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Sri Lanka Transport Sector Strategy Study

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CURRENCY AND EQUIVALENT UNITS

(January 1996)

Sri Lanka Rupee (Rs.) 1	=	US\$0.0180
US\$1.00	=	Rs. 55.60 (July 1996)

WEIGHTS AND MEASURES

1 meter (m)	=	1.1 yard
1 kilometer (km)	=	0.62 mile (mi)
1 hectare (ha)	=	2.47 acres (ac)
1 metric ton (m ton)	=	2,205 pounds (lbs.)

ABBREVIATIONS

BOI	-	Board of Investment
BOT	-	Build, Operate, Transfer
CAS	-	Country Assistance Strategy
CEIP	-	Colombo Environmental Improvement Project
CMR	-	Colombo Metropolitan Region
CPC	-	Ceylon Shipping Company
CTB	-	Ceylon Transport Board
CUTS	-	Colombo Urban Transport Plan
IMTs	-	Intermediate Modes of Transportation
MEIP	-	Metropolitan Environmental Improvement Program
MTIP	-	Medium Term Investment Program
NESC	-	National Environmental Steering Committee
NMT	-	Non-Motorized Transport
NTC	-	National Transport Commission
PIP	-	Public Investment Program
PSA	-	Private Sector Assessment
PTAs	-	Provincial Transport Authorities
RCDC	-	Road Construction and Development Company
RDA	-	Road Development Authority
SLPA	-	Sri Lanka Ports Authority
SLR	-	Sri Lanka Railroads
SMEs	-	Small Scale Enterprises
T&CP	-	Town and Country Planning
TEC	-	Technical Evaluation Committee
TEU	-	Twenty-foot equivalent units
TSPC	-	Transport Studies and Planning Center
UDA	-	Urban Development Authority
ULAs	-	Urban Local Authorities
WHO	-	World Health Organization

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Glossary

Access Fees: payments made to the owner of a network of infrastructure (usually public) based on an agreed upon system of charges such as incremental cost incurred by the owner through the use of the system by another (usually private) operator

Build-Operate-Transfer (BOT): a form of concession involving finance, construction, and maintenance of a facility for a specified period before ownership is transferred to a public authority

Commercialization: transition of public or non-market enterprises to commercial market-based behavior

Concession: grant or sale by a public authority of a right to develop or operate assets owned, or reverting to, the ownership or authority, usually for an extended period of time

Devolution: transfer of functions or decision-making authority to legally incorporated local governments, such as provinces or municipalities

Externality: an unpaid-for effect of a transaction or activity on third parties

Liberalization: allowing entry into the provision of goods and services formerly in the hands of a single entity

Motorization: transition to higher levels of ownership and use of road motor vehicles (motorcycles, automobiles, and trucks)

Open Access: opening the transport networks to private operators in a manner such that infrastructure networks such as railway track can be used by private freight operating companies, in return for access payments

Peoplization: term used to denote transfer of assets owned by the state to former employees of public enterprises in Sri Lanka

Restructuring: the process of reorganizing the assets, liabilities, and work force to enable an existing public enterprise to respond more efficiently to its customers' needs

Transport Infrastructure: all fixed facilities associated with the movement of freight or passengers, such as rights of way, track or terminals, and associated traffic management systems such as traffic lights, signals, and communication systems

Transport Services: all activities associated with conveyance of passengers and freight

SRI LANKA

TRANSPORT SECTOR STRATEGY STUDY

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This report is based on the findings of a joint World Bank/Government of Sri Lanka team. The team was integrated by Frannie Humplick (WB, team leader, author of Volume I and editor of Volume II of this report), and included José Gómez-Ibáñez (Harvard University, competition in passenger services), Ajay Kumar (WB, planning and implementation), Gerard J. McCullough (Putnam, Hayes, and Bartlett, restructuring the railway), Ismail Mobarek (WB, ports and shipping), and Nancy Zhao (WB, co-team leader and public sector reform). The Government counterpart team led by W.L.P. de Mel, Director TSPC, consisted of TSPC Staff and several other participants who carried responsibility for sub-sectors within the transport sector, transport consultants and leading private sector construction and transport managers. Contributions were also received from Sheoli Pargal (PRDEI, environmental sustainability). Funding for the workshop and the consultants was provided by a technical assistance grant from the UNDP. Background papers used in the report were prepared by a number of local participants, as well as representatives of OECF and ADB. Their names appear in Volume II of this report. Internal peer reviewers were Ian Heggie (TWUTD), Gerhard Menckhoff (LAIU), Lou Thompson (TWUTD), Zmarak Shalizi (PRDEI), and Dominique Van De Walle (PRDPE). External reviewers were Harry Garnett (ABT Associates). Mieko Nishimizu is the Director and Marie Robinson is Division Chief. The report was processed by Jack Williams.

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EXECUTIVE SUMMARY

A. BACKGROUND

1. Sri Lanka aspires to achieve economic growth and poverty reduction comparable to that of its more prosperous neighbors in East Asia¹. To realize this dream the country is focusing on an export-oriented and private-sector led growth strategy, which is to be environmentally and socially sustainable. To increase export competitiveness, the Government is focusing on ways to improve the productivity of key export earning sectors: agriculture and manufacturing. To encourage export development, the Government is actively promoting higher value added items. The economic growth strategy followed by the Government is not to come by sacrificing the natural environment, nor the quality of urban life. Moreover, to guarantee social sustainability, growth strategies are to ensure that the poor are included by providing access to services and employment².

2. The transport sector has a critical role to play in achieving these goals. To increase economic productivity through export oriented growth, the country needs a transport system that functions in a seamless fashion from the perspective of the exporter. This requires more focus on transport facilities and services attending to export regions and products as well as an integrated intermodal transport sector strategy; in particular, maintaining, upgrading, modernizing, and ensuring connectivity between those transport facilities and services. Within manufacturing, the Government proposes to promote higher value added items such as garments, toys, and fashion accessories as well as entry into higher technology and skill-based activities such as electronic and electric assembly and manufacture of precision engineering parts and tools; sports goods and footwear; and scientific instruments and software. In agriculture, the objective is to also promote high value added products especially in the non-plantation crop sector. All these products have very specific demands for transport. Products like garments, toys, and fashion accessories require reliable, safe and secure transport services, contracted on demand. Electronic goods, scientific instruments, and precision tools, require specialized packaging and suspension. Products like spices, fruits, vegetables, and flowers need refrigeration and specialized containers. Also necessary are efficient and reliable public transit systems, offering a variety of service options, and traffic management and restraint measures to relieve congestion and pollution.

3. Recognizing the critical role the transport sector has to play, a sector strategy was jointly prepared by the Government of Sri Lanka and the World Bank, with technical

¹ Sri Lanka: Country Assistance Strategy of the World Bank Group. Report No. 15633-CE, 1996.

² Policy Statement by Her Excellency Chandrika Bandaranaike Kumaratunga, President of the Democratic Socialist Republic of Sri Lanka, 1995.

assistance from the UNDP. It has the following objectives: (i) identifies the principal issues affecting the transport sector's ability to perform; (ii) sets a clear vision, founded on principles of an effective public-private partnership, for the sector to provide efficiently the infrastructure and services needed to underpin growth in the country; and (iii) lays out a reform agenda and an investment strategy for the sector.

4. Successful policy reform in the transport sector can have significant payoffs for the country. At present, the transport sector contributes to about 50% of the public sector share of GDP (1991). Improving the performance of the transport sector could remove major bottlenecks to economic growth and productivity. The transport sector is also an important source of employment, generating about 6% of direct employment (1995) and 4% of indirect employment (1995)³. The sector also absorbs, at present, a large share of public investments (about 22% of planned investments in the period 1995-1999). Improving the effectiveness of transport expenditures could result in major savings in the projected needs for investment. Estimates indicate that projected savings from reforms in the highway sector alone could be as high as 70% of estimated expenditures without reforms. In other words, with reform the Government could invest 30% of the estimated funds otherwise needed to support economic growth (see Annex 2).

5. The transport sector in Sri Lanka has not performed as well as that of its East Asian neighbors, failing to meet the demands necessary for the country to sustain higher levels of economic growth. Furthermore, rising expectations as a result of Sri Lanka's long-term per capita growth as well as changing characteristics of Sri Lanka's production and trade, have placed new challenges on the sector. Among these challenges is the need for reliable, efficient, and safe services for passenger and freight transport, while managing the negative consequences such as congestion, air pollution, and accidents.

6. Basic coverage has been good in terms of extending transport networks but existing systems are aged, obsolete, and congested. Misguided capital investments, inadequate balance between transport modes, and inattention to maintenance have further reduced the ability of the transport sector to perform. The transport sector is suffering from a low level equilibrium trap. Misallocation of expenditures in transport has led to improper modal balance in capital investments as well as an underinvestment in recurrent relative to capital expenditures. This has led to insufficient maintenance, causing deterioration in assets and service quality, and the consequent decline in willingness to use public services. This has made it difficult to raise revenues through higher prices, as users have resisted having to pay more for increasingly deteriorated services. The country, and especially the Greater Colombo Region, has seen a high rate of motorization, and the private vehicle has captured a larger share of the growing demand for transport. In combination with deterioration in urban bus and rail services, motorization has led to large modal shifts from public transit to private vehicles. The

³ Annual Report 1995, Central Bank of Sri Lanka and TSPC, Transport Sector Data Bank.

consequences have been congestion, accidents, and pollution. The private sector cites a number of transport bottlenecks as factors constraining their potential. Addressing these bottlenecks is critical if the country is to widen its export base.

7. The Government plays a major role in the transport sector in Sri Lanka. Public enterprises are responsible for direct provision of road, railway, and port infrastructure. There is no private provision of infrastructure. The Government plays a smaller role in the direct provision of transport services, with the exception of railways which are in the hands of Sri Lanka Railways, a Government Department, and bus transport where the Government is a 50% share holder of the peoplized bus companies. The poor performance of the transport sector has been mainly because the public sector has overextended itself as a direct provider of facilities and operator of services and is failing to meet important functions as manager of *competition*, custodian for the *environment*, and guarantor for *social concerns*. The challenges of operating and managing transport infrastructure and services have absorbed a lot of effort from the public sector, fostering weaknesses in planning, implementation, and regulation.

8. The strategy proposed has three main objectives. In the short-run (1997-1999) the strategy focuses on actions to improve the efficiency of investments in the transport sector. Medium term (2000-2005) concerns addressed by the proposed strategy are policy reforms and institutional changes to achieve economic and financial sustainability in the transport sector. The long term (2006-2010) is aimed at making transport sector expenditures socially and environmentally sustainable. The strategy proposes staged investments, with proper balance across modes, emphasis on redressing past neglect in maintenance, and policy and institutional reforms which are key to the strategy's success.

B. SHORT TERM STRATEGY: INCREASE EFFICIENCY OF PUBLIC INVESTMENTS

9. There are three key reforms needed in the short run. First, there is a need to correct the imbalance in the composition of transport expenditures between modes, as well as the ratio of recurrent to capital investments. This will address the problems caused by past misallocations of capital investments and will begin reversing the negative cycle the transport sector has settled into. Second, the capacity of agencies responsible for formulating and implementing policies in the transport sector needs to be strengthened. Third, in order to address the shortfall in capital for investments in the transport sector, there is a need to mobilize funds from other sources including the private sector and user charges and fees.

10. Addressing Past Imbalances Across Transport Modes. Past allocations in capital expenditures, according to official records, went mostly to railways, with very low investments in the highway sector. However, the official records of past capital allocations in railways overestimate the real level of investments in the sector, as many of the current expenditures were misclassified as capital ones. There is a need to improve

the balance across modes, focusing on improving transport connections in regions contributing the most to exports and regions whose export products are growing faster. Also needed is upgrading and modernization of transport facilities and services for intermodal linkages with proper logistic support. Such a focus requires attention not only to the Greater Colombo Region, which is responsible for about 50% of total freight movements and 54% of all exports, but to regions such as North Central, North Western, Uva, Sabaragamuwa, and Northern and Eastern provinces with export growth rates between two and twenty times higher than those in Greater Colombo. The public sector is not well-equipped to provide such services on its own. Efforts need to be made to define an intermodal strategy with proper logistical support that can be carried out by the private sector in partnership with the public sector. Critical to success of an intermodal strategy is a need to shift the sectoral balance of investments to meet the objectives of a seamless transport system. The Government should seek private sector participation in the integrated provision of containerized transport by road, rail, and ports, as well as the transport of specialized cargo by sea and air. Such partnerships should include arrangements for dedicated telecommunication, information processing, and warehousing facilities and services.

11. Redressing Past Maintenance Neglect. There have also been insufficient allocations to maintenance. In the case of roads in the 1990's, the country has under-allocated to maintenance by a factor of about 2.5 compared to international benchmarks. Neglect of maintenance has caused gradual deterioration of road and rail infrastructure and facilities, leading to a decline in the quantity and quality of passenger and freight services. The Government needs to address the past inattention to maintenance by making available sufficient resources in the recurrent budget to meet maintenance needs. These allocations would also need to be protected so that they would not be diverted to meet other expenditure requirements during the budget year, as has been the practice. The road sector is the largest consumer of the maintenance budget. For this sector it is recommended that the Government put in place a mechanism with the following characteristics to protect maintenance funds⁴: (a) the protected funds would be used to undertake routine and periodic maintenance but not capital and major rehabilitation works; (b) a portion of revenues from user charges (not all user charges and especially not those from congestion or pollution charges) would be allocated towards meeting maintenance needs; (c) stakeholders would participate in managing maintenance funds; and (d) controls would be put in place to avoid opportunistic and gaming behavior among stakeholders. In roads, as well as in railways, the budgetary and planning process needs to be improved so that the appropriate levels and types of capital investments and

⁴ During a Workshop held in December 1996 to ratify this Transport Sector Strategy there was an agreement to direct adequate funds to maintenance and to shield such funds from diversion to other uses, as well as to include stakeholders in decisions about maintenance priorities. Consensus was not reached on the need for a road maintenance fund. The World Bank's experience, however, shows that until traditional mechanisms for allocating and protecting maintenance funds are functioning appropriately, a road maintenance fund as recommended in this report is a good interim measure to ensure that priority maintenance is carried out.

recurrent expenditures are made. Critical to this end is the need to adopt a proper classification of expenditure items so that the effectiveness of capital expenditures can be established and the size of operating deficits determined. The practice of classifying recurrent expenditure items as capital expenditures needs to be stopped to prevent further decapitalization of the infrastructure stocks. A key input to such a mechanism is a clear definition of what constitutes maintenance, rehabilitation, and reconstruction activities, and an adherence to these definitions in the budgetary process.

12. Capacity to Formulate and Implement Sector Policy. To ensure that the imbalances in the composition of transport expenditures are appropriately addressed, there is a need to strengthen the capacity to formulate and implement sector policy. This includes improving the budgetary and planning process so that transport planning can be integrated with other sectors. At present, there is no single body with responsibility for strategic planning for both transport *services* (bus, rail, and shipping) and *infrastructure* (highways, ports, railway track and facilities). A key change to build capacity includes integrating urban development and intermodal planning in transport sector strategy formulation. To ensure that urban development and intermodal issues are incorporated in transport planning and that the recommended reforms in budget and expenditure formulation are implemented, we recommend the creation of a body to be responsible for transport sector policy and strategy. This body would also assist sub-national agencies. There is a need for representation to this body from concerned ministries and stakeholders, including provincial authorities, the private sector, and consumer groups. The functions of such a body should include: (a) overall planning for transport in the country with prioritization among different modes; (b) information gathering and analytic responsibility to support key policy decisions; (c) development of policy guidelines for transport infrastructure at national, provincial, and local levels; and (d) support to provincial and local levels in planning and policy implementation including providing for capacity building at these levels. Six options for such a body have been identified following discussions with key stakeholders in two workshops in Colombo (see paragraph 49). An evaluation, spearheaded by the TSPC, is ongoing of the pros and cons of each option. The study is to be completed by early February, 1997, after which a recommendation will be made to implement one of the options.

13. Devolution and Capacity of Sub-national Agencies. Critical to improving the efficiency and effectiveness of public expenditures is the capacity of sub-national units of government. Provincial governments and other local bodies have been delegated responsibilities for transport service provision including roads and bus services. Ongoing discussions for devolution may result in transfer of even more responsibilities. Sub-national units have access to many sources of funds that they use for financing expenditures on their devolved responsibilities. It is necessary to make sure that the expenditures made do not duplicate those made by national agencies for similar types of services, and are coordinated across different modes such as road, rail, and ports. The capacity of sub-national agencies to undertake these responsibilities needs to be strengthened, as at present they seem to be limited in their ability to implement the responsibilities given to them, returning allocated funds at the end of each fiscal year.

Furthermore, it is necessary to link their functional responsibilities to their revenue generation capacity and the system of intergovernmental transfers currently in place. All provincial governments should prepare a 3 to 4 year investment program with items indicating their revenue generation capacity. The funds required from the Central Government should be identified by the end of each year on a program that could be modified to ensure implementation at the beginning of the next fiscal year in order to reduce underutilization of funds.

14. Mobilization of Resources. To meet the projected expenditures in the sector it will be necessary to mobilize funds from other sources including the private sector, user charges, and fees. Reducing waste in the implementation of transport projects, especially in the road sector, would be a logical source of investment savings. The rail and port sectors are main candidates to attract private sector funds. The Government needs to put in place policies and incentives conducive to private sector participation in infrastructure finance. Institutional reforms needed to achieve this objective include strengthening the capacity of the BOI to handle investment proposals in transport. Improving the capacity to generate revenues from users of transport infrastructure and services would also allow the Government to tap other sources of financing the needed expenditures in the sector. The Government needs to continue to rationalize the system of rail and bus tariffs to increase revenue generation from users and reduce the dependence of sector agencies on treasury to meet their recurrent cost needs. It is also critical to reform the system of road user charges to make them meet the revenue needs for modernizing, upgrading, and rehabilitating the highway network. Particularly, the Government needs to raise the level of charges for larger vehicles who are currently not meeting even the financial costs of damage they cause on the highways. Critical to this end is a reform in the price and tax structure for diesel as well as the system of licensing and registration of vehicles. Other areas where savings can be generated are from restructuring the system of subsidy allocations in the sector, especially for school bus operations, to reduce the abuse of the existing system and better target the subsidies.

