulation in the different modes (e.g. restrictions on market entry and pricing) and ways to bring about a reduction; measures to raise the effectiveness of safety regulation; increasing the autonomy and responsibility of public transport enterprises; mobilization of the private sector for provision of services hitherto supplied by the public sector; availability of credit for purchase of both conventional and unconventional vehicles; rationalization of foreign exchange and other controls affecting the supply and distribution of spare parts for vehicles; potential for
public trucking terminals to improve the road freight market; and ways to reduce regulatory and other restraints to effective competition on international services.

(ii) Pricing and taxing rules and practices, with particular attention to the structure (as opposed to the overall level) of prices and user-taxes for publicly provided facilities and services, and their relationship to marginal costs. The efficiency improvements that can result from improvement of pricing structures in the competing modes should be the main route to the needed increase in financial self-sufficiency of public transport agencies. However in many cases this must also be supplemented by better mechanisms for expeditious adjustment of prices and taxes in light of inflation.

(iii) Measures to improve the energy-efficiency of the transport sector additional to those which would result from actions under (i) and (ii) above. These would include efforts at better dissemination of energy-saving techniques, strengthening of public institutions in modes which should be able to gain traffic as a result of the change in energy prices, and research and development work on the use of locally available unconventional energy resources for transport (e.g., gas and ethanol).

(iv) Measures to raise the responsiveness to market demands of the public agencies responsible for infrastructure provision, with particular attention to the scope for increased efficiency by better adjustment of standards and techniques -- e.g., in the highways field, lower-level infrastructural improvements such as paths, tracks and trails as an alternative to rural roads, use of spot upgrading, adequacy of pavement design standards for main roads, feasibility of lower geometric norms for roads, potential for increased use of local materials, and means to promote a better balance between labor and equipment in construction and maintenance operations.

These areas should loom large in the transport sector work undertaken or recommended by the Bank in the coming years, naturally with differing emphases in different countries.

4.25 Work on these issues is a necessary accompaniment to the efforts that are still very much needed to further upgrade broader investment planning in the transport sector. Despite the considerable advances that have been made, planning procedures in many of the Bank's borrowing countries result in insufficient financial allocations for routine and periodic maintenance and let through some projects of relatively low priority. Some Governments face choices of great importance among alternative transport
investments. Bank assistance on such issues is particularly important because other donors, sometimes motivated by commercial interests, are seldom inclined to address difficult project selection and investment programming choices. Experience suggests that, in some countries, the most effective locus for exercise of discipline on transport investment planning is in the national planning authority or Ministry of Economy rather than the bodies specifically devoted to transport coordination that the Bank has often tried to help set up in the past. The main additional need at this time appears to be for more attention, either from such national planning bodies or from Ministries of Transport, Public Works, etc., depending on country arrangements, to policy issues, especially those belonging to the four groups mentioned above.

4.26 Country and Bank transport sector work thus serve to help identify not only the highest-priority investment projects but also, and often even more, the policy changes which should be pursued in connection with Bank lending for transport, and the weights that should be given to them. The fact that Bank/IDA loans need Government guarantees, and that Governments as well as borrowing enterprises are involved in loan negotiations, gives the Bank a useful opportunity as a lender. It means that, in addition to actions that are the direct responsibility of the enterprise or Ministry which will use most of the loan funds, issues can also be taken up which relate to broader policies affecting the performance of the project. Transport loans often carry conditions relating to actions by other branches of Government, particularly Finance Ministries and price control authorities.

4.27 To be suitable for treatment as a loan condition, issues have of course to be thoroughly studied and well prepared, so that a solution appropriate to local circumstances is available, or nearly so, and a convincing case can be made for it. What it is wise to seek in terms of preconditions or conditions for the making of a loan will vary enormously depending on the stage reached in the Bank's association with transport in the country, the state of the dialogue with the authorities, the seriousness of the problems, the extent to which the foundation for dealing with them has been laid, and the significance of the Bank as a lender. But, where there are problems, the Bank should make a definite contribution to the process of gradually overcoming them.

4.28 As sector work deals increasingly deeply with the areas mentioned above, loan preconditions and conditions should be expected to cover a somewhat broader range than in the past and to receive more effective follow-up. The Bank has tended to take the strongest stand on what it considered direct misallocations of Government funds in the mode affected by the project, such as excessive design standards, underprovision for maintenance and uneconomic railway investments. It has also attached great importance to borrower financial performance and action plans, although loan negotiations have been much more seldom broken off on these issues, and a proper caution has been exercised in imposing requirements with potentially adverse distributive effects.
4.29 While these will remain important subjects of negotiation, other topics are also likely to warrant coverage. First, given the potential importance of intermodal competition in helping to improve the efficiency of the various modes, more attention should be paid to the transport sector as a whole in setting up loan conditions. The Bank should be ready, for instance, to attach to highway or railway loans conditions relating to regulation and taxation of road freight transport or coastal shipping if policy improvements in these have been demonstrated to be necessary to get a better inter-modal traffic distribution. Or again, a port loan may need to carry conditions requiring reduction or abolition of a port access monopoly by a single trucking company. Thus the burden of contributing to sector policy reform should be shared across the whole lending program, rather than being borne only by particular loans.

4.30 Second, even where a loan is only for infrastructure, more attention should go to the possible desirability of conditions relating to service performance -- for instance, in the case of a highway loan, measures to ensure adequate flows of spare parts to the trucking industry, or, in the case of a rural roads loan, steps to reduce restrictive controls on the use of private vehicles for public service. Third, alleged negative distributional consequences of a proposed measure (e.g., cutting budget allocations for rural roads to increase provisions for maintenance of main highways, or reducing commuter transit subsidies) should not be accepted as a final answer, but rather followed up with a requirement to have the matter studied in depth and appropriate action taken. Fourth, in the case of issues long studied and discussed, where needed action has nonetheless not been taken, clear progress in revolting them should be expected as a precondition to signing of a new loan.

4.31 Loans for particular projects in individual modes can thus provide a satisfactory base for dealing with broader policy questions. However, sectoral or subsectoral (modal) loans, contributing to the accomplishment of comprehensive investment programs, can be even better suited to this purpose and should be used increasingly. Experience with five of the six highway (sub-)sector loans made to date has been very positive. This form of lending has so far been used mainly for its advantages of flexibility in use of funds and focus on the pattern of all public expenditures on highways. But it has also been used, particularly in Latin America, to help bring about broader sector policy reform. Future sector and subsector loans should have a clearer focus on selected policy issues, more rigorous policy conditions and better yardsticks for measuring progress.

**Highways**

4.30 Highway projects will remain the most important single form of transport lending, affecting the largest number of countries and accounting for some 5% of Bank lending for all purposes in the coming years. They must be used more than has been typical in the past to deal with broader sector policy issues. Thus all highway loan appraisals should include at least a simple analysis of the structure of road user taxation and a sound evaluation of economic regulation affecting the road transport industry. Particular attention would go to assessing whether tax structures needlessly discourage
fleets and whether heavy vehicles are appropriately taxed. Other energy-related issues, such as adequacy of arrangements for training of drivers and truck-company managements and for maintenance and inspection of vehicles, should also receive more frequent attention. The Bank should normally be reluctant to approve highway loans unless retail fuel prices cover at least the opportunity cost of the fuel, local distribution costs and short-run marginal costs of road use. But most other policy issues will require in-depth studies before Government can take action. Wherever there are important issues requiring attention, they should be taken up, whether by studies or by action under the loan.

4.33 The dominant thrust of highway lending will remain the patient effort to build up efficient domestic capacity for adequate maintenance and administration of the highway network. Projects will therefore consist largely of specially tailored programs of financing, technical assistance and training to achieve the next stage in development of local capacities for planning, managing and executing maintenance. General covenants regarding maintenance and axle-load control almost always need to be supplemented by specific Action Programs, and likely some loan components, to help achieve better performance. Improved administration of truck weighing facilities, and higher fines for infringement of the law, will be important in many countries. In some it will be necessary to deal with the problem by at least temporarily prohibiting the import of excessively large vehicles. Projects with highway safety components are likely to continue to increase, with greater emphasis on enforcement aspects, vehicle inspection, driver training and safety campaigns. Environmental pollution by highways should also receive more attention, especially in very dry climates.