C. MEDIUM TERM STRATEGY: ECONOMIC AND FINANCIAL SUSTAINABILITY

15. In the medium term, the proposed strategy focuses on two key aspects. The first aspect relates to the *role of government* in the direct provision of services and infrastructure in the transport sector. There is a need to define the appropriate share of responsibility between the public and private sector in transport, so that an effective partnership can be built to handle the demands of an export-oriented private sector-led growth strategy. In particular, it is important to increase private sector participation in transport infrastructure and service provision, at all stages, including policy setting as well as direct provision of services. The Government should create and adopt appropriate regulatory structures to ensure the efficient functioning of the public-private partnership. The second aspect relates to improving the efficiency of public sector agencies through introducing competition, making public sector management more market sensitive, and restructuring pricing and financing systems.

16. Role of the Government in Transport. The World Bank's experience in reforming the transport sector indicates that successful reform involves a new role of the Government in the transport sector, less as a producer of services, and more as a regulator--the enabler of competition and the custodian of environmental and social interests⁵. In general, the Government has a role when the potential for competition in service provision is low, cost recovery from users is difficult, equity concerns are important, and externalities (environment) are high. In the short-term, given social unrest and the growing fiscal problems, policy will need to concentrate on improving the efficiency of planned public investments in the sector. In particular, efficiencies will need to be sought so that more can be accomplished with existing allocations and efforts. The Government should seek ways of improving the quality of services rendered under existing allocations, mainly by focusing on maximizing the number of passenger and freight units served per dollar of investment than the number of employees per passenger or freight unit. In the medium and long-term, policy needs to address the appropriate role of government in each of the transport subsectors. Recommendations in this regard are made for each subsector in subsequent sections of the report.

17. Private Sector Participation. There are a number of expenditures that will need to be made in order for the transport sector to support the expected projections for economic growth. Key among these are modernization and expansion of the facilities at the ports as well as improvements in the reliability and connectivity of land transport systems, especially railways. The Government should seek private sector participation in the financing and execution of these activities. This is critical not only for addressing the budgetary pressures that such activities would create on public sector finances, but also to inject into these activities the client focus and financial discipline that accompanies private sector participation.

18. Regulation and Control. The Government needs to strengthen its regulatory functions in terms of enhancing and managing competition in urban bus transport as well as in road construction, rehabilitation, and maintenance. Misguided controls, such as in hiring and firing of personnel at the port or in making procurement decisions for railway operations, reduce the autonomy of line managers and delay processes of implementation. The Government will need to reduce the extent to which it interferes in day to day management of transport services, focusing its efforts on concerns such as managing safety and reducing air pollution. There is a need for an independent regulator who is only answerable to parliament, who will play a fair and just role by introducing regulations for public and private sector institutions and organizations providing transport infrastructure and services.

19. Improve Efficiency of Public Agencies. For those supply activities that will remain under the responsibility of the public sector, reforms will be needed to introduce more competition in the production of transport services and facilities, make public sector management more market sensitive, and restructure the pricing and financing systems

⁵ Sustainable Transport: Priorities for Policy Reform. The World Bank, 1996.

currently in place. These reforms, in addition to properly directed investments to meet capacity expansion and modernization requirements, as well as the long-term needs for maintenance and upkeep, will contribute to higher efficiency in the sector, an element that is key to achieving and sustaining the high levels of growth Sri Lanka aspires. Recommended reforms include introducing competition in the provision port and rail services that are now in the hands of public monopolies which is critical to make the service operators more sensitive to customers' needs, and reduce the costs of service provision. Enhanced intermodal competition for freight markets will also be possible when the efficiency of railway freight operations has been improved by allowing contract access for freight services. Franchising bus routes would also allow more effective competition in the provision of bus services. To ensure that competition is effective, it is necessary to subject the RCDC to hard budget constraints. Other institutional reforms relate to refining the ongoing clustering of peoplized companies, and strengthening NTC's capacity to manage the competition process. Regulatory reform to enhance the degree of competition and control the negative costs of transport such as accidents and pollution is needed to prevent future loss of market share from public transit to the private automobile, thereby obviating the need for expensive investments in capacity expansion of the existing system of roads. Commercialization of the remaining activities in the public sector-- provision of road infrastructure, operation of activities at ports, and railway passenger services--would also improve the efficiency of these activities. Detailed recommendations for reform in each of the subsectors along these lines follow in Section E of the Executive Summary.

D. LONG TERM STRATEGY: ENVIRONMENTAL AND SOCIAL SUSTAINABILITY

20. Three key issues are dealt with in the proposed long term strategy. The first relates to the need for more efficient management of congestion, pollution, and safety. The second has to do with integrating the needs of the poor for access and mobility in transport strategy and policy setting. The third focuses on the processes by which transport investments are made and managed; recommending that participation of stakeholders including the rural poor in planning and implementation be enhanced. Reforms and investments to address participation and rural concerns as well as congestion, pollution, and accidents are discussed under the sector-specific reforms in section E.

21. Congestion and Pollution. Estimates indicate that the cost of congestion in the Western Province (Colombo Metropolitan Region) was around Rs. 550 million (US\$ 9 million) in 1995. The degree of congestion and associated cost is expected to double over the next decade. In addition, estimates indicate that for a 6% increase in GDP, the demand for road space increases by 8%. Measures outlined in Clean Air 2000 need to be implemented in order to control the effects of congestion. Demand side measures should be given first priority, given the fiscal crisis and the limited ability to expand capacity and restructure institutions in the short term. Such measures need to ensure motor vehicle

users pay the full cost of driving. Among the instruments available are congestion pricing and parking fees and other traffic restraint measures. On the supply side, priority should be given to restructuring of the public and private bus systems, to improve their reliability, frequency of service, comfort, and level of safety, to attract more consumers to travel on buses. Upgrading the suburban rail system to mass transit standard is also a possibility. This is an activity that can be concessioned out to the private sector on a negative bid basis as has been done in Argentina.

22. Other supply side options to reduce congestion include the construction of key highway improvements and new highways to develop a better network. Given the density of the highway network in Sri Lanka, and the high costs of providing new highways in terms of land acquisition and relocation, this option is more limited. Furthermore, capacity improvements may not always lead to reduction in congestion, as they may result in attracting more traffic. Other options that have been defined in Clean Air 2000 need to be considered when the appropriate institutional structures are in place. These include: (a) set standards for import of vehicles by age and fuel efficiency, especially for operation as buses, school, and office vans and for encouraging the purchase of four-stroke rather than two-stroke motorcycles and three-wheelers; (b) undertake more efficient inspection of vehicles to ensure they meet standards; (c) implement fuel reformulation policies; and (d) encourage and support the use of non-motorized transport (bicycles and animal drawn vehicles) and make provisions for pedestrians in urban areas (see paragraphs 41 and 42).

23. Safety. In addition to the costs of congestion, are the costs of accidents. The level of safety in Sri Lanka is low compared to its East Asian neighbors which have much higher levels of motorization. Measures to ensure safety would involve structural and institutional reform, including setting up systems for transportation planning and traffic management.

24. Poverty and Rural Mobility. Poverty alleviation requires a transport policy focused on the poor. Lack of such a policy and the respective information basis in Sri Lanka has made it difficult to analyze how the transport sector is doing vis a vis the poor. It has been assumed that the mobility needs of the poor can all be resolved by improving transport networks and public transport services in rural areas. However, it may not always be cost-effective to alleviate poverty problems through the transport sector alone. In particular, transport services do not and cannot penetrate all rural areas. Problems of mobility and access are acute in such disadvantaged areas. In these areas attention needs to be focussed on means and modes of travel other than public transport services. Transport policy has to include promoting non-motorized modes and providing local rural roads in such areas. Moreover, a large proportion of rural dwellers are low income earners, and there is a need to look at the distributional consequences of transport investments and policies.

25. Focus on Access to Service. To improve access of rural dwellers to service it is necessary to have a transport policy that includes the needs of rural populations, beyond

those of providing for mobility. At present, the most time consuming activity in rural areas is collecting water. Policies that improve rural water supply and also provide non-motorized means of transport for rural dwellers can go a long way to improving rural productivity. At present it is Government policy to establish primary schools in village areas, and research studies conducted by the NTC and others⁶ show that there is a primary school within 2 km of many village centers. Access to secondary schools is still a problem, with children having to travel on average 5 to 10 km away, and sometimes up to 30 km or more in more remote rural areas. There is a critical need to link transport policy to education policy to meet these demands. Other access solutions include the use of mobile banks and clinics; in other words, bringing the facilities closer to the people. Critical to improving the access to services is the need to know the distributional consequences of transport investment. Ability to measure distributional consequences will become more critical as the government reduces its role in the direct provision of services and fosters private sector provision and competition. The Government should collect information on price differentials, expected savings in transport costs as a result of improving services, and wages and prices in rural areas, to measure the distributional impact of transport policies. Using such information, decisions to provide transport for access to services can be made more optimal.

26. Participation. Given the limitations in information available to make detailed assessments of the best ways of meeting the needs of the poor, it is imperative to foster the participation of rural communities. This will ensure that the perspectives of rural people and poor communities are included in the setting of policy. Where poverty alleviation programs exist and unemployment levels are high, participation of rural labor to improve roads can provide a least cost option for carrying out such works.

E. SECTOR SPECIFIC REFORMS

27. Ports. A major problem facing the port sector is providing adequate capacity to meet demand for transshipment growth, to enhance revenue earnings in foreign exchange for the country. Other problems result from constraints imposed on the port sector by various interventions. There is a tendency for the port to be used as an employment generating entity which contradicts the pursuit of normal port objectives such as efficient port operations. As a result, port management is weakened, productivity is lowered, and timely provision of services is hampered. These problems impose high direct and indirect costs for provision of port services, with two significant consequences--loss of market share for international transshipment and higher economic costs of providing for port infrastructure and services.

28. The port sector is embarking on a very costly, but needed, expansion plan. Due to fiscal problems facing the country, it may be difficult to finance the required capacity

⁶ See Diandas J. and M.J. Sahabandu, "Study on Subsidy Allocation in Rural Transport and Operation of Bus Services on 'Unremunerative Routes'", June 1996, in Volume II of this report.

expansions (such as for common access facilities) entirely from public funding sources. Seeking partnerships with the private sector may be the only available option to meet the financing needs for expansion. The Government would need to select partnerships that not only provide the necessary financing but meet the objectives of a planned port expansion and modernization plan, and lead to improved efficiency, enhanced productivity, and lower operating costs. Critical to efficient competition in a public-private partnership is the need for a level playing field among various port operators, including similar treatment for tax incentives including import tariffs for capital goods, access to loans, and control over tariffs.

29. The following recommendations need to be implemented as soon as possible and progress on implementation should be monitored by the highest Government levels, on a continuous and sustainable basis. To improve the efficiency of investments in the port sector, the Government should implement the institutional strengthening recommendations and action plan from the OECF financed study. The port authority should focus its efforts on the main port-related activities by disposing of all non-port related activities to autonomous entities or private sector organizations. To further increase the efficiency of investments in the port, it is necessary to carry out the recommended Port Development Study (Phase I and II) under the PHRD grant.

30. For economic and financial sustainability in port operations it is important to reduce the role of government in direct provision of port services, focusing efforts on managing competition and regulation. This would require enacting legislative reforms in the port sector to enhance private sector participation. The port authority should adopt a “landlord” strategy in the provision of port infrastructure and services, where it retains ownership of assets and responsibilities for development of common user facilities but allows private sector participation by earmarking certain operational activities for partnership with the private sector through concessions, leases, joint venturing, BOT and/or BOO. A landlord strategy may require creating an independent Port Regulator⁷. To increase the degree of autonomy, it is important to shield port management and operations from political structure interference. To establish some competition in handling containers of Sri Lankan imports and exports, it would be desirable to allow different operators to operate different terminals. This would require the following steps: short term actions for cost containment purposes and medium term actions to create an enabling environment for private sector participation. Among the short term actions are: (a) allow public-private partnerships to operate berths at the ports on a BOT/BOO basis to improve throughput, productivity, and efficiency. Public-private partnerships should be selected according to a clearly defined process with clear goals and objectives; and (b) rationalize the port’s labor force through negotiations with the unions to reach agreement on voluntary retrenchment, golden handshakes, early retirement and possible retraining.

⁷ During the December 1996 Workshop to ratify the recommendations made in the Transport Sector Strategy, two members of the discussion group declined endorsing this recommendation in favor of looking at options other than the landlord strategy.

It worthwhile to note that the port has a very large redundant labor force and at the same time is short of skilled stevedores.

31. In the medium term, it would be necessary to: (a) strengthen port planning and management decision-making capabilities by providing qualified staff competent in operation research techniques and modern management methods; (b) undertake the recommended development by the UDA of 700 ha adjacent to the port to relieve the pressure for land shortage; (c) implement the Inland Container Depot (ICD) utilizing the rail link, possibly to be operated by a public-private partnership; and (d) initiate and implement a marketing study to attract private sector participation. More measures are needed to further increase efficiency of port operations, and should be given high priority: (a) rationalize the tariff structure at the port; (b) establish incentive-productivity based schemes for port employees; and (c) introduce national Electronic Data Interchange (EDI) systems and further develop port EDI systems.

32. To ensure that port investments and activities are environmentally and socially sustainable the Government should give high priority to: (a) improve the port's safety by adopting a safety code and replacing obsolete floating craft according to SLPA's requirements; (b) improve and monitor environmental conditions at the ports by providing private sector operated ship waste collection and disposal facilities, as well as creating and enforcing environmental safety rules and code of practice; and (c) undertake a Port efficiency Improvement Project and improve the capacity to carry out port marketing. The key actions and investments required in the port sector along with tentative cost estimates and timing are summarized in section G and discussed in detail in Chapter IV, section C.

33. Roads. Sri Lanka is a road dependent economy. The road network covers the country adequately, but is in serious state of disrepair, with only 10% of the paved road network in good condition. The immediate concern in the short run, to increase the efficiency of road investments, is to resolve the maintenance neglect problem. Among the reasons for maintenance neglect, is that funds allocated to maintenance are diverted to meet cost overruns and counterpart funds for foreign-financed projects. To address the serious backlog in maintenance it is necessary first to increase recurrent expenditure allocations for road maintenance, especially for the provincial and local road network. To ensure that these funds are appropriately used for maintenance, there is a need to develop mechanisms to protect funds allocated to maintenance. The Bank's experience in other countries indicates that a Road Maintenance Fund can provide such a mechanism (see Box 7 on the case for and against road funds).

34. To reduce the impact of cost overruns and other inefficiencies in the provision of road works, which make the cost of road provision in Sri Lanka very high, there is a need to: (a) reduce the amount of time it takes to process projects; and (b) increase the degree of competition in the provision of road works. The tendering and project appraisal procedures need to be reformed in order to reduce project preparation and implementation time. The roles of the Road Development Authority (RDA) and its subsidiary the Road

Construction and Development Company (RCDC) need to be redefined. In the short term, the RCDC should compete with the private contracting industry on an equal footing for contracts in road improvement and maintenance. In the medium term, the RCDC should divest its activities in operation of quarries, asphalt plants, and the leasing of construction machinery and equipment to the private sector. In the short-term, and until the private sector can handle these activities, the RCDC should use prices for leasing equipment to the private contractors that reflect the true cost of maintaining and replenishing the fleet. However, care should be taken to make sure that inefficiencies in maintaining the equipment fleet are not transferred to the private contractors. The current process of contracting out maintenance activities and domestically funded rehabilitation to the private contractors should be continued, with particular attention to increasing the degree of competition for the works. The RCDC should continue to reduce its direct involvement in carrying out works and increase participation by local private contractors. Appropriate support should be provided to the local construction and consulting industry to facilitate its development, as is being done in other countries such as Bangladesh. Once a sufficient number of capable domestic contractors are available, the RCDC should be converted into a management body, providing project management services to the local contracting and consulting industry. This would require transferring management capacity and training from the RCDC to domestic contractors and consultants. Criteria to monitor this phasing out process need to be developed.

35. The Government has already taken action to implement some of these recommendations. Following recommendations from an ADB financed study, the Government is setting up a permanent tender board with a technical evaluation committee and a full time secretariat to be responsible for all procurement procedures. Guidelines have also been issued on the allowed processing time for feasibility studies and consultant reports to less than 3 months, and less than 3 months for the tendering process. Also following a Cabinet Decision on October 16, 1996, the RCDC is to compete with the private sector for road improvement contracts, and RDA is to stop giving any road improvement contracts to the RCDC without such competitive bidding.

36. Other measures targeted towards improving the capacity of the private sector, especially small scale enterprises (SMEs) include: packaging contracts and designing contracting programs at a scale and scope suitable for SMEs, providing training for SMEs, modifying prequalification criteria for the SMEs, extending mobilization advances to SMEs, coordinating with other donors on the need to support the local construction industry, and developing credit schemes for the private sector to obtain machinery in order to establish a competitive market. The key actions and investments needed in the road sector are summarized in Section G and discussed in detail in Chapter IV Section B.

37. Road Transport. To improve the efficiency of investments in road transport, urban and regional development and transport planning should be coordinated so that transport and development plans are consistent and reasonable. It should no longer be possible, for example, to prepare a development plan for the Southern Region without a transport component, as was recently done. For institutional strengthening, in a

discussion of the recommendations of this report, the proposal recently approved in Cabinet to create special human settlement committees at the provincial and district levels, was endorsed. These committees, to be chaired by the chief secretary of the province or district will include the relevant provincial and district officials as well as representatives from relevant national agencies.

38. To attain economic and financial sustainability, it is necessary to rationalize bus fares, restructure the bus industry, and enhance competition in the provision of bus services. Bus services provide important social benefits, and it is important to maintain selective subsidies for non-economic rural bus routes and low fares for poor school children. With these exceptions, however, bus fares should be raised to a level that would allow an efficient bus operator offering service without excessive overloading to recoup the costs of providing that service, including an adequate reserve to replace their buses approximately every 9 or 10 years. Chapter IV, section D of this report, provides details of the formula to use to determine fare increases. To ensure that fares keep pace with costs despite political pressure to hold fares down, it is recommended that a law be passed requiring the NTC to phase in price increases and to approve regular annual fare increases in the manner described in the formula. The law would stipulate that the increases would not be subject to Cabinet approval, although Parliament could review and disapprove an increase if it thought it inappropriate. If the Government decides not to raise fares for political reasons, proper compensatory measures need to be put in place, to allow bus operators to meet their operating costs.

39. There is a need to restructure the system of providing bus services in Sri Lanka which is now shared by the private sector and joint public-private “peoplized” companies. This will require maintaining the positive aspects of competition and public/private provision while minimizing the negative aspects related to accidents and congestion. First, the present 93 “peoplized” companies should be clustered to achieve economies of scale and improve their management and performance. There is a law currently before Parliament proposing to have 11 companies. During discussions of the recommendations of this report, there was sentiment that it might be advisable to have more than 11 companies to enhance competition. Private buses should remain unclustered for at least several years in recognition that the proposed consolidation in the bill before Parliament might reduce some of the advantages of low costs and overheads that the private operators currently enjoy. In the interim, the NTC and PTAs ought to use their statutory authority to supervise schedules, dispatching and evening services so as to improve the quality of service that the private and peoplized companies offer. Such regulatory authority is being used on an experimental basis in the Western and Southern provinces and needs to be applied to other provinces. If the NTC and PTAs are unable to improve the performance of the private sector, then forced consolidation and a system of competitive bidding for exclusive route franchises for limited terms of 5 years need to be introduced. Such franchise arrangements should allow restructured “peoplized” companies to compete or merge with private operators to bid for the franchise. To ensure implementation, it is necessary to strengthen the capacity of the NTC and PTAs to supervise bus operations. Also necessary is the need to affirm that the peoplized as well

as the private companies are subject to the regulatory authority of the NTC and the PTAs. The Government should monitor the efforts of the NTC and PTAs to improve bus services.

40. In discussions of the recommendations of this report in the December 1996 Workshop in Colombo, it was agreed that there might be an argument for providing some financial support for the “peoplized” bus companies as long as they are providing socially important services, such as night and early morning services or school fares, that the private companies were not providing. However, to the extent that the differences between the private and peoplized companies in this regard are narrowed, then it weakens the case for special aid to the peoplized companies in the form of buses sold at below cost and other means of support.

41. For social and environmental sustainability in road transport, the Government should support the use of non-motorized transport and intermediate technology modes. Non-motorized travel includes walking as well as bicycles and bicycle trailers. The support should take the form of aid for research and development (R&D) as well as the encouragement of the dissemination of information on these modes. In the case of walking, support should also take the form of the construction of sidewalks and pedestrian crossings on congested streets in urban areas. A key institutional component needed to ensure the proper balance across transport modes is the need to establish a unit within the Ministry of Transport, Environment, and Women’s Affairs to sponsor R&D and dissemination by NGOs and others. At the local level, urban councils should be aided in the construction of sidewalks and pedestrian crossings. Provision of socially beneficial bus services should be improved. In particular, the practice of competitive bidding for non-economic rural bus services should be expanded, with private as well as peoplized companies participating in the bidding. In addition, processes for targeting concessionary fares to poor children and introducing those fares on private buses should be explored. This would require strengthening the capacity of the NTC and the PTAs to supervise rural bus services and school fares.

42. Efforts are also needed to control the congestion and pollution generated by private motor vehicles. Measures recommended include: (a) controls on parking and other measures to discourage the use of private motor vehicles in congested and polluted urban areas; (b) priority for buses in the allocation of street space in congested urban areas; and (c) raising the cost diesel private motor vehicle use, excluding buses and perhaps trucks. These measures could include increases in the annual and new registration fees for targeted diesel vehicles. To control air pollution, more attention needs to be paid to particulate emissions. Sri Lanka is in serious violation of WHO ambient air standards for particulates while it complies with WHO ambient standards for lead. Additional efforts to control particulate emissions include: (a) better enforcement of existing laws against poorly maintained and heavily polluting diesel vehicles. In particular, enforcement against “belching” vehicles can be improved by using simple Polaroid cameras; and (b) importing crude oils with lower sulfur content or other characteristics that might reduce particulate emissions. There is a need to strengthen the

capacity to enforce emission laws and to develop practical measures to control traffic and congestion, and to reduce particulate emissions. The key actions and investments needed in road transport are summarized in Section G and discussed in detail in Chapter IV Section D.

43. Railways. Looking at the historical capital outlays for the railway suggests that the Government has invested quite heavily in railways. However, official records grossly overestimate the real capital expenditures due to misclassifying recurrent expenditures as capital expenditures. The railway infrastructure and rolling stock is deteriorated and in bad need of repair, reducing the quantity and quality of service the system is able to provide. There is a need to address the problem of misclassifying recurrent and capital expenditures so that rational allocations can be made to meet the needs for rehabilitation and maintenance, as well as capital. Critical to this end is upgrading of the Management Information Systems (MIS) and accounting procedures at the railway.

44. For the railway to be able to compete efficiently with the road sector, there is a critical need to restructure the operations of the SLR. While the railway plays an important economic role in the commuter passenger market, it is marginally utilized for freight transport. Intermodal competition has eroded the railway's pre-World War II's monopoly on land transport to only 12% of the passenger market and 6% of the freight market. Given the structure of the transport industry at present, the railway will continue to depend on transfers from treasury for meeting part of its operating costs as well as capital needs. However, there is a critical need to improve the operational efficiency of the railway.

45. The Government has just completed preparing a structured Business Plan for the railways which identifies four key railway markets⁸: (a) suburban passenger services; (b) long-distance express passenger trains; (c) non-stop fast freight trains; and (d) special purpose non-stop unit trains for bulk freight. The Sri Lanka Railroad (SLR) should focus its efforts on meeting the needs for travel of the suburban passengers, mainly because it currently does meet a large share of its operating costs on these markets, but also because there are social and environmental benefits in terms of reduced congestion and air pollution. There is a need to develop a public sector obligation contract (PSO) between the Government and SLR that ties the level of subsidies for suburban passenger services to external benefits such as reduction in road vehicle operating costs and congestion costs. It would be necessary to finance a study to quantify and design PSO contracts between the Government and the SLR for provision of passenger services.

46. In a Policy Statement from the Ministry of Transport, Environment, and Women's Affairs for 1997, the Government has accepted in principle a policy to open access to the railway track and other rail facilities. Under an open access policy, SLR would make

⁸ Policy Statement, Ministry of Transport, Environment, and Women's Affairs, by the Honorable Srimani Athulamudali, for 1997.

available track to private freight operating companies, in return for access payments, which would provide a source of revenue to the railway. This would allow the SLR to focus on the key services to its passengers. The SLR and BOI (assisted with other Government agencies) should continue to advertise and develop contract access agreements with freight shippers and other potential carriers. To allow the SLR to operate based on commercial reality and to enhance its capacity to deal with the private sector on matters of open access and other joint ventures, as well as to make it an equal partner in negotiating access and PSO agreements, it is necessary to permit it to function on the basis of sound business practice and to invest in human resource development. The latter would include training on accounting and modern management techniques, as well as establishing a commercial business unit, separate from the railway's passenger services, so that the SLR can properly manage the access and PSO contracts in addition to other services remaining under direct provision by the SLR. It should be pointed out, however, that there are few examples of efficiently operated railway services, free of political interference, in the developing world.

47. In the case of long-distance passenger services, the Government should rationalize the provision of these services by adjusting price levels to reflect the full costs of providing these services. There is an ongoing evaluation of a proposal to electrify a segment of the Colombo-Kandy line on a BOT/BOO basis. The Bank recommends that this proposal be thoroughly evaluated before a decision is made to continue with the investment. In particular, the electrification proposal needs to be justified on an economic and financial basis, and compared to investments such as upgrading the existing services on rail without electrification, and improving conditions on the parallel highway. Concerning local passenger rail services, the SLR should transfer these services to road in cases where they can be provided more efficiently by bus. Cost recovery for local passenger services is very low, and it has been found that few of the beneficiaries of these services are poor with no other options. There is a need to evaluate the remaining local passenger services on a case by case basis to determine if a public service obligation exists.

48. Intermodal Transport. The transport sector in Sri Lanka is not geared to providing efficiently for intermodal transport. The current systems are aged, obsolete, and congested, and there is no logistic support and intermodal connection for a seamless service from the point of view of a freight shipper or a passenger. There are a number of opportunities presenting themselves, allowing the country to address these limitations. First, there is growing demand for intermodal services, mostly deriving from the export markets. Second, there is interest from the private sector to invest in intermodal transport and logistic support. Finally, the preparation of a transport sector strategy presents an opportunity to deal with intermodal concerns.

49. At present there is no single body with sufficient clout to undertake the planning and implementation for intermodal concerns. There are multiple agencies with poor coordination, making decisions and investments on separate modes. Six possible options for reform were considered: (a) strengthen the Interministerial Committee (IMC) set up to

oversee intermodal planning issues; (b) operationalize the transport sub-committee within the NDC to take over intermodal planning issues; (c) create a National Transport Administration (NTA) and pass a law to allow the NTA to make and enforce policy decisions on intermodal matters; (d) create a new Ministry combining the present Ministries of Transport with that of Highways for better intermodal planning; (e) widen the scope of the NTC to take over responsibility for intermodal planning as is being considered in the amendments to the NTC Act; and (f) create a council of Ministers, similar to the group that meets to make decisions on exports, to take responsibility for intermodal planning. These six options are currently being evaluated by the TSPC after which a final recommendation will be made (see paragraph 12). There is also a need to strengthen the capacity of sub-national agencies for intermodal planning and implementation.

50. To ease the use of public transit systems it is recommended that infrastructure investments be made to create proper intermodal links between road and rail. For more efficient freight movements, investments in rail-to-port and road-to-port linkages for the proposed ICD project need to be considered for provision under a public-private partnership. It is also critical to invest in upgrading the system of feeder roads to increase the efficiency and reliability of land transport services. On the service side, to enhance feeder bus-to-rail services consideration should be given to a single ticketing system for road and rail transport for these services, as well as the potential for contracting out the operation of feeder bus services to service rail stations to the private sector. Investments in EDI, informatics, and logistics would be critical to improve the processing of freight at the port, as well as at depots and other points in the logistic chain. Also needed are reforms in the customs clearance and documentation procedures at the port.

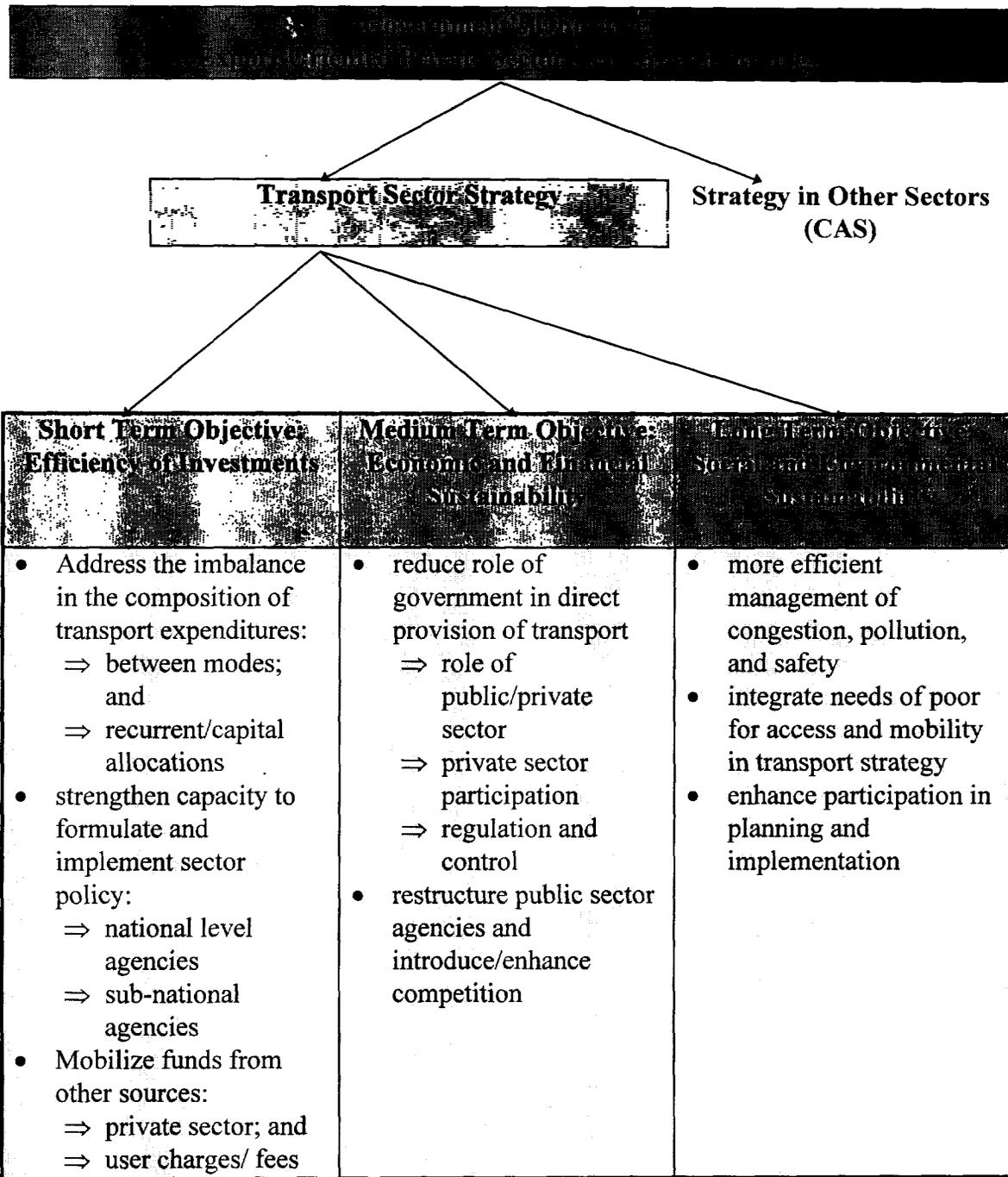
51. There is a critical need to strengthen the capacity of the BOI to handle private sector investment proposals of an intermodal nature. With such capacity, the Government can seek strategic alliances with the private sector for intermodal concerns (containerized transport, port terminals, ICD). The BOI can also be the agency responsible to make sure that private investments in telecommunications are linked with the needs in transport for the provision of EDI, informatics, and logistic services.

F. POLICY IMPLEMENTATION PROCESS

52. This strategy paper was prepared in a consultative manner with participation from high level Government officials, representatives of the private sector, public sector agencies, user associations, academics, and representatives of the major donor agencies (see Annex 3 for a list of participants). Two workshops were jointly chaired by the World Bank and the Transport Studies and Planning Center (TSPC) in Sri Lanka. To ensure that the participative effort for policy formulation is continued and to improve the capacity to implement policy in the transport sector, it is recommended that the consultative approach be used to: (a) conduct an annual progress review; (b) update this policy document; and (c) prepare annually an expenditure program for the following year,

consistent with the recommended policies. It was agreed during the December 1996 Workshop that the World Bank would continue to chair meetings for these purposes with the TSPC. The policy ratification process mentioned above needs to be incorporated into budgetary policy to ensure implementation.

G. LOGICAL FRAMEWORK FOR THE TRANSPORT SECTOR STRATEGY



H. SUMMARY OF RECOMMENDATIONS FOR TRANSPORT SECTOR STRATEGY

Objective 1: Improve Efficiency of Transport Investments

Issues	Recommendations		
	Policy	Institutions	Actions
Address the imbalance in the composition of transport expenditures between modes and recurrent versus capital allocations	<ul style="list-style-type: none"> • Create a mechanism to protect maintenance funds • Restructure classification of capital and maintenance activities in railways 	<ul style="list-style-type: none"> • Strengthen capacity of line agencies to formulate budgets • Include suggested institutional changes in Public Expenditure Review process 	<ul style="list-style-type: none"> • Increase recurrent expenditure allocations for maintenance in railways and roads • Upgrade railway accounting and MIS capabilities to better define maintenance and capital improvement needs • Incorporate recommendations in Public Investment Review
Strengthen capacity to formulate and implement sector policy	<ul style="list-style-type: none"> • Integrate urban development and intermodal planning into transport sector strategy formulation • Reform tendering and project approval process 	<ul style="list-style-type: none"> • Create body to be responsible for transport sector strategy formulation • Strengthen capacity of sub-national agencies to carry out devolved responsibilities for transport service provision • Create a permanent agency for tendering and project approval 	<ul style="list-style-type: none"> • Evaluate the six possible options for a single transport body and recommend one • Implement OECF's institutional strengthening recommendations and action plan (\$ 2 million) • Implement human settlement communities at provincial and district levels • Implement ADB recommendations to reform tendering and project approval process • Evaluate proposed rail access to ICD and Colombo-Galle connection
Improve the capacity to generate revenues from users	<ul style="list-style-type: none"> • Rationalize system of bus tariffs • Reform system of road user charges • Restructure tariffs at the port • Rationalize rail tariffs 	<ul style="list-style-type: none"> • NTC and PTAs to adopt fare setting formulae • Pass law requiring NTC to approve fare increases • Develop PSO contracts between Government and SLR 	<ul style="list-style-type: none"> • Undertake study to determine bus fare increases and devise cost index for raising fares • Draft fare increase law • Undertake Port Development Study • Undertake PSO study for rail services
Mobilize funds from private sector	<ul style="list-style-type: none"> • Announce open access policy for railway freight • Seek strategic alliances with private sector for port modernization and expansion 	<ul style="list-style-type: none"> • Strengthen capacity of BOI to handle private sector investments in transport 	<ul style="list-style-type: none"> • Continue to advertise and develop contract access agreements for rail • Undertake Port Development Study (PHRD)