4.34 Amongst the various dimensions of programs for improving highway maintenance, particular attention should go to the management of maintenance equipment fleets and more effective operation of hire funding systems. More projects should also include provisions to strengthen, and increase the highway authorities' reliance on, local contractors as potentially the most efficient means of executing many highway maintenance operations. Actions to improve Government contracting procedures and to strengthen arrangements for training of technical and managerial staff particularly warrant attention.

4.35 Tighter constraints on the volume of Bank and IDA lending mean that the Bank's effort should mainly be concentrated on these capacity-building dimensions of the problem, helping to develop personnel and systems for better management of available resources and more efficient allocation among the various tasks to be done. Lists of equipment to be purchased should be scrutinized more carefully, to tailor them more closely to requirements and to promote better use of the existing stock. Borrowers and other lenders should be encouraged to follow the same approach. In some countries other lenders will be able to provide the majority of the support for large scale pavement strengthening and highway rehabilitation programs, in co-financing arrangements or separate operations. But developing capacity for regular monitoring of pavements and for preparation of strengthening programs should be an integral part of the Bank's institution-building concern.

4.36 In exceptionally poor countries, the bank has made a useful contribution to maintenance development by being prepared to finance, temporarily and on a declining basis, a share of even the recurrent costs of enhanced efforts at routine maintenance. The deteriorating financial position of some African Governments means that cases are now likely to arise where this needs to be done even for routine maintenance that is not incremental to the level previously sustained. The Bank should be ready to consider such financing, since it may be the key to preventing destruction of substantial inherited assets. But the issue must be looked at in a broader and longer-term perspective, to verify that domestic or foreign funds could not advantageously be diverted from construction, to ensure the country could eventually expect to carry the maintenance burden, and to avoid perpetuating over-extended networks that have no prospect of being adequately maintained with local resources even in the long term.

Rural Infrastructure

4.37 Improvement of rural transport infrastructure, the most direct way in which the transport sector contributes to the Bank's poverty-reduction objectives, will be supported in the coming years by loans primarily for this purpose, by components of broader transport loans, and by components of Agriculture and Rural Development loans. Together, they are likely to continue to account for about 4% of total Bank lending. However a larger proportion of this 4% will be in transport loans, and particularly in large loans with major institution-building dimensions in the East Asia and Latin America Regions. Therefore special attention must continue to be given to close coordination with broader agricultural and social development in the areas affected and to the timeliness of any outside interventions required in the latter fields.

4.38 While the large majority of the lending is likely to be for rural roads, they should not be assumed to be the only solution to rural transport problems. Changing technology and prices, and tighter capital budget constraints, make air, river and sea transport marginally more attractive alternatives than they have been. Thus proper consideration should be given to them in appropriate circumstances. In addition, lower-level infrastructure improvements such as tracks and trails should be considered as legitimate alternative investments which are likely to have a stronger effect on the relief of poverty than some of the rural roads heretofore included in Bank loans.

4.39 Larger efforts must be made by the Bank to develop the use of labor-intensive techniques of construction and maintenance for rural infrastructure. They are often the least costly solution in economic terms, they have better distributive effects than alternatives and they more readily call forth local effort. Project Briefs and other documents on projects involving extensive construction of simple rural infrastructure, whether for transport or other purposes, should always discuss the basic wage actually paid in the area (as contrasted with the official legal minimum wage). Where
the wages paid are below the equivalent of about US$4.00 per day in 1982 prices and labor is available in adequate quantities, the alternative of using labor-intensive techniques for the construction works should be seriously considered. In areas without a modern tradition of labor-intensive construction, it will often be necessary to start by force-account operations, whereas in others it will rather be a matter of securing better interaction between the Ministry of Works or project authority and local communities or small contractors.

4.40 Wherever labor-intensive techniques of construction and maintenance show good potential, training of Government staff in the design and management of such operations -- which may involve, for example, different road lay-outs from those which would be chosen with heavy use of equipment -- should be organized. Capacities should be developed for the provision of technical assistance to communities on these and other crucial matters, such as appropriate selection of hand-tools. In some cases it will be appropriate to take special measures to avoid the bias towards use of equipment-based techniques that exists in most present-day procedures for bidding and contracting of works.28/ Even in countries where it would normally finance only foreign exchange costs, the Bank has already accepted to lend for at least the same share of total costs of labor-intensive construction operations as it would if the work was to be carried out with heavy use of equipment.

4.41 Foreign technical assistance experienced in the management of labor-intensive construction operations is now more readily available, and country interest has grown markedly, so that it should be possible to design programs which will not impose undue supervision burdens on the Bank's Regional Divisions. Several international consulting firms have developed expertise, a number of developing countries can offer experienced staff, and ILO, with Scandinavian financial assistance, has enlarged its capacities in the area -- with special attention to applications in maintenance of civil works. The Bank should now expect to undertake a larger number of broad rural infrastructure projects emphasizing the build-up of community and contractor capacities for labor-intensive civil construction and maintenance.

4.42 There are two other areas which should be receiving increased attention in Bank efforts on rural infrastructure. One, which interrelates with the potential for community self-help construction, is the development of arrangements for more effective local participation, at the village and/or district level, in the planning of works. Better ways have to be found to combine local initiative with Government technical expertise, and this should receive more explicit attention than has generally been the case to date in Bank projects. One dimension is to develop techniques for screening, evaluation and selection of small transport projects which are both simpler

and more realistic, measuring agricultural potential more summarily and giving more adequate attention to movement of people, their time savings and the use of transport for social purposes. Another dimension is to develop the institutional structures for effective interaction between communities and technical ministries, such as local representation of the ministry and standard arrangements for creation of community committees and procedures for their operation.

4.43 The other area that warrants more attention is rural transport vehicles and means of bringing them within the financial reach of local people. Non-conventional vehicles, such as numerous forms of animal-drawn carts, tricycles and bicycles with trailers, and motorized three-wheelers, play the dominant role in local rural transport in many parts of the developing world. Yet improved designs have great difficulty in spreading from one area to another, while some countries -- especially in Africa -- use little beyond conventional trucks, buses, pick-ups, cars, motorcycles and bicycles, all in very limited numbers. The obstacles to the spread of lower-cost, non-conventional vehicles -- such as import and licensing restrictions, ineligibility for credit, and lack of market incentive to the international transfer of these simple technologies -- need to be identified more clearly in specific cases, and efforts made to overcome them. Thorough investigation of the potential for private-sector provision of transport services, whether by conventional or unconventional vehicles, should always precede any consideration of a Bank loan provision for enlarging the fleet of a parastatal agency such as a marketing board.

Railways

4.44 The large increase in the provision for railways in the forthcoming transport lending program, especially for Asia and southern East Africa, reflects increased needs for railway modernization in face of the new energy prices and growing bulk movements. Overall efficiency and quality of service needs to be improved, to enable the railways to capture, in open competition with other modes of transport, as large a share of traffic as they can. And particularly densely trafficked lines will need to be electrifiedin several of the countries with the most important networks. In addition, the Bank is likely to help finance some large railway investments within the framework of projects aimed at developing new coal and iron-ore mines.

4.45 Because of their importance for major industries and exports, and their serious existing problems, railways in many countries represent a particularly high-priority subject for Bank attention. But substantial reforms are often needed, both internally in management and operation, and externally in the policy framework governing their operation. Appropriate sector policies are essential to help the railways move in the right direction, away from the lightly used and unremunerative services which now often hamstring their effectiveness, and towards the heavy passenger flows and dense traffics of primary products, semi-manufactures and containers where they can have long-run comparative advantage.
4.46 The main task of the next few years in the railways field will be
to fully apply the prescriptions and conclusions reached in the previously
mentioned, recently approved Bank policy paper on "The Railways Problem". In
view of the difficulties encountered in many past railway projects it was
decided to adopt a more selective approach in future lending. In particular,
both Government and railway management must be ready to undertake the
multi-dimensional process of structural change that is normally needed to
enable railways to play an effective part in transport. This process is
complex and difficult and can only be expected to be achieved over a series
of loans. But each loan should make a step in the right direction. To help
achieve a properly selective approach, six specific criteria have been
identified which would have to be fulfilled by future railway projects in
order to qualify for Bank support. A number of projects that were
earlier included in future lending programs have been dropped, and those that
remain should all be able to meet the criteria. However, this will be
reviewed on a case-by-case basis during project preparation.