Objective 2: Attain Economic and Financial Sustainability in Transport

<p>Reduce role of government in direct provision of infrastructure and services</p>	<ul style="list-style-type: none"> • Adopt a landlord strategy for port infrastructure and services • SLPA to divest out of non-port operation related activities • Shield port management and operations from political structure • Increase proportion of M&R carried out by private local contractors in road works 	<ul style="list-style-type: none"> • Enact legislative reforms in the statutes defining the role of the SLPA • Divest SLR from freight operations • Transfer local rail services to road in cases where buses are more efficient • Rationalize provision of long-distance passenger services on rail • Subject RCDC to competition with private sector • Divest RCDC activities in quarry operations, asphalt and aggregate plants 	<ul style="list-style-type: none"> • Development of QEQ (\$ 200 million) • Development of North Pier (\$ 80 million) • Port Development Study (\$ 800,000) • Port Efficiency Project (\$ 50 million) • Establish timetable to phase out RCDC direct involvement in road works • National Road Widening and Improvement Project (\$TBD)
<p>Introduce competition and provide a level playing field for competition between private and public agencies</p>	<ul style="list-style-type: none"> • Allow public-private partnerships to operate berths on BOT/BOO basis • Increase use of competitive bidding for road works • Allow private freight shippers to compete for service provision on the rail network • Redefine role of RDA and RCDC • Restructure bus industry to improve performance of the peoplized and private sector operators 	<ul style="list-style-type: none"> • Negotiate with unions to rationalize ports' and railway's labor force • Train railway employees in accounting and modern management practices • Set up system to address grievances, define work rules and develop productivity based rewards for ports and railway • Subject RCDC to hard budget constraint • Convert RCDC to project management body • Implement measures to strengthen local construction industry • Implement clustering of Peoplized Bus Companies • Strengthen capacity of NTC/PTAs to supervise bus operations 	<ul style="list-style-type: none"> • Implement marketing study to attract private sector partnerships • Introduce EDI nationally and further develop port EDI systems • Port Efficiency Improvement Project (\$50 million) • Investment in DMU trainsets and other rolling stock needs for a restructured railway operation (\$ TBD) • Set up a commercial business group in SLR to manage contract access • Set monitoring criteria/timetable for NTC/PTAs efforts to improve services
<p>Restructure user charges to incorporate economic and environmental sustainability principles</p>	<ul style="list-style-type: none"> • Rationalize port tariffs • Modify diesel tax • Restructure vehicle licensing system • Impose central area parking controls 	<ul style="list-style-type: none"> • Open up petroleum market for competition • Strengthen capacity to set taxes on road use • Strengthen traffic management capabilities of urban authorities and police 	<ul style="list-style-type: none"> • Implement changes to reduce abuse of system of subsidies for school buses

Objective 3: Attain Social and Environmental Sustainability in Transport

<p>Integrate rural perspectives and poverty alleviation within transport sector strategy</p>	<ul style="list-style-type: none"> • Adopt integrated policies to improve rural access including bringing facilities closer to the people • Support use of non-motorized and intermediate means of transport • Extend competitive bidding for providing non-economic rural bus services to both peoplized and private companies • Explore measures to target concessionary fares to poor children and introduce those fares on private buses • Adopt where feasible project designs to focus on labor generation (particularly female) in the construction and maintenance of roads and other transport infrastructure 	<ul style="list-style-type: none"> • Adopt participatory methods in planning, policy setting, and implementation of transport projects • Create a unit within Ministry of Transport to sponsor R&D and dissemination on NMTs by NGOs and others • Assist local governments in the construction of sidewalks and pedestrian crossings • Expand role of SMEs in the development of transport infrastructure and services • Support SMEs' manufacturing for non-motorized and intermediate means of transport • Strengthen capacity of NTC and PTAs to supervise rural bus services and school fares 	<ul style="list-style-type: none"> • Study to Measure the Effects of Transport Policy on the Poor • Provincial Road Rehabilitation and Maintenance Project (\$ TBD) • Rural Access Improvement Project (\$ TBD) • Study to target concessionary fares to poor children and introduce those fares to private buses
<p>Control effects of congestion, pollution, and accidents</p>	<ul style="list-style-type: none"> • Institute parking controls and other traffic restraint measures • Give priority to buses in the allocation of street space in congested urban areas • Tax use of diesel for private motor vehicles • Charge trucks full cost of damage to roadway • Import crude oils with lower sulfur content to reduce particulate emissions 	<ul style="list-style-type: none"> • Create and enforce port safety rules and codes of practice • Monitor environmental conditions at ports • Strengthen the capacity to undertake traffic management methods for congestion control and safety • Strengthen inter-agency coordination to incorporate land-use considerations in transport planning • Strengthen capacity to enforce emission laws 	<ul style="list-style-type: none"> • Replace obsolete floating craft • Provide private sector operated ship waste collection and disposal facilities • Study to define practical measures to control traffic and congestion, and reduce particulate emissions • Transport services improvement project (\$TBD) • Electrification on Colombo-Kandy line on BOT basis (\$TBD)

SRI LANKA

TRANSPORT SECTOR STRATEGY STUDY

I. INTRODUCTION

A. OBJECTIVES AND SCOPE

1.1 The purpose of this report is to identify and discuss in detail, the principal issues affecting the transport sector's ability to provide efficiently the infrastructure and services needed to underpin growth in Sri Lanka. The objectives of the report are to assist the Government in (a) setting a clear vision for the transport sector to support the country's overall development goals; and (b) formulating an appropriate strategy and reform agenda for transforming the sector from a state-dominated one into an effective and efficient public-private partnership.

1.2 The report discusses the role of the transport sector in the context of the Government's Medium Term Development Strategy. The transport sector strategy presented in the report is firmly embedded within the overall goal of export-oriented, private sector-led growth that is environmentally and socially sustainable. Furthermore, it is consistent with the World Bank Group's Country Assistance Strategy for Sri Lanka.

1.3 Included in the analysis are the key sub-sectors of ports and shipping, railways, highways, and urban transport. The report analyses the past performance of the transport sector in terms of achieving its policy objectives. Key challenges facing the sector at present and in the future are identified and an evaluation is made as to the necessary reforms and policy orientation to meet these challenges.

1.4 Recognizing that growth objectives have to be balanced in terms of their impact on environmental and social sustainability, the report suggests a sector policy that is embedded in the principles of sustainable development. These principles derive from the Bank's policy for sustainable transport which are founded on three key pillars⁹: (a) economic and financial sustainability; (b) environmental sustainability; and (c) social sustainability. In particular, the role of the Government, and the partnerships it can create between the public and private sectors to ensure that development is sustainable in those three dimensions is discussed.

⁹ Sustainable Transport: Priorities for Policy Reform. The World Bank, 1996.

B. AUDIENCE

1.5 The intended audience for the report includes high level Government Officials involved in development and transport policy formulation, managers of public sector agencies currently involved in transport service provision, the private sector seeking opportunities for investment in Sri Lanka, private entrepreneurs involved in activities dependent on the transport sector, associations of transport users, academics, and donor agencies.

C. OWNERSHIP AND PARTICIPATION

1.6 Most of the material used in the report derives from two workshops that were held in Colombo in July and December, 1996 jointly sponsored by the Government, UNDP through technical assistance, and the World Bank. The workshops were attended by high level Government officials including: (a) the Honorable Minister of Transport, Environment, and Women's Affairs who gave a keynote speech on the "Vision of the Transport Sector as an Effective and Efficient Public-Private Partnership"; (b) the Honorable Minister of Health, Highways, and Social Services who presented "The National Highway Program for Economic and Social Development"; and (c) the Honorable Minister of Shipping, Ports, Rehabilitation and Reconstruction who talked about "Shipping and Infrastructure Development to Meet Demands of Export, Import and Transshipment". Representatives of the private sector, public sector agencies, and user associations in transport were also present. The workshops were also attended by high level representatives of the UNDP, OECF, and ADB (see Annex 3 for a list of participants). Background papers prepared for presentation and discussion at this workshop provided key input into identifying the issues and laying out the strategy for reform.

1.7 In an attempt to get consensus on the issues and strategy for reform, key reform areas were identified and discussed at the workshop and agreement was reached on most of them. Remaining issues where consensus was not reached are also included in this report. Next steps for implementing the report's recommendations as well as the investments needed are included in the report (see Section H of the Executive Summary).

D. MAJOR THEMES COVERED

1.8 The workshops focused on a particular set of issues, which were classified into general themes as summarized below:

Overall Policy Issues

- Economic, Social and Environmental Demands on the Transport Sector: Past Performance and Emerging Challenges

- Efficiency, Equity, and Environmental Sustainability: Do we Have the Right Balance for Sri Lanka
- Institutional Development and Capacity Building in the Public Sector
 - Decentralization and the Public Expenditure Program
 - Strengthening Planning, Regulatory, and Policy-Making Capacities
- The Changing Role of the Government in the Transport Sector
 - View on the public-private role in Transport from a major donor agency (OECF)
 - Cases from International Experience in roads and passenger transport, railways, ports and shipping
- Alternatives for Financing Investments in Transport
- Opportunities for Private Sector Participation.

Environmentally and Socially Sustainable Transport Infrastructure and Services

- Physical Planning and Environmental Issues in Transport
 - Integrating Urban Structure, Planning and Transport
 - Traffic Management for Congestion Control and Safety
 - Implementing Clean Air 2000.
- Role of Transport in Poverty Alleviation and Regional Development
 - Opportunities for Employment Generation in Transport
 - Access and Mobility in Rural Areas
 - Regional Integration Through Transport: The Southern Regional Development Plan
- Opportunities for Competition in Transport
 - Ports, Shipping and Transshipment Markets
 - Competition in Passenger and Freight Services
 - Competition for the Provision of Road Infrastructure and Restructuring of Road Provision Agencies

Economically and Financially Sustainable Delivery of Transport Infrastructure and Services

- Making Public Sector Management More Market Sensitive
 - Improving the Efficiency of Port Management
 - Reforming the Railways
 - What to do About Peoplized Companies
- Pricing and Financing in Transport
 - Are the Current User Charges in Roads Adequate?
 - Cost Recovery and Subsidies for Passenger and Freight Services
 - Competitiveness of Charges in Sri Lankan Ports

This report maintains the thematic breakdown above in the discussion that follows, but presents the material in the context of the logical framework for the transport sector strategy presented in Section G of the Executive Summary. The background papers

presented at the workshop and which form the basis for this strategy are attached in a separate volume.

E. FRAMEWORK FOR TRANSPORT SECTOR STRATEGY

1.10. The transport sector strategy presented in this report is firmly embedded within the overall Government goal of export-oriented, private sector-led growth that is environmentally and socially sustainable. Furthermore, it is consistent with the World Bank Group's three-pronged country assistance strategy for Sri Lanka which is to: (a) improve fiscal discipline through expenditure and revenue reforms, increased allocations to maintenance, increased reliance on user charges, and reduction in financial losses of public enterprises; (b) support private sector development through developing institutional and policy framework for public private investment and easing infrastructure bottlenecks currently constraining private sector activity; and (c) build human capital by reducing poverty, creating an environment for private sector growth in agriculture, and increasing female participation in the labor force. (See the logical framework in the Executive Summary, section G.)

1.11 The first component of the transport sector strategy addresses issues of fiscal discipline by assisting the Government in reforming the public expenditure and budgeting process for transport. The main objective of this component of the strategy is to increase the efficiency of investments. Three actions are recommended for reform under this component of the strategy: (a) address the imbalance in the composition of transport expenditures between modes and recurrent versus capital allocations; (b) outline a plan to strengthen the capacity of national and sub-national agencies to formulate and implement sector policy; and (c) mobilize funds from other sources including the private sector and user charges and fees.

1.12 The second component of the strategy is focused on the medium term and its main objective, in addition to assisting the Government in easing bottlenecks in the sector that are constraining growth, is to make the transport sector economically and financially sustainable. The key reform actions under this component include: (a) reduce the role of government in direct provision of transport services by defining the appropriate roles for the public and private sectors, defining areas for private sector participation, and putting in place the appropriate regulations and control structures; and (b) define areas where agency restructuring, increased competition, and regulatory reform would improve the efficiency of service provision, thereby releasing resources for financing other important investments. These two policy and institutional reform actions will provide the main input to an investment plan for capacity expansion, modernization of service operations, and rehabilitation of critical infrastructure in the medium term.

1.13 The third component of the strategy focuses on assisting the Government in fostering social and environmental sustainability in transport policy. Actions under this component seek to achieve: (a) more efficient management of congestion, pollution, and

accidents; (b) integrate the needs of the poor for access and mobility in transport sector policy including the support for non-motorized and intermediate means of travel; and (c) enhance participation in transport policy formulation, planning, and implementation.

II. REORIENTING TRANSPORT SECTOR POLICY

A. THE GOVERNMENT'S POLICY AGENDA AND THE TRANSPORT SECTOR

2.1 The Government's development strategy, as outlined in the short-term policy agenda of the National Development Council and in "Sri Lanka in the Year 2000" includes a number of issues which have *direct* or *indirect* impact on policies and therefore on transport sector strategy.

2.2 Export Competitiveness and Transport. The Government would like to increase export competitiveness and encourage export development. As part of this strategy is the need to improve the productivity of the key export-earning sectors: agriculture and manufacturing. Within manufacturing the Government proposes to promote higher value added items such as garments, toys, fashion accessories, and jewelry as well as encourage entry into new and higher technology and skill-based activities such as electronic and electrical assembly and manufacture of precision engineering, parts and tools; sports goods and footwear; and scientific instruments and software. In agriculture, the objective is to also promote high value added products especially in the non-plantation crop sector. All these products have very specialized requirements for transport. In terms of land transport, they require reliable, safe, and secure services, which can be contracted on demand (for just-in-time delivery). Some products may require specialized containers such as refrigeration or special suspension for high precision goods. Connectivity among transport networks and modes is also critical to meeting such demands. This requires a transport system that functions in a seamless fashion from the perspective of the exporter. The public sector is not well-equipped to provide such services on its own. This will require an intermodal strategy with proper logistical support that is better carried out by the private sector in partnership with the public sector.

2.3 Economic Growth, Urban Development, and Port Development Strategy. The Government envisions a *direct* role of the transport sector in contributing to growth through the development of port facilities for Sri Lanka to serve as a regional trade and transshipment center. Given available projections of cargo traffic for the South Asia region, there is room for development of no more than a single hub-port. If Sri Lanka wants to become such a center, it would have to act quickly to improve the facilities and efficiency of its existing port infrastructure and services. Colombo has a natural advantage over other ports in the region: It is close to international navigational lanes providing the least cost deviations from these lanes for the main shipping lines on routes between the Far East and the Indian Subcontinent, and Europe as well as the East Coast of the U.S. However, Colombo can no longer rely on this natural advantage and needs to improve its level of competitiveness.

2.4 To make Colombo a regional hub would require, large injections of capital to modernize and upgrade facilities such as berths as well as construct supporting infrastructure such as a breakwater. Moreover, the port will need to improve its

efficiency to levels of its competitors in order to secure its markets. International experience has indicated that to achieve such a strategy requires the port authority to act as a landlord, contracting out or leasing the responsibility for operation and management of its facilities and services so that it can benefit from the higher efficiency, better client orientation, and financial discipline of the private sector. The implications for urban development of expanding the role of Colombo port under such a strategy also need to be considered. Transport sector strategy to reduce negative effects of such port development and enhance the efficiency of existing transport systems in the Greater Colombo area would need to be well-founded in a land-use strategy as well as options for traffic management and control.

2.5 Budgetary Policy and the Transport Sector. With regard to achieving and maintaining macroeconomic stability, the budgetary strategy of the Government is to increase revenues and reduce expenditures in the medium term. Since the transport sector absorbs a large share of public expenditures and transport sector agencies are major revenue earners (SLPA) or depend to a great extent on transfers from treasury (SLR), it is imperative for success of this budgetary strategy that opportunities for expenditure reduction or revenue raising within the transport sector be identified. This requires seeking opportunities for competition to reduce the cost of providing infrastructure and services, improving the efficiency of public sector agencies through restructuring and reform, adopting pricing and financing policies that are geared towards cost recovery, and managing subsidies in a more targeted and efficient way.

2.6 Competition Policy. Lack of adequate competition in transport raises the costs of providing infrastructure and services, which have direct effect on the budget. In the absence of competition, service providers have also little incentive to improve quality of services and diversify their products to meet the varying needs of consumers. For Sri Lanka to achieve the high levels of growth of its East Asian neighbors, it will be necessary to seek opportunities for introducing or increasing the level of competition in the transport sector. Barriers to entry need to be removed and public monopolies need to be challenged by allowing them to compete with private providers where possible. However, adequate regulation also needs to be developed to protect consumer and operator rights where necessary as well as to manage externalities. Such policies are needed for virtually all the transport sub-sectors to a higher or lesser degree.

2.7 Transport and the Environment. The Government has taken a number of steps to ensure that sectoral policies and growth strategies are consistent with long term goals of sustainability and environmental protection. Existing policies are targeted directly or indirectly to the transport sector. Clean Air 2000 directly targets the transport sector with objectives to reduce ambient levels of pollution in the Greater Colombo Region, including vehicular emissions which are the major source of pollution. Other policies such as siting of industries to reduce industrial pollution have an indirect impact on transport policy. The transport sector strategy will need to be aligned to environmental policy if implementation is to be successful. This point is made specifically since the Government has had a very poor record of implementing policies with respect to the

environment, despite having developed a number of action plans. Consideration for non-motorized means of travel need to be given more emphasis when dealing with the nexus between transport, poverty, and the environment as well as resolving the problems of urban pollution.

2.8 Devolution of Responsibilities and Transport. Effective devolution requires a proper alignment of fiscal and functional responsibilities as well as ensuring compliance of sub-national units of government with overall macroeconomic objectives. At present, the devolution package proposed by the Government has focused on political rather than economic and financial aspects¹⁰. Provincial councils have been given responsibilities for transport provision, including highways and bus services, with little attention to the sources of revenues to meet investment and maintenance needs, or the accountability and capacity at these levels to manage such services. Given the fiscal crisis that the country is facing, it will be important to balance the political needs for devolution of responsibilities with macroeconomic objectives. In particular, it will be necessary to put in place mechanisms to ensure that the quality of services provided at the decentralized level is not undermined, and that spending volumes at different levels of government are consistent with overall macroeconomic ceilings.

2.9 Transport and Regional Integration. The Government should search for win-win strategies that balance the different objectives of regional integration, economic growth, and environmental management if it is to use the transport sector to achieve such objectives. In the past, the Government has followed policies of industrial dispersion in order to enhance regional equity. Dispersed production centers have created high demand for infrastructure facilities, and have contributed to the increasing demand for travel. The consequences of increased travel on air pollution need to be balanced against the desire to meet environmental management objectives by reducing industrial pollution. Currently, the Government is planning to site all new medium and high pollution industries within industrial estates with adequate environmental protection measures. However, these industrial estates will be dispersed throughout the island with the explicit objective of reducing urban pressures. An assessment of the impact of such policies on the triple objectives of achieving high economic growth thereby reducing regional inequities, reducing pollution from stationary and mobile sources, and reducing regional inequities will need to be investigated. Furthermore, regional integration has been hampered by uncoordinated investments on primary, secondary, and feeder systems of roads, as well as poor coordination across transport modes. Such limitations need to be addressed to avoid duplication and waste of resources.

2.10 Transport and Poverty Alleviation. Successful poverty alleviation requires transport policies that integrate policy considerations in the formulation of transport strategies. Such policies include among other things, the best means for providing adequate and affordable access for the poor to get to work, particularly in rural and

¹⁰ Sri Lanka: Public Expenditure Review. Yellow Cover Report. World Bank. August 6, 1996.

marginal urban areas, opportunities for generating employment through the transport sector, and strategic use of transport to reduce regional disparities. At present the Government does not have an explicit strategy for a transport sector role for the rural sector and poverty alleviation, especially with regard to access and mobility. It has an implicit one deriving from the policy of dispersing economic activity. Past policies for rural transport are based on perspectives of urban transport and urban planning. Rural dwellers in Sri Lanka have restricted mobility, which further contributes to rural poverty. Furthermore, the existing system of subsidies, such as for rural bus services, is very poorly targeted. With respect to employment, the Government has not tapped the private sector's potential to generate work opportunities in the development of transport infrastructure and services. There has been very low participation of local labor in the construction and maintenance of roads and other transport infrastructure. All these issues will need to be addressed if Sri Lanka is to achieve the goals of sustainable development.

B. COVERAGE AND PERFORMANCE

2.11 The transport sector is critical to development. While it absorbs a large share of the public finances in Sri Lanka, its performance has not been adequate to meet the changing needs of the economy. Estimated requirements in the medium to long term are in the order of US\$ 15 billion per year for the sector to meet the demands of increased industrial productivity and export promotion (see Annex 2). In the short run (1995-99) the transport sector will absorb 22% of the Government's capital budget¹¹. This includes investments in ports and shipping, highways, and railways. These investments are critical as the transport sector in Sri Lanka has not performed as well as that of its East Asian neighbors that it tries to emulate, failing to meet the demands necessary for the country to sustain higher levels of economic growth (see Table 1).

2.12 Basic coverage has been good in terms of extending transport networks but existing systems are aged, obsolete, and capacitated. Sri Lanka is well endowed in terms of transport infrastructure stocks, compared to other countries in Asia and Latin America. The road network, which is the most dense in Asia, covers the country adequately. The railway network allows traffic to move to most of the major cities and production centers on the island. The transportation infrastructure stock was put in place many years ago and is outmoded and old. A large share of the 95,000 km of roads that exist were constructed at a time when mechanized practices were not known and were meant to cater to carriage and wagon traffic. They present a large expense and difficulties for modernization and upgrading to meet the demands of modern traffic fleets. The 1,450 km of railway track existing today were mostly built between 50 and 100 years ago. Rolling stock and signaling systems are so outdated that they are obsolete in manufacturing countries, making it almost impossible to get spare parts and repair them when they fail.

¹¹ Public Investment 1995-1999. Department of National Planning, Ministry of Finance, Planning, Ethnic Affairs, and National Integration. Colombo, Sri Lanka, April 1995.

Table 1: Transport Infrastructure: Coverage and Performance

Country	Paved Roads		Railways	
	Road density (km per million persons) 1988	Roads in good condition (% paved roads) 1988	Rail traffic (km per million \$ GDP) 1990	Diesels in use (% of diesel inventory) 1990
Sri Lanka	536	10	318(a)	42(a)
Malaysia	37	76
Thailand	513	50	76	72
Indonesia	160	30	..	74
Argentina	858	35	161	49
Peru	347	24	22	66(b)

Source: World Development Report 1994 on Infrastructure for Development, Table 35.

(a) Rail traffic data obtained from the Sri Lanka Railways (SLR) in 1992; GDP figures are from the World Data Tables published by the World Bank; and locomotive availability is calculated from an average of the fleet used for passenger travel and freight movements using data from the SLR.

(b) Average obtained from Peru-Strategy Paper for the Infrastructure Sectors, Report No. PE-12412.

2.13 Misguided capital investments within and across transport modes have reduced the efficiency of investments in the sector. Sri Lanka's passenger and freight transport demand are road-dependent. The country depends on the system of roads for domestic freight (96%) and passenger transport (97%), with private vehicles (including motor and tricycles) carrying a big share of passenger transport (55%). Past capital investment has not been in line with the heavier role of the road and highways sector. From the period 1977 to 1990, railways absorbed Rs 19.53 billion of the capital budget (58%), compared with Rs 10.58 billion (31%) invested roads during the same period. The Government has partially addressed the imbalance across sectors. In the 1995-99 budget, the railway will absorb Rs 19.17 billion (31%) and highways will absorb Rs 30.53 billion (50%). The high share of capital investment in rail is misleading as there is significant misclassification of operation and maintenance activities as capital.

2.14. Inattention to maintenance have further reduced the ability of the transport sector to perform. The infrastructure stocks have not been maintained due to insufficient allocations to maintenance, poor maintenance practices, and misguided decisions on investment and upgrading. The result has been very low levels of performance when compared to international best practice; only 10% of the road system is in good condition and locomotive availability is around 42% and declining.

2.15 The consequences of obsolete, congested, and deteriorated infrastructure have been echoed by the private sector. A Private Sector Assessment (PSA) survey indicates that poor infrastructure services result in high costs of transportation, reducing the competitiveness of Sri Lanka in export markets. Road condition and capacity was ranked as the most important logistical constraint, followed by port facilities, air freight, container services, and rail services (Table 2). These constraints to growth need to be

addressed in order to improve the level of international competitiveness in trade and export. Sectors that need particular attention in the short run and the roads network and facilities and services at the ports. Depending on the development of Sri Lanka's export markets, air freight may take on importance.

Table 2: Priority Ranking by the Private Sector of Transportation Bottlenecks

Bottleneck	Ranking Out of 32
Road Condition and Capacity	6
Port Facilities	19
Air Freight	23
Container Services	28
Rail Services	30

Source: Taken from World Bank, Sri Lanka-Private Sector Assessment, Report No. CE-12514, December 1994.

C. TRANSPORT DEMANDS OF EXPORT-LED GROWTH

2.16 Sri Lanka is rapidly becoming integrated into the world economy following recent reforms in liberalizing the external trade and payments regime and in deregulating foreign investment¹². While notable progress has been made in the extent of international market penetration, Sri Lanka's export base remains narrow and vulnerable to external shocks. To sustain such shocks the country will need to improve productivity and diversification of exports. International experience, as well as analysis conducted for the case of Sri Lanka, has shown that to improve productivity and encourage export diversification would require, in addition to other measures, a transport sector strategy oriented towards exports¹³. This is true for the country as a whole as well as for the regions within the country. Exports in this sense include both national production for foreign markets, as well as regional production for domestic markets.

2.17 Supporting export-led growth requires a transport infrastructure investment strategy and policy which favors regions or activities that contribute to exports and which pays attention to the demands of a changing composition of exports and widening of the export base. This means more focus on the regions contributing the most to exports and regions whose export products are growing faster, as well as increased attention to maintenance and modernization of transport facilities and services and to intermodal linkages for proper logistic support (Box 1).

¹² Country Assistance Strategy for Sri Lanka. Report No. 15633-CE.

¹³ This discussion has been mainly constructed from Evans, H. and S.H. Valverde, "Rural-Urban Linkages Associated with Export Production in Sri Lanka", Background Paper prepared for the World Bank, May 1995.

Box 1: Transport Demands of a Changing Composition and Spatial Locus of Production

The composition of exports in Sri Lanka has shifted from agriculture towards industry. Within agriculture, there has been a shift away from traditional bulk exports such as tea, rubber, and coconuts towards high value added crops including tobacco, cinnamon, pepper, vegetables, and cashew nuts. The industrial export base has also changed from a reliance on garments and textiles to a high growth in industrial goods such as chemicals, machinery, appliances, and goods processed from petroleum, rubber, and leather. Further diversification of exports is expected to continue as Sri Lanka tries to widen its export base and reduce the impact of external shocks especially in the garment and textile markets which are subject to quotas in main markets. The demands that a diversified and high value added export base place on transport systems are very different from those of a narrow base and bulk or primary products.

Contribution of Provinces to Agricultural and Industrial Exports
Value in Rs. Million

Province	1990		1993		Change 1990-93	
	Agriculture	Industry	Agriculture	Industry	Agriculture	Industry
Western	2,058	34,576	2,108	70,611	2%	104%
Central	12,057	2,260	13,095	7,769	9%	244%
Southern	4,003	1,334	4,253	4,927	6%	269%
North Western	1,751	1,667	1,984	6,812	13%	309%
North Central	132	87	543	2,286	311%	2528%
Uva	3,275	303	3,534	2,328	8%	668%
Sabaragamuwa	4,769	1,205	4,900	5,501	3%	357%
Northern + Eastern	842	69	1,201	183	43%	165%

Source: Evans, H. and Harwood-Valverde, S., "Rural-Urban Linkages Associated with Export Production in Sri Lanka, Background Paper prepared for the World Bank, May 1995.

High value added export products require reliable, secure, and speedy logistic support to be internationally competitive. This means that transport systems have to be more operationally efficient. Investing more to compensate for operational inefficiencies, as in the past, is unrealistic. What is needed is a re-orientation of transport investment and policy towards providing high quality, reliable, and well-maintained systems that can sustain the demands placed on them by a diverse product market. Measures traditionally pursued to enhance the efficiency of transport services in the direction of higher quality, reliability, and sustainability of services through reforming public enterprises and agencies responsible for transport provision have not been successful. What is needed is a well-defined public-private partnership, paying closer attention to the needs of clients and the fiscal and financial linkages between transport and other economic activities.

Such a focus requires attention not only on the Greater Colombo Region, which is responsible for about 50% of total freight movements and 54% of all exports, but on regions such as North Central, North Western, Uva, Sabaragamuwa, and Northern and Eastern provinces with export growth rates between two and twenty times higher than those in Greater Colombo.

D. URBANIZATION, ENVIRONMENTAL, AND SOCIAL SUSTAINABILITY

2.18 Urban Development Strategy. To address urban development needs in the future, the Urban Development Authority (UDA) has outlined three strategies: (a) *Concentration Strategy*. Intense development of the city of Colombo and dispersed limited development of peripheral areas; (b) *Dispersed Strategy*. Slowing down the growth of the city of Colombo and faster development along peripheral areas; and (c) *Mixed Strategy*. Development of selected activities (commerce and trade) within the city of Colombo and dispersing other activities (administrative and industrial) to outside areas. The UDA has recommended the Mixed Strategy to be the most viable, where the commercial, financial, and port related activities are encouraged within the city of Colombo with a simultaneous growth of urban centers within the region¹⁴.

Table 3: Patterns of Urbanization in Asia

Country	Urban population as % of total population in 1992	Average annual growth rate (%) of the urban population 1980-92	Population in capital city in 1990 as % of urban	Population in urban agglomerations of 1 million or more in 1992 as % urban
Sri Lanka	22	1.5	17	0
Malaysia	45	4.8	22	24
Thailand	23	4.5	57	60
Indonesia	32	5.1	17	36

Source: World Development Report 1994, Infrastructure for Development, Table 31.

2.19 International experience has shown that urban conglomerations have an important role to play in achieving high levels of economic growth. Sri Lanka's pattern of urbanization is in marked contrast with that of other developing countries. While the share of the urban population as a percentage of the total population has been similar to that of Thailand at 22% in 1992, the rate of urbanization has been much lower than in other countries¹⁵. The urban population has grown at an average annual rate of 1.5%,

¹⁴ Urban Development Authority (1995), "Revised Colombo Metropolitan Region Structure Plan".

¹⁵ The last population census in Sri Lanka was in 1981, and the 1991 census was canceled due to political unrest in the North and the East. As a result, recent population estimates have had to be based on small sample surveys at a subset of nationwide locations. Consequently their reliability is suspect. Furthermore, urban population estimates in Sri Lanka are underbounded, since urban residents spill over administrative

compared to nearly 5% in Thailand, Malaysia and Indonesia (see Table 3). As of 1992, Sri Lanka had no urban agglomeration of 1 million or more¹⁶. The mixed strategy proposed by the UDA is a solution which maintains the benefits of dispersion, such as lower congestion and pollution, while introducing some benefits of agglomeration, such as lower transportation costs due to consolidation of production and consumption centers¹⁷.

2.20 Another major difference between Sri Lanka and other developing countries is the role of Colombo (Figure 1). First, there is a major gap between the size of Colombo and the size of the next largest cities (Jaffna, Galle and Kandy). Second, Greater Colombo has seen relatively no net migration over the years. In consequence, the pressure of population growth in Greater Colombo is relatively light. Among the major factors contributing to this pattern of urbanization is the past policies of industrial dispersion and economic decentralization, which were followed in an attempt to alleviate poverty and reduce regional disparities. For Sri Lanka to ensure high economic growth as it diversifies its production base, it will be necessary that the level of productivity of the Greater Colombo area and its regional trading partners be increased. This would require developing an urban strategy that is consistent with this objective. Among the key elements of such a strategy is the resolution of the major transport bottlenecks currently impeding growth.

2.21 Existing urban development strategies have not been able to mitigate the adverse consequences of travel in the Greater Colombo Region. Despite having low population levels compared to other capital cities in developing countries, Greater Colombo has a number of transport problems. Rising incomes have contributed to a high rate of motorization, and the private vehicle has captured a larger share of the growing demand for transport (see Figure 2). In combination with deterioration in urban bus and rail services, motorization has led to large modal shifts from public transit to private vehicles. The consequences have been congestion, accidents, and pollution. Transport policy needs to balance the demands of export led growth, the process of urbanization, and the demands for higher quality of life which are translated into more reliable, safer, and less-polluting options for meeting transportation demands.

boundaries but are not counted as urban population. However, it is expected that using four indicators of urbanization taken from the World Development Report represent a good "guesstimate" of the trend in urbanization.

¹⁶ Unofficial population estimates for the Colombo Metropolitan Region for 1991 are around 5.03 million, which is larger than the country's total official urban population in the same year which was less than 4 million. The figure presented in Table 3 is taken from the World Development Report, 1994.

¹⁷ Personal communication with Prof. L.L. Ratnayake of the University of Moratuwa.

E. INSTITUTIONAL WEAKNESSES IN PLANNING AND IMPLEMENTATION

2.22 The adverse effects of transport have not been adequately addressed in Sri Lanka, mainly because of weaknesses in planning and implementation. Even when there is unanimous agreement on directions for policy and planning, and endorsement of policy plans by the administrative and political system, implementation is slow at best or rarely carried out.

2.23 A number of weaknesses contribute to the poor performance in planning and implementation: (a) existence of multiple agencies with poor coordination; (b) fragmentation of the legal authority to plan and the lack of authority to enforce agreed upon plans, causing duplication of effort and haphazard decision-making; (c) misguided control of day to day management activities causing large delays and undermining the autonomy of line-agency managers; and (d) poor alignment between planning, policy making, and the budgeting process.

2.24 There is no single body with the responsibility for the transport sector. At present there are four ministries involved in the sector: Ministry of Transport, Environment, and Women's Affairs is responsible for Rail and Bus transport and vehicle administration; Ministry of Housing, Construction, and Public Utilities for Urban Land Use; Ministry of Health, Highways, and Social Affairs for highways; and Ministry of Ports, Shipping, Rehabilitation and Reconstruction for ports and shipping. Since there is no single authority for the sector, issues requiring coordination are handled within inter-ministerial and inter-agency committees. A number of such committees have been set up to review policy, coordinate plans, and supervise implementation of specific issues. There is a committee dealing with environmental policy, there are technical evaluation committees responsible for reviewing procurement requests by the sector agencies, and there are committees set up to ensure implementation of action plans. These committees do not have adequate technical support, funding, and the general capacity to undertake major actions. Moreover, the time commitments required of the members of such committees, who are usually high level managers of line-agencies, are overwhelming. Because of such limitations, when the committees meet, they look mechanically at minutes of the previous meeting and merely pass on to the next meeting with little positive action. For example, the National Environmental Steering Committee (NESC) has met 30 times over the past three years on matters related to the implementation of Clean Air 2000. Despite such a high frequency of meetings, only 4 out of 50 actions recommended in the plan have been implemented.

2.25 Many different agencies are responsible or authorized to plan. In the urban context, for example, agencies with responsibility and authority to plan include: the UDA, local governments, and various specialized or sector agencies such as the RDA. Multiplicity of urban planning organizations without any coordination has resulted in inconsistent plans. Consider the recent plans for the Colombo metropolitan area. The UDA plan uses one definition, the Colombo Urban Transport Plan (CUTS) uses another, and the recent water conservation plan uses yet another. Furthermore, planning for

different transport modes (bus, rail, private transport) is pursued without any coordination resulting in sub-optimal use of scarce resources. Lack of coordination is also cited as being responsible for delays in mobilizing funds and in project implementation, further reducing the effectiveness of funds.

Box 2: Multiplicity of Organizations and Fragmentation of Authority in Planning

Sri Lanka has a long history of planning and the immediate need is to coordinate different planning efforts and ensure their implementation. Planning at the macro-level was initiated in 1946, by enacting the Town and Country Planning (T&CP) Ordinance. The objective of the T&CP was to assist local municipalities in adopting development control measures such as: (a) securing health, safety, welfare, conveniences, and amenities for the people; (b) increasing efficiency; and (c) maintaining equity. The Urban Development Authority Law of 1978 was enacted, setting up the Urban Development Authority (UDA). Wide powers were given to the UDA to “promote integrated planning and implementation of economic, social, and physical development of certain areas as may be declared by the Minister to be urban development areas ...” The law also authorized the Minister to make regulations. A development plan prepared by the UDA becomes a legal document once it is approved by the Minister and is published in the Gazette. As a check to centralization of power and authority within the UDA, certain functions were decentralized to the Urban Local Authorities (ULAs) and only problem cases were referred to the UDA for suitable action. In addition, there is a Board of Investment in Sri Lanka (BOI) with the task to attract private sector investment for developmental activities. Other agencies responsible for spatial planning are Special Project Areas, Subsidiary Organizations (Coast Conservation Authority, Central Environment Authority, Low Lying Reclamation Board, Tourist Board etc.). The Road Development Authority (RDA) is responsible for planning for investments in roads and often works in isolation of plans put forward by the UDA. At the national level, there is an inter-ministerial national development council that is to provide overall guidance for the economy.