4.47 The success of railway lending will also be determined by the
effectiveness with which it focuses on the railway enterprise's key
problems. Several measures are being taken to improve this. First, the
policy paper lays great stress on initial comprehensive diagnosis, to
identify priorities among problems and assess how many of them the railway
management could reasonably be expected to solve within a project period.
Second, preparation of the various software and hardware parts of the program
and project should be deeper and broader than in the past, to avoid
imbalances and inconsistencies and poor non-project investments. Preparation
can be assisted by railway rehabilitation/engineering loans as well as other
means of financing technical assistance. Third, the overall design of
projects is expected to continue the more diverse pattern developed in the
last few years, with projects tailor-made to focus primarily on particular
functions (such as rolling stock maintenance or wagon control and information
systems), particular regions or movement of particular key commodities, in
addition to the more traditional comprehensive 'time-slice' project where
that remains the most appropriate.

4.48 Fourth, Action Plans must be more fully and carefully prepared and
agreed between borrower and Bank. They must include specific, and not over-
ambitious, targets in the selected areas for each year of the project, and
agreed sets of measures to reach the stipulated targets. Progress in their
execution must be regularly reviewed, and the targets adjusted as necessary
to keep them realistic and effective. A further step that could help in some
countries both to make Action Plans more effective, and to reduce arbitrary
Government interference in railway operation, would be to seek Social
Agreements or Contract Plans, with the same content as the Bank requires in
the Action Plan, but agreed between Government and railways.

29/ Operational Manual Statement on Railway Lending, Final Draft, September
20, 1982.
Seaports and Airports

4.49 The increased lending foreseen for seaports reflects expanding international trade and, particularly, the spread of modern bulk-handling methods and containerization to the developing countries. Few future port projects will be without provision for these modern methods. Some will involve extensive channel dredging and major civil works such as new wharfs or the construction of port facilities at entirely new sites, the kind of work that requires very careful engineering preparation which is inclined to take longer than expected. But more of the projects than in the past are for rehabilitation of existing facilities and conversions to bulk-handling and container operations, which should be less liable to slippage in preparation. Hence ports lending in the forthcoming period may not be subject to the full amount of the 25% slippage assumed in Table 4.2.

4.50 In addition, some industrial, mining and agricultural projects will include substantial provisions for port works. DFCs will continue to be called upon to finance ships for international commerce and, with the UNCTAD Code of Liner Conduct now coming into force, they will need to beware of uneconomic propositions based solely on cargo reservation. No lending is presently foreseen for airports, but issues connected with them and international air traffic will continue to arise in country policy dialogues and some lending may become necessary in view of their increasing importance in the movement of goods as well as people.

4.51 Port labor issues are assuming greater significance in connection with the staging and sizing of major port investments. Borrowers will increasingly require Bank advice on reasonable standards and ways they can be brought about. A port gang working breakbulk cargo can normally achieve a productivity of around 12 tons per hour; a container crane about 12 tons per cycle, say every four minutes; bulk loading/unloading at typical world capacities average around 12 tons per minute. Work interruptions are therefore much more expensive under the new technologies.

4.52 To get a satisfactory utilization of the very expensive equipment installed often requires major changes in labor practices, which are difficult to negotiate with the labor unions involved. Without such changes even larger investment is required, for which it is very hard to justify scarce Bank financing. Thus, without being able to deal with the matter directly, the Bank does have to insist on solutions being found in the course of project preparation -- whether by securing labor union agreement to reduce breaks and increase shifts, by changing the bases of labor remuneration or by setting up the facilities outside the sway of existing port labor unions. In some countries the problem has been so serious as to divert the growth of port capacity away from the public ports into private, 'industrial' ports.

4.53 The Bank must also develop further the system of agreeing with all port borrowers efficiency targets for the key areas where improvements are needed. It is important that agreement also be reached on the measures --
such as training, improved maintenance and reduction of restrictive labor practices — that are necessary to reach the targets, and that the latter be given some legal standing by incorporation in a supplementary letter. The targets should be year-by-year and must be followed up more actively. Since it is generally relatively easy for ports to introduce increases somewhere in their typically complex tariff structures, the Bank has to be on its guard that its revenue covenants in this field do not simply serve to cover up inefficiency.

4.54 Continued attention should also be given to the improvement of port costing, and reinforced efforts made to get tariffs for the different services appropriately related to costs. The marginal cost pricing approach developed in the research report published by the Bank three years ago is too new and unconventional to be adopted yet as standard Bank policy. But high priority should be attached to a trial application with at least one port (and preferably more) within the next three years, since it would likely make a significant contribution to improving the efficiency of use of port assets. As a further approach to improving operating efficiency, the Bank should also give more systematic attention to the opportunities for competitive sub-contracting of more port functions.

4.55 Another area that should receive more frequent consideration in connection with port operations is the scope for improvement in the speed and efficiency of trade flows by applying the known techniques of trade and transport facilitation, including document simplification and modernization of customs clearance procedures. Bank port loans offer an excellent opportunity to help bring about action on these matters, and appropriate expertise is readily available from the UNCTAD Facilitation Program (FALPRO) and the numerous national bodies dedicated to the same end.

**Domestic Water Transport**

4.56 This remains the smallest category of transport lending among those identified, but it is the one which shows the largest proportionate increase. It includes all forms of water transport primarily serving movements within countries, i.e., most navigable rivers and canals, and coastal and inter-island shipping. It is naturally of particular importance in countries consisting of many islands such as Indonesia and Philippines. It has traditional importance in the form of river transport for countries like Bangladesh, Burma, China, Congo, Sudan and Zaire. And it has been of growing importance in the form of coastal shipping for a few countries with extensive coast-lines close to main centers, such as Korea and Turkey. The transport lending envisaged is for various of these countries. There will also be small amounts of lending for the same purpose through Agriculture and Rural Development and DPCs projects.

4.57 The sharp growth in expected lending for water transport is basically due to the significant improvement in the comparative advantage of this mode, as a result of the energy price increases, wherever the routes involved
are not too much longer than those by alternative modes. In a few cases where there are no practical alternative means of transport, it also reflects efforts to spread development more widely. In many countries the domestic water transport modes were allowed to decline as other forms of transport were built up after World War II. Coastal shipping, in particular, has suffered in many countries from restrictive port labor practices, insurance and customs problems, excessive Government economic regulation, ill-conceived attempts to force cross-subsidization from international shipping, and inadequate technical regulation. River transport has suffered from neglected maintenance of waterways and public ports, restrictions on competition in service provision and declining efficiency of the public monopolies. These are usually the principal problems which need to be dealt with in projects, and the Bank should continue its efforts to generate more such projects in situations where they can make an important contribution to increasing transport's energy efficiency.

Multi-modal Dimensions

4.58 The recent tendency for some projects to include components relating to more than one mode of transport should be expected to increase and to lead to further diversity. First, new techniques and equipment are reducing the costs of transshipment and increasing the potential advantages of routings involving more than one mode. Second, intermodal interchange arrangements often offer particular opportunities for efficiency improvements, and the Bank can sometimes play a role in bringing the parties together to identify problems and solutions. Third, projects involving several modes may form a useful framework for discussions, studies and action, by Government, on sector policy issues relating to competition and cooperation between the modes.

4.59 The various multi-modal project concepts already applied should be developed further, and new ones may be added. In some areas rural transport projects can usefully include provision for small sub-projects in several modes, as was done in Haiti a few years ago. Projects focussing on the distribution of one or two key commodities, as developed by the Bank's Asia Regions, can help to develop a Physical Distribution Management capability in a country and to introduce more efficient distribution patterns and innovations in transport techniques. The recent Romanian Land Transport project, which combined investment in rail and road and gave the opportunity for studies on modal choice, might be expanded, especially in a smaller country, into a transport sector project including sub-projects in several modes and focussing on policy reforms affecting inter-modal competition and choice. Domestic water transport projects with Roll-on/Roll-off facilities for trucks and trailers are likely to have increasing potential in various countries in the coming years.

4.60 A recently approved railway project in Pakistan helped develop the concept, and provides equipment, for an up-country Dry Port, permitting through movement of containers by fast train direct from the port, with
Customs inspection much closer to the point of origin/destination. This concept might be extended to deal with the problems of transport corridors to landlocked countries, perhaps combining provision for more efficient handling of containers inland with the necessary operating improvements in the transit country's port and overland transport.

4.61 Not necessarily involving project investments in more than one mode, but intimately connected with the development of inter-modal transport techniques, the modern truck terminal is likely to be the centerpiece of some projects appropriate for Bank support in the coming years. Public freight terminals open to all users can provide an effective market place for trucking services and help to raise typically low truck load factors. They can reduce time- and energy-wasting freight hunting and alleviate urban traffic problems. Combined with rentable space for storage, sorting, distribution and processing, they can be the hub of a local industrial development pole. Equipped with bonded warehouses and customs clearing capability, they can help reduce land-side port congestion and foster efficient inland movement of containers. Developed along with a TIR system for reducing transit delays due to customs procedures, they can promote the growth of trade among adjoining countries.

Structural Adjustment Loans

4.62 Structural Adjustment Loans, which have mainly focussed so far on medium-term macroeconomic measures to improve the balance of payments, overcome public-sector financing constraints or rationalize pricing structures for basic commodities, cannot be expected to deal in detail with the steady, long-haul institutional and technical changes mainly required in transport. Indeed their consequences may rather increase the physical burdens on the transport system, as in the case of the very successful series of such loans to Turkey. But just as transport analysis has sometimes been needed to contribute to the macroeconomic objectives of Structural Adjustment Loans, so these loans have sometimes contributed to achievement of objectives critical to the transport sector, such as increasing diesel-fuel taxes, improving the financial self-sufficiency of state-owned transport enterprises and rationalizing public investment in transport. In several cases transportation staff have played an important part in reviewing, and advising on, Contract Plans for public-sector transport enterprises, public investment plans for the transport sector and other issues.

4.63 In the coming years it will be necessary for the transport sector in the Bank to contribute more actively to the general country dialogue, especially on issues such as broad regional development planning and public investment plan reviews. Conversely, transport sector policy issues need more attention in economic work, to help cope with some of the broader implications and to respond to Governments' new interest in more radical policy measures to improve the efficiency of the transport sector. Effort to reduce transport subsidies, for example, often needs backing by work to demonstrate, at the macroeconomic level, their negative effects on inflation and income-distribution, or to illustrate more effective ways of transferring income to depressed regions thought to benefit from retention of extensive
unprofitable rail networks. Problems of uncompetitive salaries for public transport agency employees, or excessively restrictive labor practices of public-sector unions, may be difficult to deal with except with support from a broader perspective. Much the same goes for the problem that is hampering transport in more and more countries, of inadequate mechanisms for channelling the small amounts of foreign exchange required for purchase of critically needed spare parts, or that of increasing both the autonomy and the responsibility of public-sector transport agencies.

4.64 As the Bank moves more fully into emphasizing the development of the domestic construction industry, further issues will arise on which the transport sector could contribute to the general policy dialogue with member countries. One example is the needed series of reforms in Government procedures for planning, bidding, contracting, supervising and paying for works. Another is measures needed to overcome the obstacle posed by excessively high legal minimum wages to contractor use of efficient labor-intensive techniques.

Training of Borrowers' Staff

4.65 Loan provisions for staff training in borrower agencies have greatly expanded in number and size, now even including, where necessary, allowances to cover domestic travel and subsistence of participants in training programs. But these training components of loans still require earlier and fuller attention. Transport Sector Memoranda and Project Briefs need to take a longer-term view of training needs and opportunities, assessing the adequacy of the agencies' training sections and their influence on local educational institutions' curricula. Perspective plans need to be drawn up during project preparation, by the borrower or his consultants, identifying coming gaps in skills and preparing phased training programs, fitting with the local education system, that can go into execution when the project starts. Such planning is still too often left to be done after the project has been approved.

4.66 Training programs now often cover much larger percentages of the borrower's staff than in the past. However, they seldom reach the 15-20% of staff per year that is typically covered by in-house training programs of the more advanced borrowing agencies and that should be increasingly possible even in countries with weaker general education systems. The importance of training is further increased by the more complex and expensive transport equipment that is being introduced by many projects. Where this is the case, it would be useful for the Bank to make more use of the concept of training audits -- i.e., independent specialist reviews of the borrower's training program to see if it meets internationally accepted standards.

4.67 For senior and middle level staff more attention needs to be given to management training. Loan provisions often cover overseas training for a
small number of staff at these levels, mainly on technical and economic subjects. What appears to be required in addition, and sometimes in substitution, are periodic courses at home, specially designed to meet the borrower's needs and gathering groups of staff from different levels, on general management issues and techniques. The courses would cover such subjects as personnel motivation and evaluation, resolution of labor union problems, assessment of shipper transport needs, fleet maintenance, spare parts management, workshop productivity, principles and uses of costing, establishment of departmental performance standards and effective use of periodic control reports.

4.68 The Bank should also continue to promote the development of technical services and research capacity in its borrowing countries and to include provisions for related technical assistance and equipment in its loans. For instance, it is to be expected that most highway borrowers would develop at least a basic capacity in pavement evaluation and in materials testing, to identify the scope for making better use of locally available materials in road building and maintenance. Better-staffed countries are developing local capacities for transport economics research, and loan provisions for studies can sometimes give a useful assist to this process.

4.69 The EDI will continue to play a vital supportive role to the Bank's effort in transport, especially at a time when the Bank's approach is changing to give more importance to analysis and reform of sector policies. EDI projections indicate that about 7% of the resources available to it will be put into transport courses. A large proportion of the courses will continue to be given, on a national or regional basis, in the borrowing countries, where they have the advantage of creating more of a critical mass of EDI graduates in a Government as well as helping to build local training capacities. It will be particularly important to sustain the initiative taken in the last few years, after considerable effort, to develop courses for Francophone West Africa. Beyond EDI training in project preparation, evaluation and execution, with increasing emphasis also on sector policy analysis, there is a major need in Africa for training of managers of transport operating companies and agencies on a multinational, multimodal basis. Various means are being sought to help fill this need.

V. Staff, Organization and TWD Program

5.01 This chapter deals briefly with the staffing, and manner of organization, of the transport sector throughout the Bank and develops a program of future activity in transport for the Transportation and Water Department (TWD). The purpose is to assess trends, and to recommend any needed changes, in light of the work-emphases proposed in the last chapter. After short discussions of Bankwide Staffing, Organization and the Role of TWD, separate sections are devoted to the Distribution of TWD Effort among categories of work and to each of the main categories: Operational Support and Advice, Policy and Research, and External Relations.
Bankwide Staffing

5.02 The total number of higher-level staff assigned to the sector has been fairly constant in the last few years, at about 175, but there have been some marginal changes in composition. The 175 consists mainly of transport economists, financial analysts and engineers specializing in each of the three main modes with which the Bank has been concerned. In addition there have been one or two specialists in each of several other fields: aviation/airport engineering, aviation economics, maritime transport, road transport services, and training programs for transport entities.

5.03 Retirements, rotation of staff among Transport Divisions and staff moves to other sectors have permitted appropriate marginal adjustments of staff composition to meet changing requirements -- for instance, in the last years, slightly less ports and railways work and increased assistance to Agriculture and Rural Development Divisions on rural roads. They have also enabled the addition of individual staff members with specialized skills newly required -- for instance, in construction industry, railway operations, locomotive design and maintenance, and rural sociology/anthropology. Full-time staff resources are complemented by consultant budgets which have helped both to deal with work-load peaks and to bring in more specialized expertise than the Bank regularly requires, e.g., in inland waterway transport, container operations or railway telecommunications.

5.04 1982 has seen a slight reduction in the total number of staff positions devoted to the sector, but this should not prevent implementation of the emphases proposed in this paper. The marginal reductions reflect both Bankwide budget constraints and the small decrease in number of loans that was projected to be made each year, especially in highways. Staff numbers may have to be readjusted again with the recent revisions of the transport lending programs. Average numbers of staffweeks used for preparation, appraisal and supervision of highway and port projects have been below the Bankwide average for all sectors, while for railway projects they have generally been above. These averages, which include considerable differences amongst individual projects, are not expected to fall.