2.26 Misguided controls, such as the requirement for technical evaluation by a committee of submitted proposals for funding from the line agencies, reduce the autonomy of line agency managers and delay the processes of implementation. Furthermore, due to the lack of information and technical staff to advice on key policy issues, and little or no participation of consumers in the planning and policy definition process, even well-intentioned controls and guidance have little positive effect.

Box 3: Delays in Procurement Due to Misguided Control of Line Agencies

Most often cited as a situation of misguided control are the long delays in procurement processes as a result of approvals that are needed before expenditures can be made. An example where such delays are causing acute problems is in the railway. The railway is required to have approval from a Technical Evaluation Committees (TEC) for expenditures totaling more than Rs 10 million, ministerial approval for expenditures between Rs 10 and 20 million, and Cabinet approval for expenditures more than Rs 20 million. An average spare part at the railway such as crankshafts, radiators, and gear boxes are in the order of Rs 20 million. This makes the spare parts acquisition process very lengthy resulting in even further deterioration of rolling stock and the ensuing service levels.

2.27 The planning process is not well aligned to the budget process in most of the agencies involved in planning, so there is no mechanism to ensure that the agency's spending priorities are consistent with the plan's. Furthermore, there is no formal mechanism to reconcile the various plans, such as CUTS, UDA, RDA. It is uncertain that the UDA has the legal authority to compel some key agencies, such as RDA, to ensure that its projects are consistent with the UDA's plan.

2.28 Because of all these weaknesses it is difficult to arrive at a coordinated sector strategy and ensure its implementation. There is a need for a single authority with responsibility for tactical planning for both transport *services* (bus, rail, and shipping) and *infrastructure* (highways, ports, railway track and facilities). Such an authority should have representation from concerned ministries, including urban planning, the private sector, and consumer groups. The functions of the authority should include: (a) overall planning for transport in the country with prioritization among different modes; (b) information gathering and analytic responsibility to support key policy decisions; (c) development of policy guidelines for transport infrastructure at national, provincial, and local levels; and (d) support to provincial and local levels in planning and policy implementation including providing for capacity building at these levels.

2.29 Six options for improving sector policy and planning at the national level are presented in Box 4. Discussions of the recommendations of this report indicated that evaluation of the six options was necessary before a strong recommendation can be made. Previously in the July 1996 Workshop the preferred option in the short-run was a hybrid of options 1 and 2, and in a break out session in the December 1996 Workshop, option 4 was unanimously endorsed. It is necessary that whichever option is selected be embedded in the principles of Civil Service Reform that the Government plans to undertake. Furthermore, it is imperative that the Government give legal authority to plan to the body created. This would require definition of reporting requirements by this body to the sub-committee on transport and by line agencies to this body. A mechanism to ensure that plans are enforced needs to be developed.

Box 4: Options for Improving Sector Policy and Planning Capacity at the National Level

Option 1: Strengthen the existing inter-ministerial committee for transport by upgrading the chair from the current level of the Secretary of Transport to the Minister of Transport. Members of the committee to include the three ministers in the transport sector, managers of transport agencies (SLR, SLPA, RDA/RCDC, Peoplized Buses), private sector, consumer groups and other line agencies such as UDA. A budget and the necessary technical staff should be provided for this committee. The existing Transport Studies and Planning Center could be such a technical arm.

Option 2: Create a sub-committee on Transport with the existing National Development Council. The members of the sub-committee to be drawn from the concerned ministries in transport, line agencies, private sector, and consumer groups. Plans and policies from this sub-committee to be included in the national development plan and policy statement.

Option 3: Create a National Transport Administration within the Ministry of Finance with statutory powers and high level representation. Provide this body with a budget, the legal authority to plan and enforce transport policies. Enact a law to give this body legal authority to enforce plans.

Option 4: Create a new ministry with all responsibilities from transport including shipping and ports, highways, and bus and rail services.

Option 5: Expand the scope of the National Transport Commission (NTC) to undertake responsibilities for intermodal transport planning and regulation.

Option 6: Create a Council of Ministers similar to the one for Exports to oversee intermodal transport issues.

III. IMPROVING THE EFFICIENCY OF PUBLIC INVESTMENTS

A. PLANNED INVESTMENTS IN TRANSPORT

3.1 The Government is planning to spend a total of Rs. 61 billion in the transport sector, a sum which is 22% of the total capital expenditure program during this period (Table 4). Most of the planned expenditures (Rs. 59 billion) are already committed as they are part of ongoing projects in the sector. New projects planned at RS. 2 billion during the five year period are mostly in the highway sector (Rs. 1.7 billion) and a preliminary analysis indicates that they are well justified. This means that it will be difficult to make any cuts in the planned program for transport. Moreover, given the fiscal crisis in the country, it may also not be possible to increase further the share of the transport sector in the public investment program (PIP). Improvements will need to be sought in the efficiency of public investments so that more can be accomplished with existing allocations and efforts will need to be made to attract private sector investments in infrastructure.

Table 4: Structure of Public Investments 1995-1999 (Rs. Million)

Item/Year	1995	1996	1997	1998	1999	Total
Total Capital Investment	63681	66039	56630	51486	45225	283055
Agriculture	8697	8632	6919	5230	3143	32621
Industries, Tourism & Trade	1475	1368	1966	2278	1406	8487
Human Settlements	10622	9705	8959	6776	5048	41110
Power & Energy	4777	9204	8076	6591	5904	34552
Posts & Telecom.	4069	1850	850	253	294	7316
Recons. & Rehabi.	1049	1203	1003	1003	1004	5262
Ports & Shipping	4438	5026	216	1222	846	11748
Railway	4215	4448	3693	3407	3403	19166
Highway	5785	6937	6797	6058	4952	30529
Social Infrastructure	7543	8425	8548	8685	8842	42043
Administrative Overheads	11011	9241	9603	9983	10383	50221
Total Transport	14438	16411	10706	10687	9201	61443
Share Transport (%)	23	25	19	21	20	22

Source: Department of National Planning

B. PATTERN OF PUBLIC EXPENDITURES IN TRANSPORT

3.2 Expenditures in the transport sector have been growing in current terms between 1981 and present, from about 6% of the PIP in 1981-85 to about 22% in the PIP for 1995-1999. As a share of GDP, however, there was a sharp decline in the PIP for 1989-93 from about 3% in the 1980's to 1.6%. The highest level of investments in transport as a share of GDP was in 1986 were it was close to 5% of GDP, when major expenditures in ports and airports were undertaken (Figure 3). Since it is difficult to compare countries

with highly varied modal¹⁸ mixes, cross-country comparisons of investments as a share of GDP are not particularly helpful. A more meaningful comparison is between the ratio of expenditures in transport to GDP and the growth in demand for transport¹⁹, as measured by the passenger and freight kilometers of travel. Such a comparison has the potential to identify major bottlenecks, if they exist. Growth in demand for transport has far outstripped the growth in per capita GDP (Figure 4). It appears that this high growth in demand has not been appropriately accommodated by past investments as transport infrastructure at present is characterized by capacitated and antiquated facilities such as roads, bridges, terminal facilities, railway track and signaling systems, and facilities at ports and airports. Given that the spending levels have been historically high, the poor performance of the sector must be due to misdirected and inefficiently implemented investments.

C. COMPOSITION OF TRANSPORT EXPENDITURES

3.3 Sectoral Composition. The allocations in the 1995-1999 period give priority to the highways and railways subsectors (Table 5). The bulk of the expenditures planned are for the highway (Rs. 31 billion, 50% of the capital expenditures in transport) and railway (Rs. 19 billion, 31% of the capital expenditures in transport) subsectors. Using historical figures, these sectors appear to have had minor but steady increases in capital investment in the past (Figure 5). However, there are a number of anomalies in the classification of road and railway expenditures, which when corrected for, indicate that there may have been a reduction in the capital investments to roads and rail.

	1995	1996	1997	1998	1999	Total
Ports shipping	31	31	2	11	9	19
Railways	29	27	34	32	37	31
Highways	40	42	63	57	54	50

Source: Calculated from Expenditure Data from the Department of National Planning

3.4 Modal Balance. The Government seems to have addressed the past imbalance in the investments allocations across modes. In the 1980's more was invested in railways relative to the other sectors. The planned investments in the 1995-99 budget indicate a switch in policy, giving more priority to highways. This trend is more in line with the demand shares between rail and highways and should be continued. Projected

¹⁸ Modal mix includes the relative share of passenger and freight transport carried by roads, rail, ports and shipping, river transport, and air.

¹⁹ The demand for transport across modes will be affected by the relative prices charged by each mode. For the purposes of this analysis, it is assumed that there has been no change in the structure of pricing across modes during the period of analysis.

demand for transport investments to support a private sector oriented export led growth strategy suggest an even further change in the modal allocations as shown in Table 6. It must be noted again that the practice of misclassifying maintenance and repair activities as capital makes it difficult to get a real estimate of the actual capital expenditures especially for the railway. It is necessary to first establish the extent to which this practice has been used in the past and the relative ratio of misclassified expenditures before a final estimate of the balance across modes can be done. This is an area requiring immediate action to avoid further decapitalization.

Table 6: Modal Balance in Capital Investments in Transport

Sector	Actual (a) 1977-90	Planned (b) 1995-99	Projected (c) 2000-05	Projected (c) 2006-20
Railways	58%	31%	20%	20%
Highways	31%	50%	67%	65%
Ports & Shipping	11%	19%	13%	16%
Total	100%	100%	100%	100%

(a) Calculated from Transport Studies and Planning Center data base

(b) Calculated from Expenditure Data from the Department of National Planning

(c) Estimated using existing conditions and unit costs (see Annex 2)

3.5 Recurrent Versus Capital Expenditures. Insufficient resources have been allocated to maintenance in the past and even when allocations have been made, maintenance funds have been diverted to meet other expenditures. The ratio of recurrent to capital expenditures has been falling over the last six years (Figure 6). Looking more specifically at the road sector, there have historically been large fluctuations in the allocations to maintenance, with 1986 being a particularly bad year. Part of the reason for the low allocation to maintenance of roads in 1986 is due to the very high expenditures in ports and airports, which absorbed a large share of the capital budget. Cost overruns in the execution of road projects that were donor financed led to diverting of the maintenance budgets that had been allocated to meet the requirements for counterpart funds.

3.6 Neglect of routine and periodic maintenance has caused gradual deterioration of bus and rail services both in terms of quality and quantity, making it difficult to raise revenues through higher tariffs, as users have resisted having to pay more for increasingly deteriorated services. Furthermore, the highly deteriorated road and rail infrastructure, due to maintenance neglect, have required expensive rehabilitation. These two effects have put further strain on the Government budget. Major improvements in the efficiency of implementing public expenditures, in addition to solving the O&M problem, would be needed to redress these issues. Most importantly, the Government needs to increase recurrent expenditure allocations for maintenance, and put in place mechanisms to protect such funds. As mentioned in the Executive Summary, the Bank's experience has shown

that a road fund is a good way to deal with the problems of maintenance in the short run. There are advantages and disadvantages to road funds as shown in Box 7.

Box 5: Has there been sufficient allocation for maintenance in the road sector?

Based on international comparisons (see Heller, 1977), the optimal ratio between maintenance and capital expenditures in roads should be between 0.06 and 0.14. A historical analysis of the allocations made for maintenance and capital investments shows that this ratio for Sri Lanka for the national network has been as high as 0.46 in 1989 and as low as 0.07 in 1995, and that it has been on the decline since 1989. The situation on the National Network is generally better, since the R-ratios there have been systematically high, falling between 0.06 and 0.07. This means that the allocation between maintenance and capital categories for the sub-national network is the area in which reforms need to focus.

Expenditures in Roads 1980-1995
Rs. Million

Sri Lanka Expenditures	1980	1986	1990	1995
Recurrent	123	2.34	124	150
Capital	407	775	2127	2282
R-Ratio Whole Network	0.30	0.003	0.06	0.07
R-Ratio National Network		0.46(a)	0.19	0.07
Comparator R-Ratios	1986	1989	1990	1993
Peru R-Ratio	0.63	0.0001	0.68	0.14

Source: TSPC, 1994 and RDA Accounts (a) Figure for 1989

A cursory look at the R-ratio in Sri Lanka may lead to the conclusion that sufficient allocations have been made to maintenance. However, two factors mask the real effect. First, the high figure for this ratio in 1980 is due to the past maintenance neglect which necessitated expensive reparative works to keep the road system passable. A similar pattern has been observed in other countries which have neglected maintenance in the past and have gone through a cycle of expensive rehabilitation to maintain the network. See the case of Peru in the comparison above. Second, unit costs of maintenance, rehabilitation and construction in Sri Lanka are very high, in comparison with other countries. The lack of competition in the execution of road works for the domestically funded program may be a contributing factor.

Box 6: Misclassification of Expenditures Between Capital and Recurrent Items

Consider for example an itemized allocation in 1996 to the railway under an expenditure code titled "Rehabilitation and Improvements of Capital Assets". More than 40% of the expenditures listed under this item are not capital expenditures, but have been included under the capital budget. Similarly for the case of expenditures in roads. The classification of expenditures made by the Road Development Authority between 1980 and 1990 have not been consistent with respect to what is labeled capital investment. For example, routine maintenance and flood damage repair have been treated as capital²⁰. Some of the consequences of such misclassification are:

- while the railway has received large capital transfers its stock is old and has not been replaced or received major rehabilitation, modernization, and upgrading
- operational deficits of the railway seem to have stabilized when in reality they have been escalating
- roads are in bad condition (only 1,000 km have been rehabilitated) despite having allocated large sums in the capital budget for roads

Railway: Rolling Stock-Rehabilitation and Improvement of Capital Assets

Item	Allocation in Rs. 1996
Actual Capital Allocation	650,000,000
Total Misallocated Expenditures	265,080,000
Misclassified Proportion	41%

Source: Calculated from SLR 1996 Allocation from the Capital Budget. Misallocated items including expenditures such as overtime Sunday pay, uniforms, office furniture, and other incidental expenditures. For more detail see the aide memoire for the Public Investment Review for Sri Lanka, 1996.

This misclassification raises a number of issues. It appears that operational subsidies are hidden by covering current expenditures in capital budgets especially in the case of railways. It would be important to check the handling of capital and recurrent expenditures in the other transport sectors, to determine the breadth of the problem. The picture the broad capital budget in the transport sector gives is one of replenishment and expansion of capital stock, while the reality seems to be asset deterioration and diminished ability to meet demand. With respect to the recommendations concerning recurrent versus capital allocations, there is a need to recalculate the real capital and recurrent needs based on a proper classification, before one can make an assessment of whether the current ratios are optimal. There is a need to rectify the existing system of classification, especially for the railways, to avoid further decapitalizing of the system and to prevent a future crisis in the recurrent budget.

²⁰ This problem was first pointed out in the Transport Sector Memorandum for Sri Lanka in 1990, Report 8962-CE in the case of the road sector. A recent mission discovered that the problem was not limited to roads but was also practiced in railways. The last public investment review found that the problem in the road sector had not been addressed despite having been raised several times.

Box 7: The Case for and Against a Road Maintenance Fund in Sri Lanka

Road Funds are a form of earmarking whereby revenues raised from gasoline taxes, motor vehicle fees, tolls and other road user specific charges are allocated to specific activities related to roads such as maintenance. There have been many arguments for and against the use of road funds some of which are summarized below.

Advantages

- 1) Suitable for raising new sources of revenues for road maintenance as users know what funds will be used for and will hence be more willing to pay.
- 2) Protect road maintenance activities against politicized and unreliable allocations from the central Government, thus avoiding periodic haggling over levels of funding, avoiding deferral of needed maintenance.
- 3) Channel additional funds and regularize the flow of funds for road maintenance to an agency that has maintenance as its primary responsibility.
- 4) Greater stability and continuity of funding for maintenance may lead to lower costs of long-term maintenance.
- 5) Increases the chances for cost recovery in the road sector when the types of charges used to finance the road fund are directly linked to the level of usage, damage, and hence maintenance.
- 6) Eases the task of functional and locational decentralization as revenue raising activities are closer to the immediate beneficiaries (the road users in a particular province or district).
- 7) Improves the efficiency of revenue collection and sharing schemes between central and local governments for road maintenance activities.

Disadvantages

- 1) Taxes levied on road users (e.g., fuel and vehicle taxes) are an important source of general revenue and it is difficult to dissociate user charges from general taxes. Hence the major benefit of earmarking which is to link benefits to taxation is not realized.
- 2) Does not allow period by period economic allocation of resources leading to allocative inefficiencies with too much being given to road maintenance and not enough to others under budgetary pressures.
- 3) Hampers the effectiveness of budgetary control especially when provisions for the road fund are embedded in statutes that cannot be easily overridden.
- 4) Infringes on the powers of the legislative and executive powers of Government.
- 5) Impart inflexibility in the budgetary process in that changes only come with a lag and original levels of the road fund may continue after their usefulness has been served. This is especially a problem as maintenance needs tend to be cyclical depending on the cycle of usage and damage.

D. DEVOLUTION AND THE CAPACITY OF SUB-NATIONAL AGENCIES

3.7 Capacity of Sub-National Agencies. A good share of the planned investments for highways in the 1995-99 PIP will be at the provincial level, given the decentralized structure of road provision. The Government is planning to allocate Rs. 600 million per year over the five year period to the provinces for the road sector. This figure is within the range of amounts allocated in the past which were about Rs 530 million in 1991 and Rs. 939 million in 1992. In the post-devolution period, expenditure by the Provincial Councils are not readily available for overall comparative purposes and data have to be laboriously collected from different agencies and sorted out. This makes it difficult to get an exact estimate of the share of expenditures at the sub-national level. Furthermore, provinces have many sources of funds that they use in the road sector and it is not easy to consolidate the various sources of information. Nevertheless, an attempt was made to reconstruct expenditure levels from past information to get an idea of the share of spending at the sub-national level (see Table 7).