5.05 This paper has stressed the need for more staff effort in patient follow-up of Action Plans and sector policy studies and more contact with co-financiers. It has also called for more attention to a number of specific issues such as the structure of road user charges, potential for use of labor-intensive construction techniques, resolution of port labor problems, initial diagnosis of railway prospects and problems, local involvement in rural transport projects, and training components of loans. To be sure, the availability of additional appropriate staff resources would help to speed broad implementation of these suggestions. But the impossibility for the Bank to provide substantial additional resources at this time does not prevent their steady implementation, by careful choice of projects and project thrusts, greater reliance on borrowers and consultants for standard engineering economics work, more use of technical assistance loans and loan components, and more selective application of Bank staff skills.
5.06 Thus, the Bank's transport staff, who have demonstrated much imagination and flexibility in the large number of innovative projects developed over the last few years and discussed in Chapter III, can certainly meet the challenge of the new opportunities that now present themselves. The review of transport sector work carried out in 1980 concluded that the recommended broadening and deepening to deal with transport services and policy issues required some reorientation of existing staff work rather than a major increase of the staff resources applied. The range of staff skills and interests needs to be extended by appropriate direction of staff and self-help, and by training and discussion sessions. Also, experience in the areas where the Bank needs strengthening should be stressed among recruitment criteria, although this will only have a slow effect, since recruitment will be largely limited to offsetting reassignments out of the sector and retirements. Principal subject areas that need to be more fully incorporated in Bank staff skills are analysis and assessment of sector policies (especially those referred to in para. 4.24 above), negotiation of concession agreements and other contractual arrangements with private enterprises, and management of transport operations.

Bankwide Organization

5.07 While the broad disposition of the Bank's transport staff, with some 85% in the Regional Offices, has remained the same over the last few years, there have been significant organizational changes within the Regions. In recognition of the need for increased emphasis on sector issues and cooperation between staff working on different modes, three Regions have abandoned the modal organization of their transport staff (one Division for highways, and another for ports and railways) in favor of a sub-regional breakdown, with each Division responsible for all modes of transport in about half the Region's member countries. The principal resultant disadvantage, that each Division may not have the specialists required for all its operations, is dealt with mainly by appropriate lending of staff between the two Divisions, which appears to be working satisfactorily. The minor scheduling difficulties involved are greatly outweighed by the advantage of concentrating on one Division Chief and his staff responsibility for all modes in a country.

5.08 East Asia has split its single multi-modal Division into two, on sub-regional lines. And South Asia has amalgamated its one, relatively small multi-modal transport Division with its Electric Power Division. LAC had already strengthened cooperation between its modally based Divisions by assigning the economists country responsibilities, so that they are loaned to the other Division for work on projects in 'their' country.

5.09 Beyond the eleven Regional Divisions, there are four other Departments with transport specialists: TWD, which has about 10% of the Bank's total staff in the sector and EDI, OED and the Education Department, together accounting for another 5%. There has been considerable movement of staff between TWD and the Regional Transport Divisions, but TWD has also
recruited staff from other assignments and from outside the Bank. Four of the eighteen TWD staff who devote most of their work to transportation have been in the Department well in excess of five years, due partly to their unusual capabilities making this the most appropriate place for them to stay and partly to the Bankwide difficulties in rotating staff in the higher grades. Amongst the remaining fourteen, who have joined TWD within the last 5 or 6 years, almost equal proportions have come from the Regional Transport Divisions, other Bank assignments, and outside the Bank. Of the eight Advisers, three have been Advisers (though with changing subject matter) for more than 5 years, three have come from the Regions, one from other Bank work and one from outside. On the general principle that staff should not normally stay in TWD more than about 5 years, several TWD transportation staff should be moving to Regional Transport Divisions and other posts in 1983/84.

5.10  An issue that has to be kept under review in transport is the hiring and organizational location of rare or relatively rare specialists among the staff. Sometimes such specialists may best be located in TWD, where they can be available for loan to any Region as well as for policy development and provision of advice to any part of the Bank. In other cases, it is better for the specialist to be placed in the Regional Division which has the principal requirement, or in one which has the potential for developing innovative projects reflecting the specialty in question. From there the specialist can be loaned, to a limited extent, to other Regions for short-term assignments and advice. Both solutions have been used satisfactorily. But problems can arise if the specialist is relatively weak in coping with more general issues and the overall need for the specialty fluctuates greatly from year to year or turns out to be limited in duration. Moreover, if the need consists of relatively small demands from several Regions, there may be difficulties of combining budgetary requests and reaching satisfactory compromises regarding the scheduling of staff-time among interested Regions.

5.11  The need for unique, or almost unique, specialists may increase somewhat with the broadening of countries' requirements in policy matters and the development of specially apposite projects. Hence the problems just mentioned could become more serious. Some degree of flexibility has been assured so far by the fact that TWD has three 'partial pool' positions, i.e., jobs where the incumbent spends a significant part of available time on direct support to the Regions in a specialist area. The specialties represented have changed over time in response to Regional demand and are at present Construction Specialist, Aviation/Ports Economist and Railway Operations and Management Specialist. Very recently, in connection with the 1982 staff redeployment, a new type of pool position -- almost wholly devoted to support of other Departments, and with actual budget transfers from those Departments to cover full salary costs -- has been evolved to ensure the continued availability of the Bank's principal Aviation Engineer.
5.12 Development of the Regions' need for specialist support must be kept under close review since it may become advantageous to create more central specialist positions, especially now that the Regional Divisions are no longer modally specialized. It will also continue to be appropriate for the Regions to hire unique specialist staff in cases of concentrated need, but this must be done (except in the case of a specialist who will anyway reach retirement age at an early date) with due regard to likely Regional and Bankwide needs in later years. Creation three years ago of a Transportation Staff Selection Committee, including representatives of the Regions, PMD and TWD, facilitates this.

5.13 Changing Regional workloads mean that reassignments of specialists between the Regions or with OPS are periodically necessary. The same need may arise from time to time even for staff specializing in one of the Bank's three traditional transport modes, as lending falls off in one Region or another. The possible desirability of recentralizing all technical specialists belonging to an area where each Division has only one or two has been considered from time to time. An OPU/TWD paper considering this possibility for railways staff, and advising against it, was recently completed and approved.

5.14 Cooperation between the transport staff and the staff of non-transport Divisions has improved significantly in recent years but always warrants attention from Regional Assistant Projects Directors, Division Chiefs and TWD Advisors. Several of the Regional Transport Divisions now provide considerable support to Agriculture and Rural Development Divisions for work on rural transport components, and receive significant help from the central Education Department, and to some extent Regional Education Divisions, on training components of their own projects. Such substantive interaction will be increasingly needed with DFCs and Industry staff, especially on project components, and with Urban Divisions on policy issues. It will also be needed with Regional Chief Economists and Country Program Departments and Divisions on fiscal and wage issues, the broader dimensions of policy reforms and co-financing. Thus the level at which inter-Divisional cooperation now most needs strengthening is in the selection and formulation of projects, their components and emphases, so that all, whether wholly devoted to transport or merely with related dimensions, can contribute as effectively as possible to improved operation of transport. Transport Sector Memoranda, or Sector Strategy Papers, should be better used for this purpose.

TWD Role

5.15 The principal task for TWD at this stage in the evolution of the Bank's transport work is to help the Regional Divisions take full advantage of their new and highly appropriate sector, as opposed to modal, focus to respond to the borrowing countries' needs. In the Bank's present budgetary prospects TWD cannot expect to receive additional resources for transport work any more than the Regions can. TWD has to allocate its resources in such a way as to enable the Regions to respond most effectively to the needs and opportunities outlined in earlier parts of this paper. This implies a TWD
role of stimulator, patron and assistant to innovation. It certainly should not expect to be the originator of all or even most innovation, any more than it has been in the past. But it should continue to support innovation by helping identify major problems arising in countries of all Regions, by developing analytical tools and methodologies, and by acting as constructive critic of initiatives developed by Regional staff with their borrowing countries.

5.16 Above all, the accent must be on quick-response support of the Regional Divisions in the considerably more difficult job that they now have, of responding to borrowing countries' increased readiness to consider sector policy reforms and to bring about important improvements in the operation of the sector. This paper has made it clear that, while many countries face somewhat standard problems in transport, there are no standard solutions. Many of the applicable solutions will be of the second-best variety. The emphasis of TWD Advisers must be on helping the Regions, whether by work on individual projects or by training or by development of new approaches, to make the second-best as good as it can be. And, at the margin, greater importance should now be attached to more guidance rather than more guidelines.