Table 7: Financial Allocations to the Road Sector by Source

Funding Source	1991		1992	
	Allocation Rs. Million	Share (%)	Allocation Rs. Million	Share (%)
Consolidated Fund	1768	57.9	1582	40.6
Foreign Aid	751	24.6	1379	35.4
Capital Grants (MTIP)	191	6.3	533	13.6
Block Grants	103	3.4	103	2.6
Criteria-Based Grants	150	4.9	225	5.8
Decentralized Budget	61	2.0	66	1.7
Integrated Rural Development	28	0.9	12	0.3
Total	3051	100.0	3900	100.0

Source: Consolidated from Sri Lanka: Road User Charges Study, Transport Studies and Planning Center, January 1993.

3.8 Provincial councils have access to a number of funds which they use for financing expenditures in roads. These include: (a) capital grants to provincial councils for implementation of the Medium Term Investment Program (MTIP) from the Ministry of Health, Highways, and Social Affairs; (b) block grants for recurrent expenditure on devolved functions which provinces get from the Ministry of Public Administration, Provincial Councils and Home Affairs; (c) criteria based grants to the provinces for capital expenditures which are allocated by the Ministry of Public Administration, Provincial Councils and Home Affairs using a formula which takes into account population and selected indicators of economic differences; (d) decentralized budget funds given to members of parliament for expenditure in their areas; and (e) funds from special projects such as integrated rural development projects. In 1991, around 18% of road expenditures were made at the sub-national level. This figure increased to between 24% in 1992 as shown in Table 8.

Table 8: Expenditures on Roads by Levels of Government

Category	1990	1991	1992
Total Expenditure	1,972	3,051	3,900
Provincial Level	0	532	939
Provinces Share	0%	18%	24%

3.9 The capacity of the sub-national units of government to undertake road works is a key issue. Provincial and other sub-national agencies have not been able to implement the expenditure program they had planned in the past. Evaluation of the expenditures allocated versus actually implemented shows that there has been systematic under-expenditure at the sub-national level. Measures will be needed to improve the effectiveness of transport expenditures at the sub-national level.

E. REVENUE GENERATION AND SUBSIDIES

3.10 Improvements in the capacity to generate revenues from the users of the transport sector would allow the Government to tap other sources of financing the planned expenditure program, thus relieving the strain on the budget. At present, the system of tariffs at the port is complicated and uncertain such that shippers do not know the prices they face in advance. A restructuring of the tariffs at the port and reducing payments of "sweet money" would be a potential source of revenue to meet the planned investments for the port subsector. In the case of roads, results from a road user charges study indicate that the current system of charges is unfair across categories of vehicles, with a possible underpayment by larger vehicles relative to the level of usage and damage that they cause on road pavements. Furthermore, there seems to be an abuse of the current system of reduced fees for school and commercial vans resulting in a loss of potential revenue and a mis-targeting of the subsidies to school children. Private vehicles can obtain a certificate from the Motor Registry as a school or commercial van since there is weak enforcement to check whether a van is being used for school and commercial purposes. Bus fares also need to be regularly raised to ensure that tariffs keep up with inflation and changes in cost structures. In the case of rail, there is no relationship between prices charged for rail services and the cost to the SLR for operating a given service. This is mainly because of the social and political obligations that the railway is required to meet. There is a need to define Public Service Obligations (PSO) and develop contracts between the SLR and the Government to meet such obligations. These issues are dealt with in more detail in Chapter IV.

F. RECOMMENDATIONS TO IMPROVE EFFICIENCY OF PUBLIC INVESTMENTS

3.11 The following actions would be needed to improve the effectiveness and efficiency of the planned investments in the Transport Sector:

Resource Allocation

- identify the *key competencies* of each transport mode and set investment priorities for the transport sub-sectors to be in line with the objectives of a private sector led export oriented growth strategy
- improve the *modal balance* in the public investment program for transport, focusing on the neglected areas in the road and rail sub-sectors and giving priority to improving the efficiency of the port of Colombo so that the transport system can function in a seamless fashion from the perspective of an exporter
- define and adopt the appropriate classification scheme for recurrent and expenditure categories across all transport budgets to stop further decapitalization of the asset base
- restructure budgetary allocations between *capital and recurrent* categories to ensure that maintenance is properly funded

Revenue Generation

- mobilize funds from other sources including the *private sector* by putting in place policies and incentives conducive to private sector participation
- rationalize the system of *rail tariffs* for both passenger and freight to increase revenue generation from users and reduce the dependence of sector agencies on treasury to meet their recurrent costs needs
- reform the system of *road user charges* to make them meet the revenue needs especially for the larger vehicles, as the current structure cross-subsidizes large vehicles
- restructure the system of *subsidy allocations*, especially for school bus operations so that the budget currently allocated to transport subsidies is better targeted
- raise *bus fares* to put the prices of service in line with inflation and changing cost structures

Implementation

- develop *capacity at the provincial level* for planning and policy implementation in order to ensure that the budgets are prepared consistently across levels of government
- strengthen the capacity of provincial and local authorities to undertake their *decentralized responsibilities* so that the effectiveness of expenditures at the sub-national level is not compromised
- create a body to be responsible for transport sector strategy formulation, and that will ensure that urban development and intermodal planning are integrated into transport sector strategy formulation

- reform tendering and project approval process to reduce delays in implementation and cost overruns and create a permanent agency for tendering and project approval
- create mechanisms to protect maintenance funds, such as a ***road maintenance fund*** to: (a) undertake routine and periodic maintenance but not capital and major works; (b) be financed from a share of road user charges but should not include charges from congestion or pollution abatement; (c) be managed by a well-designed Board with representations from users, local authorities and other stakeholders, to prevent diverting of funds allocated to maintenance and to ensure that the roads maintained are priority roads; (d) have a finite life with a well-defined set of sunset monitoring criteria; and (e) have controls in place to avoid opportunistic and gaming behavior among stakeholders
- undertake ***emergency rehabilitation and maintenance*** program to halt the deterioration and traffic loss on the railway line, and hence reduce long-run recurrent budget needs
- strengthen the capacity of the BOI to handle private sector investments in transport, including those that are intermodal in nature

IV. ECONOMICALLY AND FINANCIALLY SUSTAINABLE DELIVERY OF TRANSPORT INFRASTRUCTURE AND SERVICES²¹

To be economically and financially sustainable, transport must be cost-effective and continually responsive to changing demands. Competition, facilitated by regulatory reform to enable private firms to enter and exit the market more freely, forces transport suppliers to respond to users' needs at lower costs. Charges for use of infrastructure and services that reflect the full cost of that use to society are necessary for market signals to be meaningful. The commercialization of remaining public sector firms is also necessary for economic and financial sustainability.

Sustainable Transport: Priorities for Policy Reform. The World Bank, 1996.

A. ROLE OF THE GOVERNMENT IN TRANSPORT

4.1 The Government has a major role in the transport sector in Sri Lanka. Public enterprises are responsible for direct provision of road, railway and port infrastructure. There is no private provision of *infrastructure*. In the case of roads, provision responsibilities are decentralized, with the Road Development Authority (RDA), provincial councils, local authorities and estate sector sharing ownership and responsibility for the network (see Table 9). Ports are the sole responsibility of the Sri Lanka Ports Authority (SLPA).

4.2 In the case of transport *services*, the role of the Government in direct provision is more limited, with the exception of railways, which are in the hands of the Sri Lanka Railways, a Government Department. Urban bus service provision is shared between quasi-public (44% of passenger km) and private (66% of passenger km) companies. The quasi-public companies are called "Peoplized Companies" after the manner in which the former assets and responsibilities of the State Owned Monopoly--the Ceylon Transport Board (CTB)--were transferred to former employees free of charge. The state retains a 50% share in the peoplized companies. Road freight is almost entirely in the hands of the private sector with the exception that some state owned enterprises provide their own transport. Shipping was formerly the monopoly of Ceylon Shipping Company (CPC), until liberalization allowed entry by other national, international, and joint venture companies.

²¹ Most of the issues and suggested recommendations in this section come from a joint workshop held by the Government of Sri Lanka, UNDP, OECF, ADB, and the World Bank to discuss sector strategy. There was broad representation from within the country of the stakeholders in transport including the private sector. In preparation for the workshop, background papers were prepared. These papers dealt in detail with key issues and appear in Volume II of this report.

Table 9: Market and Regulatory Structure in Transport

Sector	Ownership	Competition	Regulatory Structure
Road Infrastructure	Decentralized structure of ownership with 10,974 km of national roads under the responsibility of the Road Development Authority (RDA); 14,900 km under provincial councils; 68,000 km of local authority, estate, and irrigation roads	No competition in the provision of roads but there are plans to construct an express toll road.	Plans are prepared by RDA and RCDC, who also set prices for carrying out works on the roadways, and determine priorities for investment. There is legal authority to coordinate plans with other agencies such as UDA but it is not applied.
Road Construction and Maintenance	Responsibility for construction bid preparation, award, and supervision under the Road Development Authority	Market power held by RCDC, wholly owned by the RDA, accepts work according to an agreed schedule of rates and sub-contracts 88% to private contractors. Virtually no competitive bidding except for foreign financed work.	Subject to Government Audit but RDA operates its own accounts, favorable credit terms for equipment purchase
Urban Passenger Services	Peoplized (44%) and private (66%) companies in competition. Peoplized companies are 50% owned by the public sector and 50% by former employees of CTB.	Free entry and open competition in most routes with the exception of routes with social service obligations.	Regulation of tariffs, little enforcement of safety standards. Responsibilities for permits/licenses, safety regulation, and prices duplicated between NTC, Provincial Councils, CTB.
Railway	Sri Lanka Railways (SLR) a Government Department	No direct competition but intermodal competition with road passenger and freight transport and coastal shipping	Tariffs, hiring and firing, investment, and even procurement decisions
Ports	Sri Lanka Ports Authority a State Owned Autonomous Agency	Monopoly over all port activity	Safety & environment regulation, approval of tariff increases
Shipping	State owned CSC, smaller companies operating one or two vessels, Mercantile Shipping-joint venture with equity participation by a German Company	Liberalization in 1989 allowed competition between domestic and national liners for shipping cargo	Safety and environmental pollution are regulated and standards are enforced

4.3 There is not much competition in the provision of *infrastructure*, but competition exists in the provision of transport *services*. There is direct competition between public and private bus companies as well as among private bus operators for the provision of urban and intercity passenger services. Effective competition also exists between private trucks for provision of freight transport services. Intermodal competition exists between road and rail for provision of freight and passenger services. Also, private automobiles (including motorcycles and three wheelers) compete for road space with public and privately operated buses. On the infrastructure side, the construction and maintenance of roads is controlled by the RCDC, which is a fully-owned subsidiary of the RDA. The RDA organizes road works for the Ministry of Health, Highways, and Social Affairs. It is responsible for preparing plans, bidding documents, contract awarding, and works supervision. Road work contracts are handed by the RDA to RCDC according to an agreed Schedule of Rates. The RCDC contracts out about 70% of its work, from RDA, to private sub-contractors. RCDC is also active in planning, design, and management functions related to roads, and has an information advantage over the private sector. Aided by favorable credit terms, the structure of providing road works has retarded the development of domestic contractors.

B. COMPETITION IN THE PROVISION OF ROAD INFRASTRUCTURE²²

4.4 In the case of roads, the primary concern is the ability of local contractors to compete for road maintenance and rehabilitation contracts. The RDA/RCDC has been steadily increasing the portion of its maintenance projects that are contracted out to the local construction companies. The RCDC has assisted a number of private sector contractors in undertaking rehabilitation works, especially in the Colombo area. The portion of maintenance funding contracted out has increased from none in 1987 to 88% in 1995, and the RDA has set a target of 100% for the year 2000 but it is not likely that this will be achieved, unless important changes are undertaken²³. The role of the RCDC would need to change as the private sector contractors gain more experience and grow (see Box 8).

4.5 At present, the local construction industry cannot compete for major rehabilitation projects and major reconstruction which are carried out primarily by foreign contractors. Private local contractors have little capacity to perform mechanized works, and have little experience in handling complex works. A number of factors prevent them from investing in equipment and machinery: (a) the presence of a dominant public sector agency (RCDC) with preferential access to information, equipment, and expertise; (b) high

²² The background material in this section derives from the following papers presented at a Workshop in Colombo, June 1996. Munasinghe, E.I., Advisor to National Construction Contractors Association of Sri Lanka. "Towards a Better Image of Road Construction Contractors"; Abe, H., OECF, "Recommendation for Restructuring Road Agencies in Sri Lanka"; and Norman, A., ADB, "Development of a Local Road Construction Industry.

²³ Taken from a presentation by M.B.S. Fernando, Chairman of the RCDC, Colombo, June 1996.

interest rates for borrowing to purchase equipment; (c) difficulty obtaining spare parts for equipment and limited experience with managing large machinery; and (d) lack of continuity in works which makes it risky for the private contractors to take on large risks in upgrading their equipment and labor force skills mix²⁴. RCDC on the other hand, in addition to the preferential access to information, has access to generous credit for equipment purchase, as well as the possibility for deficit financing. Most of the heavy construction machinery in the country, is owned by RCDC and is available for lease to private contractors.

4.6 High Costs of Road Provision. Among the consequences of lack of competition are the high costs of provision. Unit costs to perform major rehabilitation, periodic maintenance, and routine maintenance in Sri Lanka are very high compared to international standards (such as those in Latin American countries) as shown in Table 10. A number of factors contribute to this high cost: (a) insufficient competition for works; (b) favorable credit terms and ability to finance the deficits of RCDC which does not give it incentives to reduce costs; and (c) lack of sufficient control over the spending by RCDC and RDA. In the face of a growing fiscal deficit, it is imperative to seek efficiencies in provision of infrastructure. Since the road sector absorbs a big share of the public expenditures in transport, introducing competition for the provision of road works can result in substantial savings, allowing the Government to meet many more of the needs in the sector without raising expenditure levels.

Table 10: Comparative Costs of Providing Roads
(\$/km)

Activity/Country	Sri Lanka(a)	Peru(b)	Argentina(c)
Major rehabilitation	250,000	154,000	87,000
Periodic maintenance	36,000	25,000	18,000
Routine maintenance	405(d)	2,500	3,400

Source: (a)Data for National Road Network only from the Road Development Administration (RDA), Sri Lanka; (b) Peru-Transport Rehabilitation Project, World Bank 1993; and (c)Argentina-Survey of Provincial Agencies in the Road Sector, 1995. (d) The low figure for unit costs of routine maintenance in Sri Lanka is due to definition, as it is calculated as the ratio between allocations made to the RDA for maintenance divided by the length of the national network. Costs obtained from an analysis of actual bids are in the order of \$/km 6,000, as reported in a project preparation report for the National Roads Project, World Bank, 1994.

4.7 Increasing the degree of competition in the provision of roads has the potential to reduce the costs, generating savings that can be used to rehabilitate more roads. It is necessary to assist the local construction industry to improve their capacity and efficiency so that they can compete effectively. This would require restructuring the way in which the RCDC interacts with the RDA in the conduct of road maintenance works, an issue addressed in the following section.

²⁴ Factors (b) through (d) from a presentation by Patrick Jayawardena of Link Engineering, Colombo, June 1996.

4.8 Increasing the proportion of maintenance and rehabilitation work done by local contractors has several potential advantages for Sri Lanka. First, it increases the local value-added from these projects, and thereby stimulates domestic economic growth. In addition, local contractors, using local talent and labor, have the potential to be more cost-effective. This has to be weighed against the advantage of international competitive bidding, which offers the possibility of reducing construction costs of the project and introducing new technologies.

4.9 There is general consensus in the country about what needs to be done, but not necessarily how and at what pace. In particular, the consensus is that the Government and donor agencies that often finance these projects need to:

- prequalify local contractors for International Competitive Bidding (ICB) and Local Competitive Bidding (LCB) conditional on having access to management advice and the equipment holding of the RCDC
- package contracts at a scale and scope suitable for the typical Sri Lankan contractor
- design contracting programs to ensure reasonable continuity in the work for the contractors
- provide training for contractors particularly in the use of machinery
- provide guarantees for a private leasing company to acquire machinery
- modify prequalification criteria so that contractors have an opportunity to gain experience
- extend mobilization and advances to contractors

Box 8: Project Based Development of a Contracting Industry

The private contractors, when given the opportunity, as in recent ADB and WB financed projects, have performed well. Under an ADB assisted Third Road Improvement Project, there is a large component for work by local contractors. Construction and supervision are by an association of international and local consultants who also provide construction management advice. Contract packaging is of a size and nature to suit the limited roadwork experience of local contractors. Contractor prequalification is based upon ICTAD registration and, for phase 2 contracts, on phase 1 performance. The project also provides mobilization advances to encourage contractor investment in equipment. This approach gives the industry the incentives to perform well and to increase their capacity, and have also proved successful elsewhere in South Asia.

Source: Andrew Norman, Asian Development Bank, "Development of a Local Road Construction Contracting Industry", presented at the Transport Sector Strategy Workshop, Colombo, July 3-5, 1996.