5.17 Supportive and constructive advisory style is even more important than it has been, in view of the difficult tasks faced. Equally, it is important for Regional staff to adopt a collegiate approach, bringing the Advisers into the picture early in the project cycle. Full trust and confidence must be created and maintained between Advisers and Regional Staff. This has always been harder in some lending areas, particularly railways, where the problems involved have been exceptionally difficult and the results of earlier Bank efforts limited. Now that a clearer policy on railways lending has been agreed across the Bank, it is hoped that a fully constructive relationship will be easier to maintain, but sustained efforts of both Regional and TWD staff and managements will be required.

5.18 Amongst the various instruments of TWD support to the Regions, somewhat increased emphasis should now be given to training and inter-Regional exchange of experience, and to early advice in the selection and shaping of projects, which are both elements of the large work category called Operational Support and Advice (OSA). In both, the main objective would be to help the Regions respond to the increased opportunities for improvement of countries' sector policies. Work on Bank Policy and Research must not be neglected because it remains much required to support sector policy analysis itself, to bring past research results to full utility for operational purposes, and to develop the basis for an effective Bank response to issues that will be of increasing importance in the future. However, a good deal of such work has been accomplished in the recent past, and the main results have been reflected in a series of substantial overview papers already mentioned, on Road Maintenance, Railways, Transport Sector Work, Aviation, Shipping, Energy in Transport, and Construction Industry. They underlie much of the analysis in this document, and TWD's job now is to help the Bank reap in operations the full fruits of this effort.
Changing Distribution of TWD Effort

5.19 TWD has been moving in these desired directions. The shares of available staff and consultant time devoted to OSA, and, within OSA, to training and 'upstream' project work, have been increasing. The figures emanating from the Bank's Time Recording System suggest that transportation OSA work in general, and the part devoted to the early stage of projects, both more than doubled between FY79 and FY81, to reach respectively some 35% and 8% of total TWD work on transportation in the latter year. Because of changes that occurred between the two years in the treatment of Direct Support work (i.e. mission and related work in support of Regional operations) the apparent doubling of overall OSA work is an exaggeration of reality. In TWD, Direct Support is essentially an extension of OSA, and has become somewhat more so over the period, so that the two work categories are best treated together. Analysis of the figures on this basis shows that combined OSA and Direct Support work still increased substantially over this period, and that this was accomplished by a corresponding reduction in the share of total effort devoted to Policy and Research. The time devoted to organizing and giving training, which is a category difficult to record accurately, rose according to the available figures to some 2.5% of total TWD-Transport time in FY81, and nearly 4% in FY82.

5.20 The overall distribution of TWD's transportation effort in FY81 was 50% to Policy and Research, 46% to OSA and Direct Support, and 4% to External Relations. Policy and Research shared about equally in the first category, but the breakdown fluctuates from year to year and is of limited significance because of difficulties at the margin in distinguishing between the two categories of work. The above overall distribution cannot readily be compared with corresponding figures for other OPS Departments because they did not until recently have full responsibility for Bank research in their sectors. However it is interesting to note that they generally show a much higher proportion of effort devoted to External Relations, possibly reflecting the significant Regional involvement in this function in transport.

5.21 The proportion of project-related advisory time devoted by TWD transportation staff to the 'upstream' stage of projects was similar to the OPS average in FY81, just over 40%, and about the same in FY82. However the figures are affected by the substantial amount of time devoted by TWD staff -- well over half a staffyear per year, and rising -- to advice on non-transport projects' transportation components, which have tended understandably to be little defined in the early stages of project preparation and therefore to be reviewed later. Of the time actually devoted to transport projects the share applied at the upstream stage has been around 50% and reached 70% for some types of project. The proportion of transport projects for which TWD and the Regional Divisions agreed that review of the Yellow Cover appraisal should be fully waived reached about 20% in FY82, somewhat below the figures for Education and Electric Power projects, and above those for other sectors.

5.22 Since 1977 TWD has retained essentially the same form of internal organization, namely in small units of 2-4 professional staff with combined
responsibility for all aspects of TWD work — direct support, project review, training, policy development, research, and external relations — in a particular subject area. The subject areas have also remained much the same — Ports, Shipping and Aviation; Railways; Rural Transport; Highway Maintenance and Engineering; and Construction Industry — but emphases within each subject area have naturally evolved over time. Each unit normally includes at least one economist and one engineer, with one or the other appointed Adviser and head of the unit. The Adviser carries full responsibility for TWD work on a designated list of projects under preparation (and under supervision), with the help of either other staff in the unit or Advisers and staff elsewhere in TWD if their expertise is needed in the particular case.

5.23 Besides the modally oriented units, there is a Financial Adviser's Office with more limited staff resources but similarly comprehensive responsibilities, from project review through external relations, in the financial aspects of all transport projects. And there is an Economic Adviser's Office with principal responsibilities in review and advice on sector work (with the aid of economists from the modal units), plus development of policy and research on topics cutting across the transport modes.

5.24 This organizational structure has been quite successful in meeting the purpose for which it was principally designed — close interaction between operational, policy and research work — and it appears appropriate to retain it with only minor modification for the Department's upcoming tasks. The Unit structure has helped particularly to get research results quickly disseminated in the Bank and reflected in operations, most notably in the case of highway maintenance planning. It has also helped the reverse process of getting practical operational problems quickly reflected in the orientation of policy and research work. And it has proven quite flexible; for instance, within the last three years, staff positions have been shifted between units in order to strengthen capacity in the area of Construction Industry, where Regional demand has been exceptionally strong, and to enable recruitment of the Bank's first sociologist/anthropologist in the transport sector, for work principally on rural projects.

5.25 Sectoral and multi-modal issues have been reasonably well dealt with because of frequent contact between the small units and the small size of the group as a whole, but it is here that some strengthening appears needed. In particular, an increased share of the resources in the Economic Adviser's Office are being devoted to review and support of Regional sector work, and economists in several of the modal units are being given an explicit cross-responsibility to the Economic Adviser.

Operational Support and Advice

5.26 The coming years should see a further slight upward shift in the proportion of TWD's resources devoted to OSA and Direct Support, as well as increased concentration within this general category on 'upstream' project work, on Regional sector work and on training of Bank staff.
5.27 More attention needs to be given in TWD 'upstream' work to the problem of selecting and formulating projects for Bank financing in such a way as to help bring about significant policy improvements that would occur only slowly or not at all without the Bank’s involvement. For instance, at the stage of the earliest Project Brief, TWD must make greater efforts to explore opportunities for the project to contribute to improvement in the pricing structure of transport enterprises, introduction of appropriate energy conservation measures, reduced regulation of transport markets, or solution of other policy issues identified in sector work on the country. Clearly this requires careful consideration of the project in light of the latest available transport sector report and other documents, reflection and perhaps discussion. It is doubtful whether this can be done in sufficient depth at an average annual time-expenditure per project reviewed at the pre-appraisal stage of only half a staffweek, which was the time spent in FY81 (excluding major Direct Support work). The figure was higher in FY82 and should be expected to increase further.

5.28 TWD has been making increasing efforts to advise and assist not only sector work undertaken directly by Bank staff but also that done by borrowers and their consultants in connection with Bank loans, and these efforts need to be pushed farther. TWD staff have long been called upon to review terms of reference for such studies. Now they are increasingly participating in sector work missions to cover special topics. And they are occasionally visiting borrowers and consultants, at the request of the Regions, to advise on approaches in studies of matters such as road user taxation, pavement monitoring and evaluation, construction industry development, deregulation of transport services, and analysis of railway potentials. Mission involvement clearly has to be selective and should be concentrated on cases which raise special issues, where the Regional staff involved are less experienced in reviewing transport policies or where a particularly heavy load tends to devolve upon the Bank, as in sub-Saharan Africa.

5.29 In view of the interest to the Bank’s own policy and research work of sector policy studies done by countries and consultants, as well as the earlier-mentioned operational need for more active Bank follow-up of such studies, TWD should create and maintain a master-list of policy-related studies commissioned or promised in connection with loans, including their expected dates of completion. The list would be regularly circulated not only as a useful reminder to Regional staff to follow up on progress but also as a systematic guide to staff of other Regions as to what were the latest studies commissioned on particular topics, who can advise about experience with them, and when the results may be expected.

5.30 TWD efforts in organizing staff-training and exchange of experience have considerably diversified and expanded in recent years and this trend should be continued. Increased internal and external training opportunities are particularly necessary at this stage because of reduced possibilities, with stable or even declining overall staff numbers, for recruiting new expertise from the outside. Particular emphasis needs to be given to sectorwide issues. Fairly long-standing training activities (besides the kind of coaching of individual staff-members that sometimes occurs during OSA work) include special efforts at discussion, review and dissemination of new
policy and research papers, visits by outside specialists to deliver lectures, diffusion of useful material obtained from outside the Bank, and systematic efforts to keep Regional staff informed of outside courses and conferences of potential interest, with assistance frequently in arranging attendance.

5.31 Several of these activities have been expanded, and new initiatives have been taken with the help of Regional staff, including regular lunch meetings to discuss port topics and, separately, railways issues; organization of seminars of one-half to two days' duration on particular problems; arrangement of meetings for inter-regional exchange of experience, often on the basis of a particularly interesting piece of Regional work; and more TWD participation in discussions, within Regional divisions, of the problems staff are facing. In 1980 a questionnaire survey was made of all transport staff as to the subjects in which they felt the need for more training, and that helped to orient work in the last two years. Least satisfactorily served by the various efforts so far made are probably the transport economists, partly because of their number (so that it is difficult to have regular transport economists' lunch-time meetings, though some of course attend the ports and railways discussions) and partly because of TWD's long periods in 1979 and again in 1981 without an Economic Adviser.

5.32 The need now is to develop a somewhat more systematic program of training seminars and discussions, with more permanent Regional involvement in planning the program. Hence, a general meeting of the Bank's transport staff was held in June 1982 and the nucleus of a joint TWD/Regional Committee was created. Considerable interest was expressed at the meeting in additional formal Bankwide talks on particular topics, especially in transport economics, since they take staff away from their work for only a few hours. But larger efforts will probably be required too, including regular repetition of one- to two-day seminars on several of the policy papers issued in recent years, more formalized training sessions on techniques for analyzing selected issues of sector policy, and possibly periodic meetings outside Washington, such as several other sectors have organized, on major problem areas.

5.33 Results of a new questionnaire survey circulated in July 1982 are still being analyzed, but preliminary findings indicate a strong demand for more training, particularly on many of the sector policy issues underlined in the present report. TWD also expects to undertake in FY83 an in-depth study of the particular training needs and opportunities of the Bank's railways staff, to help guide the planning of training and recruitment in that field. Average time spent on training by Regional transport staff does not yet appear to be up to the 6 days per person per year that has been allowed for budgeting purposes. But when account is also taken of general Bankwide courses and language training, it could soon get there. It is reassuring then that the P&B Department has indicated a willingness to allow an increase over the 6 when that level is reached.

5.34 With the changing emphases that the Bank is trying to bring to its work in the transport sector, it will also be very important to enable
selected staff to undertake more extensive external training, of say 3-4 months' duration, than has normally been possible in the past. This would permit, for example, specially arranged study programs to help individual staff-members upgrade their knowledge in a subject-area of rising importance in their Region, and more attendance at the highly valuable transport management courses offered in several countries. The one-year sabbatical program, from which very few of the Bank's staff in transport (or in other areas) benefitted, has now been terminated. Training absences for 3-4 months are encouraged instead. But budgetary arrangements comparable to those applied in the sabbatical program -- namely full compensation to the staff-member's Division for the salary involved, to enable consultants to be hired -- will be essential to enable the Transport Divisions to take advantage of these possibilities. Without such budgetary arrangements only one staff-member in the transport sector undertook such training over the four years 1979-82. With proper budgetary arrangements, an appropriate target could be one staff-member per annum per Division within a few years.

Policy and Research

5.35 In view of the need to devote more resources to OSA and Direct Support, and the unlikelihood of expanding the OPS budget for transportation, a very selective approach has been adopted in planning TWD's future Policy and Research work. Also, enhanced efforts have been started to secure outside financial support for research and more collaboration with entities in countries interested in assisting transport improvement in developing countries. The presently planned program of work is shown in Annex II. It should be noted, as indicated there, that execution of a number of the studies, especially research important for support of the Bank's increased operational emphasis on policy reform, will depend on securing resources beyond those presently in sight. Both Policy and Research reports would emphasize illustrations of what countries have actually been able to do, in view of the utility of this kind of material to Bank staff.

5.36 Forthcoming Policy work would concentrate on the preparation of guidelines and policy notes on specific and fairly narrow topics, such as certain aspects of the maintenance of transport facilities and of construction industry development, lessons of experience with transport sector lending (especially policy reform aspects) and with fishing port projects, techniques for preliminary screening of railway electrification and rural road projects, and ways of assessing road user charges, rural transport services and rural road design standards. Many of the topics represent sub-aspects, now needing more detailed work, of the major issues discussed in the series of policy papers produced in the last few years. No more such major papers are envisaged at present.

5.37 Recent experience in the transport sector with task forces or working groups, including both Regional and TWD staff, to help prepare and review policy guidelines has been very positive, and this technique will be used again wherever appropriate. On transport sector policy issues it is planned to create a standing inter-Regional committee. One policy study in which it will be particularly appropriate to associate Regional staff with relevant experience is the proposed review of experience with transport
sector lending. Another is a needed study, not yet scheduled due to shortage of resources, to develop a more uniform approach for handling the financial and economic analysis of major transport investments closely linked with industrial and mining schemes. This would also be based principally on experience under a few recently prepared projects, several of which have proven difficult to handle efficiently.

5.38 The planned program of Research foresees mainly three categories of work: first, the final completion of the two major studies that have been underway since the early 1970s, including their dissemination and follow-up evaluation of early applications of their results; second, some further work on issues of considerable operational importance in rural transport development, especially local participation and evaluation of passenger demand aspects; and third, and most important in the coming years, a number of studies of policy issues cutting across modes. Included in the last group are Fuel Pricing and Taxation (recently approved for support by the Bank Research Committee), Transport Policy Reform in Centrally Planned Economies, Deregulation Processes, Transport Subsidies, and development of an economic and econometric model of Personal Travel Demand that could help analyze the impacts of alternative policies affecting this particularly rapidly growing form of transport demand. No further studies even approaching the scale of the Bank's ten-year efforts on Highway Design and Labor-intensive Construction are envisaged at the present.

5.39 Besides contributing to the formulation of operational policy and to Bank capacities to offer sound advice to its borrowers, research studies may also be linked more directly and rapidly with operations. Borrower staff involvement in research studies, as achieved in the Highway Design research in India and Brazil, can help to lay the foundation for implementing their results. Countries have sometimes been ready to include in a loan request to the Bank a provision for research work of strong interest to them which is also closely linked to Bank research. The program of work outlined in Annex II foresees test applications by Regional staff of research results on some topics prior to the preparation of a resultant policy guideline. In some cases it will be appropriate for TWD to circulate in its research series such reports on country case applications -- as also (with permission) studies on topics of broad interest done by borrowers and their consultants under loans.

External Relations

5.40 Despite the important role played by Regional Transport Division staff in expressing the Bank's view in international fora, the share of TWD staff-time devoted to External Relations will probably show some slight increase in the coming years. It is to be hoped that the Divisions responsible for sub-Saharan Africa will be able to achieve their intention of taking over from TWD most of the job of liaison with ECA; and also that Regional Division Chiefs will more often deliver important addresses at international conferences, as one of them recently did at the meeting of the International Road Transport Union in Montreal and another at the Portech '82 Conference in Singapore. The consequent reduction of the burden on TWD is likely to be more than offset, however, by increased efforts with potential co-financiers in the transport sector and with possible external sources of
assistance in research and related technical assistance to borrowing countries.

5.41 In view of the successful experience with the donors' conference in 1980 to discuss the policy paper on highway maintenance, TWD plans to organize a similar conference in FY83 on the basis of the recently completed railways policy paper. Among financing agencies the Regional Banks in particular should be consulted more regularly by TWD since their experience can be specially useful and their Boards sometimes expect them to apply policies similar to those outlined in Bank policy documents. As regards collaboration and joint financing in research and technical assistance, recent small successes with Australia and the United Kingdom, and initial contacts with Italy and several Scandinavian countries, suggest that the possibilities are worth pursuing.
Principal Papers Produced July 1979 - December 1982

Aug. 1979

Outline of a Generalized Road Roughness Index for Worldwide Use, conference paper, 10 pages  
Aug. 1979

A Preliminary Evaluation of Paved and Unpaved Road Performance in Brazil, conference paper, 9 pages  
Aug. 1979

Identification and Appraisal of Rural Road Projects (SWP 362), 74 pages  
Sept. 1979

Sept. 1979

The Highway Maintenance Problem, 35 pages  
Oct. 1979

Port Pricing in Pakistan, 59 pages  
Oct. 1979

Port Pricing and Investment Policies for Developing Countries, Oxford University Press, 256 pages  
Dec. 1979

Relating Vehicle Utilization to Highway Characteristics from Brazil, conference paper, 34 pages  
Jan. 1980

Highway Design and Maintenance Standards Model (HDM): Model Description and User’s Manual, 185 pages  
Jan. 1980

World Bank Lending for Inter-island Shipping with Special Reference to its Financing, conference paper, 22 pages  
Mar. 1980

Mar. 1980

Aviation and Development, 110 pages  
Apr. 1980

Vehicle Depreciation and Interest Costs: Some Evidence from Brazil, conference paper, 20 pages  
Apr. 1980

Forecasting Railway Traffic Trends: Lessons from Cross-country Comparisons, conference paper, 29 pages  
Apr. 1980

Appropriate Technology in Civil Engineering: Roads and Transportation, speech, 4 pages  
Apr. 1980

Determination of Economically Balanced Highway Expenditure Programs under Budget Constraints: A Practical Approach, conference paper, 18 pages  
Apr. 1980

Transport Research for Social and Economic Progress: Key Issues of the 1980s, speech, 14 pages  
Apr. 1980

Transport Research in the World Bank, article, 9 pages  
May 1980

Road User Charges and Road Transport Regulation (Draft), 69 pages  
July 1980

Representative Ship Costs, consultant report, 90 pages  
Aug. 1980

Containerization and the Developing World, conference paper, 110 pages  
Oct. 1980

Review of Transport Sector Work, 46 pages  
Oct. 1980

The Economic Aspect of Transport and Energy, conference paper, 24 pages  
Nov. 1980
Maximizing the Contribution of Highways to Development in the 1980s, speech, 14 pages
Method of Computing the Opportunity Cost of Petroleum Products, 23 pages
The Closure of Uneconomic Railway Lines in Yugoslavia, consultant report, 84 pages
The Role of the World Bank in Less-Developed Countries' Ports, conference paper, 9 pages
Port Contribution to Human Prosperity, conference paper, 63 pages
Domestic Construction Industries in Developing Countries, speech, 7 pages
Transport and Communications in Africa, Contribution to Africa Strategy Paper, 30 pages
The Future of Road Transportation: Restraint or Release, speech, 17 pages
Rural Mobility and Communications Study (Mexico), 50 pages
A Procedure for Obtaining a Stable Roughness Scale from Rod and Level Profiles, 63 pages
Container Logistics and Terminal Design, consultant report, 192 pages
Rural Transport Services Review Study – Philippines and Indonesia, 112 pages
Road Safety Components in Bank-Financed Projects, 10 pages
The Developing Countries and International Shipping (SWP 502), 148 pages
Use of Cost-Benefit Analysis in World Bank Projects in the Road Sector, conference paper, 8 pages
Transportation and Communications Research and the Developing Countries, conference paper, 20 pages
Report of Training Seminar on Transport and Energy (draft), 117 pages
Axle Loading Study, Review of Bank Projects, 14 pages
Institutional Aspects of Rural Road Projects, conference paper, 30 pages
The Road Maintenance Problem and International Assistance, 71 pages
Infrastructure: Doing More with Less, article, 3 pages
The Costs of Road Accidents and the Valuation of Accident Prevention in Developing Countries, consultant report (draft), 155 pages
A Country Program for Establishing Local Relationships between Road Deterioration and User Costs, 9 pages

Feb. 1981
Mar. 1981
Mar. 1981
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Jan. 1982

The Railways Problem, 165 pages Jan. 1982


An Appraisal of Highway Maintenance by Contract in Developing Countries, 62 pages Mar. 1982

Pricing and Taxing Transport Fuels in Developing Countries, research proposal, 74 pages May 1982

Improving Management Systems for Road Maintenance Equipment: Monitoring Equipment Performance and Solving Spare Parts Problems (draft), 99 pages May 1982

Labor-Based Construction Programs: A Practical Guide for Planning and Management (for printing), 300 pages June 1982


Energy and Transport in Developing Countries: Towards Achieving Greater Energy Efficiency (draft), 90 pages August 1982

Rural Roads Screening and Simplified Economic Appraisal Procedures, 210 pages August 1982

Operational Manual Statement on Railway Lending, 10 pages September 1982

Port Maintenance, referred to Civil Works and Cargo Handling Equipment, consultant report, 2 vols., 156 pages September 1982

Improving Management of Equipment in Highway Authorities in Developing Countries: An Overview (draft) 19 pages October 1982

Demand for Personal Travel in Developing Countries: The Application of Consumer Behavior Analysis to Personal Travel, research proposal, 62 pages October 1982

Rural Transport Services: Comparative Review Study (draft), 93 pages November 1982

International Contracting, speech, 12 pages November 1982

The Construction Industry in Developing Countries (draft), 120 pages December 1982


Road Safety Components in Bank Projects: Informal Guidelines, 6 pages plus appendices December 1982
Projected Output of Policy Papers & Guidelines and Research Reports, FY 83-85
(in chronological order of completion, by quarter of fiscal year)

FY 1983

Quarter I: OMS: Railways Lending
Energy and Transport in Developing Countries: Survey Paper
Rural Roads: Screening and Simplified Evaluation Techniques
Maintenance Standards for Port Structures & Equipment

Quarter II: HDMS 1/ - Completion of Brazil/UNDP Research
HDMS - Report on June 1982 International Experiment on Road
Roughness Measurements
Rural Transport Services: Study Report

Quarter III: Management of Road Maintenance Equipment and Spare Parts
HDMS - Completion of India Road User Costs Study
Guidelines for Road Maintenance Project Preparation and Evaluation
Notes on Transport Sector Work -- Start of a Series

Quarter IV: Model T.o.R. for Highway Safety Improvement Programs
Case Studies in Labor-based Civil Works
User's Manual to the Railway Model
Rail Track Standards and Maintenance: Survey Report
Rail Electrification Projects - A Screening Technique
Construction Industry Policy Paper

FY 1984

Quarter I: Costs and Control of Road Congestion: Guidelines for LDCs

Quarter II: Policy Objectives of Transport Sector Lending: Review of Experience
HDMS -- Engineering Economics of Highways (Concluding Book)
Review of Lending Experience: Fishing Port Projects
Pricing and Taxation of Transport Fuels: Research Report

Quarter III: Management of Road Maintenance Equipment & Spare Parts:
Guidelines
Institutional Aspects in Rural Road Projects: Study Report

1/ Highway Design and Maintenance Standards Research
Quarter IV: Transport Policy Prescriptions for Centrally Planned Economies
Railway Costing: State-of-the-Art Review
Local Participation in Rural Road Development: Study Report
Rural Transport Services: Policy Guidelines
Road User Charge Policies and Structures: Policy Guidelines
Effective Vehicle Axle-Load Control

FY 1985

Quarter I: Rural Roads Design Standards, Construction and Maintenance
Bulk Handling Logistics and Terminal Design
Policy Model on Demand for Personal Travel

Quarter II: Toll Road Financing: Review of Issues and Experience
Deregulation Process: Reviews of Experience

Quarter III: HDMS: Report on Follow-up Studies in Selected Countries
Railway Locomotive Maintenance Costs: Survey
Rural Roads Screening and Simplified Evaluation: Policy Guidelines

Construction Industry Project Preparation Guidelines
Rural Roads Traffic Forecasting

Quarter IV: Subsidies in the Transport Sector: Study Report
Port Pricing: A Case Study

1/ Accomplishment of these items will require resources (e.g. from Research Committee or non-Bank sources) additional to regular Departmental Budget and not yet assured.