4.10 Sri Lanka now has a reasonable number of local road contractors, partly due to the efforts of the RDA to increase maintenance contracting. Thus, there is a foundation for effective competition in the bidding for works, particularly for jobs which are not overly

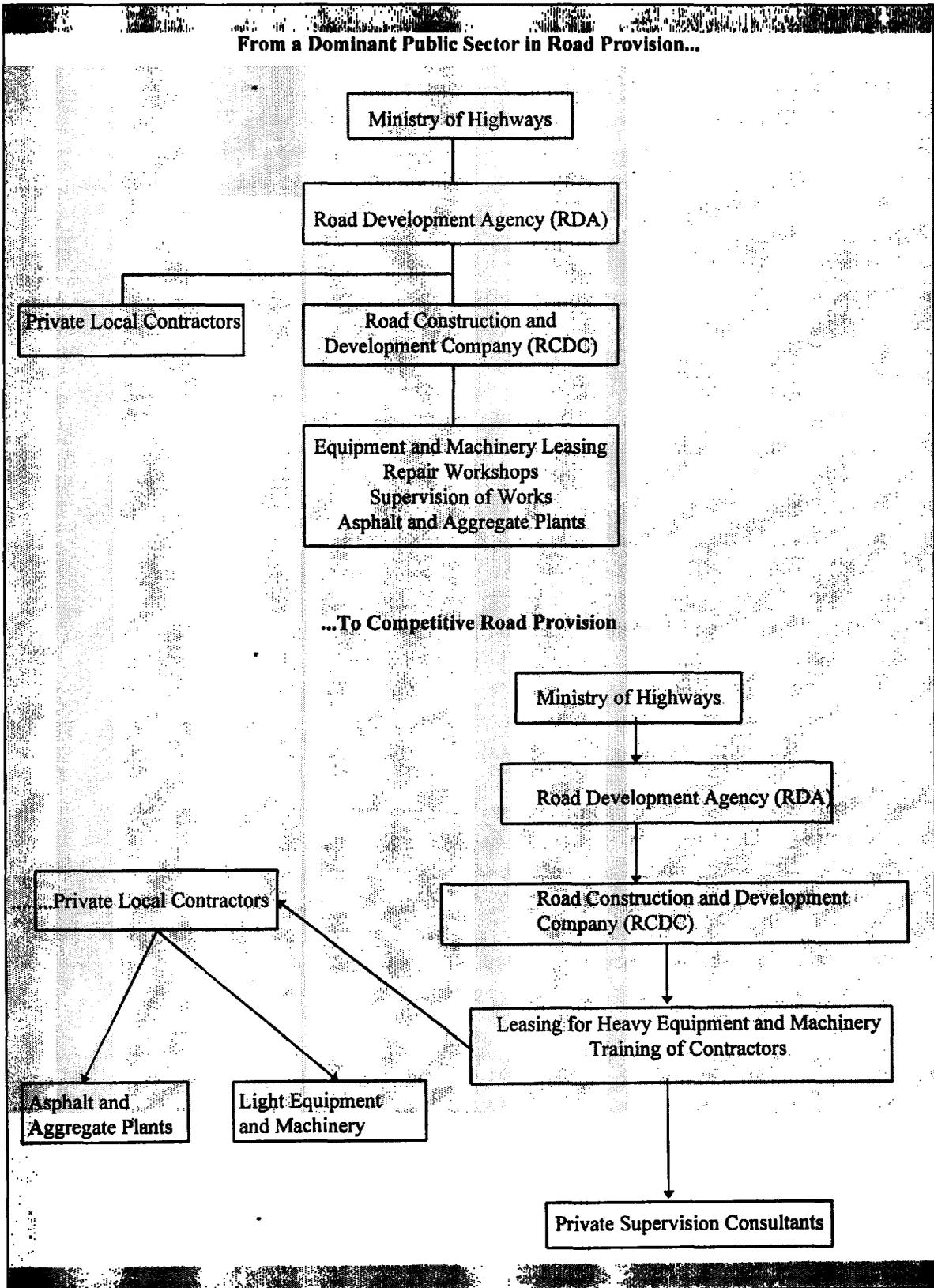
complex or large. Two qualifications are noted to this conclusion: (a) there is some sentiment among the construction industry that it would be unwise to increase the number of contractors so that firms already in the business could gain more needed experience and skills; and (b) it is doubtful whether local contractors have reached sufficient scale or sophistication to purchase and maintain their own heavy equipment. Two options exist to resolve this problem: to centralize the equipment fleet in the hands of the RDA and let the RDA lease it to the private contracting industry and the RCDC on equal access basis; or to create a special private equipment leasing company for that purpose. The Association of Contractors is willing to create a private leasing company if it can obtain conditions for borrowing similar to those of the RCDC. Recommendations for reform of the sector from a state dominated one to a competitive environment with opportunities for growth of the private contracting and consulting industry is shown in Box 9.

4.11 In the proposed structure in Box 9, the private contractors and the RCDC will be at the same level, equally treated and allowed to compete with each other. There should be an independent regulator to handle competitive bidding for maintenance and RDA should monitor the work according to standards laid down by them, using private supervision consultants selected on a competitive basis. There should be separate managers for the RDA and RCDC to maintain independence of the two entities.

4.12 The Government has already taken action to implement some of the recommendations in the proposed structure in Box 9. Following a Cabinet Decision on October 16, 1996, road improvement contracts are to be awarded following competitive bidding between the RCDC and other contractors, after calling for open quotations using normal tender procedures. The RDA is to stop giving any road improvement contracts to the RCDC without such competitive bidding²⁵.

²⁵ Cabinet Paper 96/2194/120/210, a Memorandum dated 20.09.1996 by the Minister of Health, Highways, and Social Services on "Approval of Estimates--Widening and Improving Seduwa-Udugampola Road: 0.2 km" was considered along with the observations of Minister of Finance and Planning and approval of the Cabinet of Ministers was granted to the proposals in the Memorandum, subject to normal tender procedures being followed in this type of projects in the future. Action by Ministry of Health, Highways, and Social Services.

Box 9: Opportunities for Growth of the Private Contracting and Consulting Industry



C. STRATEGY FOR REFORMING THE PORTS AND SHIPPING SECTOR²⁶

4.12 The port and shipping sector has made significant contributions to the economy of Sri Lanka in the past. Being an island nation, the ports of Sri Lanka are virtually astride some of the world's busiest shipping lanes. Close to the international navigation lanes, the country's ports provide the shortest and least cost deviation from these lanes for the main shipping lines; on routes between the Far East and the Indian Subcontinent, and Europe as well as the East Coast of the U.S. Because of these advantages, the country currently enjoys substantial and expanding port activities both for import-export and for transshipment of cargo with origins and destinations in other countries served by vessels calling at its ports. The import-export volume is a function of the growing Sri Lanka economy, while the transshipment business is responsive to the competitiveness of its port facilities within the region's burgeoning shipping operations.

4.13 Role of the Port of Colombo. Sri Lanka currently accommodates ocean shipping at three ports, namely: Colombo, Galle, and Trincomalee. The major volume of present port facilities and activities is at Colombo Port. Cargo throughput at Sri Lanka's ports reached 18 million tons in 1994, with Colombo port handling about 16.1 million tons (89%), while the port of Galle handled about 0.3 million tons (2%), and Trincomalee handled about 1.65 million tons (9%). Of the mentioned throughput at Colombo, 7.9 million tons was domestic cargo, 7.8 million transshipment cargo, and the rest was coastal trade. Almost all the container traffic is handled at Colombo port which reached 0.972 million TEUs in 1994, with 70% transshipment containers (0.666 million TEUs). This is expected to increase to 1.2 million TEUs after the addition of JCT IV to the operating berths. The Government should focus on the port of Colombo in its efforts to transform the country into a major transshipment and regional hub. Domestic cargo can be handled at the ports of Galle and Trincomalee.

4.14 Critical to transforming Colombo into such a hub is improving its ability to capture demand. Despite its geographical advantage, Colombo has not been able to capture as much transshipment cargo compared to other major ports (Table 11). While Colombo's throughput grew only by 8% in 1995 over 1994, Singapore increased their throughput by 13.5%, and Dubai saw a 14.6% increase during the same period. Poor performance and reliability coupled with high prices charged to shippers of transshipment cargo all contribute towards the low transshipment shares.

²⁶ Taken from papers presented at the Transport Sector Strategy Workshop in Colombo, July 3/5, 1996. Mobarek, I., World Bank, "Strategic Issues in Development of Sri Lankan Ports"; Abeywickrema, R.J., "Competitiveness of Charges in Sri Lankan Ports".

Table 11: Share of Transshipment Cargo in Colombo Compared to Major Ports

Port	Transshipment Cargo Handled in TEUs in 1994
Colombo	666 thousand
Dubai	1.88 million
Singapore	10.4 million

4.15 Performance and Reliability. At present productivity and performance of Sri Lankan ports and in particular of Colombo are relatively low compared to other main ports in the region. In order for Colombo to achieve the status of a hub port, it would not only need to expand its capacity and modernize port operations to reduce congestion and turnaround time, but would need to enhance its competitiveness by improving productivity, efficiency, and reliability of its ports. Moreover, there is a need to have better client focus and capability to respond to changing market forces.

Table 12: Performance and Reliability of Colombo Port

Indicator	Achieved Value	Benchmark Value
Ship waiting time	14 hours	0 hours
Ship turn-around time	42 hours	10-12 hours
Crane utilization	63.2%	85%
Container handling for mainlines	18 boxes/hour/crane	26 boxes/hour/crane
Container handling for feeders	14 boxes/hour/crane	26 boxes/hour/crane
Average dwell time for transshipment	7.41 days	1-2 days

4.16 Competitiveness of Charges. While the rates charged at Colombo port are reasonable, they could be lower. If current waiting times for ships increase any further, as they are expected to, if traffic continues to grow and further improvements are not made, the combination of poor performance/reliability and high tariffs may cost Colombo market share in the transshipment business. Colombo's rates are relatively high when compared with those of competing transshipment centers. The SLPA has been setting port tariffs in dollar terms since 1985. Its expenditures, on the other hand, with the exception of loan repayments and purchase of equipment, have been in terms of domestic currency. In 1985, the parity rate for the a U.S. dollar was Rs 26.84 while today it is the equivalent of Rs 55.34. This represents a 106.18% increase. Therefore, even though there has been only one official tariff increase for transshipment rates (by about 30% during mid-1995) during the last 10 years, due to the dollarization of tariffs, the SLPA has enjoyed a surplus. Such a pricing policy has not given the port authority cost reduction incentives. SLPA's pricing strategies should be changed from cost driven pricing to price driven cost control. In other words, SLPA should charge competitive rates and control its costs to make reasonable profits.

Table 13: Comparative Costs of a 24 Hours Connection of Transshipping Containers (\$)

Port/Size	15,000 TEUs		100,000 TEUs		200,000 TEUs		350,000 TEUs	
	20'	40'	20'	40'	20'	40'	20'	40'
Colombo	83	132	73	116	69	111	66	106
Singapore	93	136	84	122	82	119	81	118
Dubai	85	119	68	95	60	83	47	65
Khorfakkan	59	83	59	83	47	66	41	58
Abudhabi	41	55	41	55	41	55	41	55
Fujairah	82	114	65	92	57	80	45	51
Rotterdam	81	162	81	162	81	162	81	162

Source: Abeywickrema, 1996. The costs are per container per TEU category. Shipping lines negotiate lower rates based on the maximum volume of freight they transport per year through a port. Most ports give a discount for larger volumes of cargo from the same line.

4.17 Furthermore, there is a need to increase the commercial orientation of port operations and management in order for Colombo to develop beyond simple transshipment into re-export activities. The shipping business is highly competitive and operates on thin margins, so liner companies are constantly in search of ports that offer high quality service at reasonable costs. It is also imperative that the port of Colombo diversifies its activities in order to contribute to the high economic growth necessary for the country to join the ranks of the East Asian Tigers. Much of Colombo's transshipment traffic is destined for India. If one of the ports of South India develops a major and efficient container facility, Colombo could lose a significant portion of its transshipment traffic. Colombo also needs to be ready to handle increasing numbers of post-Panamax container ships, which liner companies are expected to deploy on high volume routes. In addition, Sri Lanka must develop beyond simple transshipment into re-export activities. Ports like Singapore, Hong Kong, and Rotterdam, for example, often unload, sort, process, restuff, and reshipe the contents of transshipment containers. Compared to re-export, simple transshipment functions are more footloose and vulnerable to competition from other ports. Moreover, re-export provides more value added to the local economy than simple transshipment.

4.18 **Privatization Initiatives in Ports.** The ports are presently a public monopoly in that the SLPA provides virtually all services. The Government of Sri Lanka has announced a policy of welcoming private investment in the ports. As has been announced through the news media, the Government has issued a letter of intent to a consortium led by Mott-McDonald, an Australian Consultant Firm, to develop a container terminal at Galle port on a BOT basis. Also there is a proposal from a private liner company (P&O) to improve and operate one container terminal (QEQ), and the Government has issued a letter of intent for the development of this terminal on a BOT basis. The Government is currently carrying out negotiations with the P&O. Concerning the future roles of the ports of Sri Lanka, specifically Colombo and Galle, the Government has also not developed a clear strategy as to which port needs to be

developed first and what the impact of developing one port would have on another. The privatization initiatives underway need to be accompanied by an announced policy and adopted strategy by the Government on all these matters and an action plan to implement the strategy. Other areas where the SLPA could consider the private sector, as a measure to control costs, is in the non cargo handling activities such as vehicle repair, carpentry, steel foundry, and catering. These activities do not depend on a strategy for the port sector and could be spun off immediately to the private sector.

4.19 Optimization of the Ports of Sri Lanka. The Government has recognized these limitations and has agreed to carry out a study to optimize the distribution of cargo and public sector investment over the existing ports. The study to be financed by the Bank would include a market analysis for the container transshipment market in Asia and the status of competition with regional ports. It would also build a model that would replicate the existing situation at the ports and the effect of various factors on the productivity, efficiency, and investment required. Among the components of the study will be recommendations for improving productivity of the public sector as well as the options for introducing competition by the private sector in some of the port activities.

4.20 Recommendations for Reform. International experience has demonstrated that the best approach for achieving commercialization and more client orientation is through combined liberalization and private sector participation by adopting a “landlord” approach for the development of ports. Under such a strategy the SLPA retains ownership of assets and responsibility for development of common user facilities but allows private sector participation by earmarking operational activities for partnership with the private sector through concessions or leases for certain activities (Box 9). To establish some competition in handling containers of Sri Lankan imports and exports, it would be desirable to allow different operators to operate different terminals.

4.21 Discussions of the recommendations of this report, resulted in the following set of priority actions for the port sector.

Top Priority

- implement institutional strengthening recommendations and action plan from the OECF funded study
- dispose of all non-port operation related activities to autonomous entities or to the private sector
- carry out the recommended studies to be funded by the PHRD grant--both phase I and II
- enact legislative reforms for the port sector to enhance private sector participation

- adopt a landlord strategy in the provision of port infrastructure and services, which may require a Port Regulator²⁷
- shield port management and operations from political structure interference
- allow public-private partnerships to operate on a BOT/BOO basis, berths at the ports to improve throughput, productivity, and efficiency. Partnerships with the private sector should be chosen according to a clearly defined process with clear goals and objectives
- rationalize the port's labor force through negotiations with the unions to reach agreements on: voluntary retrenchment, golden handshakes, early retirement and possible retraining. The port has a very large redundant labor force and at the same time it is short of skilled stevedores, so there is a need to make the labor rationalization program meet the skills mix needs of the port in addition to productivity gains.

Box 10: Alternative Port Development Strategies

Port development strategy has taken a sharply different turn because of the heavy investments required in port development to keep pace with trends in ship design and container size and cargo handling equipment and controls. It is now necessary to operate ports as a commercial proposition and to remove constraints from port services. Management objectives and capacity of ports are now determined by external rather than domestic considerations, and ports need to respond to technological advances in international shipping as well as the local needs for shipping. A number of strategies to make ports more responsive to these changes have been tried by various countries. These include:

Modernizing Port Administration: improving performance of agency by investing in new technology and modernization of port facilities and activities without requiring institutional reform.

Commercialization: providing autonomy and total control over all decisions related to port operations and administration and holding agency accountable for results.

Liberalization: removing monopoly of single state authority in provision of port services by decentralization of port activities and allowing entry and competition by private providers.

Concessioning: giving rights over a specified period of time to operate a facility such as a terminal to a private entity which has a stake in the running of port business.

Contracting Out: giving responsibility for executing specific tasks such as construction, refuse disposal, and equipment maintenance and paying a private entity for the supply of agreed goods and services.

Divestiture: which is the transfer of assets of a state owned entity to a private owner with full legal responsibility for control, management, and financing.

²⁷ During the discussions of the report's recommendations, two participants were not in favor of this recommendation, opting for flexibility including options other than the landlord strategy.

High Priority

- strengthen port planning and management decision-making capabilities by providing qualified staff who have competencies in modern management techniques, including operations research methods
- develop the 700 hectares adjacent to the port to relieve the pressure for land shortage, following the plans developed by the UDA
- implement the Inland Container Depot (ICD) utilizing the rail link to be operated by a public-private partnership
- initiate and implement a marketing study to attract private sector participation
- rationalize tariff structures at the port to make them in line with competing ports
- establish incentive-productivity based schemes to improve the level of productivity at the port
- introduce national EDI systems and further develop port EDI systems
- adopt a safety code and improve the port's safety by replacing obsolete floating craft according to SLPA's requirements
- create and enforce environmental safety rules and a code of practice
- improve and monitor environmental conditions at the ports by providing private sector operated ship waste collection and disposal facilities
- undertake a Port Efficiency Improvement Project and improve port marketing to ensure implementation of these recommendations

4.23 In addition to these actions, the port sector needs heavy injections of capital to modernize and upgrade its services, so that it can effectively become a regional hub for transshipment and other services. The investment requirements to meet these objectives, as well as the priorities for investment are summarized below.

Investment Requirements in the Port Sector

Investment	Amount \$ million	Year	Donor
Development of QEQ, Colombo Port	200	1997	
Development of North Pier, Colombo Port	80	1997	OECF
Colombo Port Efficiency Improvement Project			
I. Port Development Study	0.8	1997	PHRD
II. Vessels, Safety, Environment, EDI, Trade Facility	50		WB
Institutional Strengthening	2	1997	OECF
Development of Galle Port	700	1998	
Development of Trincomalee Port	100	1998	
Colombo Port Development	400	1997/8	
Labor Rationalization	1000	1999	

D. COMPETITION IN BUS PASSENGER SERVICES²⁸

4.23 Sri Lanka's bus industry faces a number of serious problems: (a) declining numbers of buses, resulting in severe overloading and inadequate services; (b) fares too low to meet operational costs; (c) high operating costs due to inefficiencies which combined with low fares result in failure to support fleet renewal; (d) chaotic and sometimes unsafe competition among numerous small private operators; and (e) poorly managed and inefficient peoplized companies. Reform of the bus industry is critical since buses, which were by far the dominant mode, are losing market share to their major competitor, the private automobile.

Table 14: Passenger km of Travel Between 1985 and 1995
Millions

Mode	1985	1990	1995
Public Bus	15,249	13,674	19,308
Private Bus	14,060	22,565	31,355
Private Vehicle (a)	1,238	2,717	7,938
Rail	2,101	2,781	3,404

(a) Excluding motor and tricycles.

Source: Transport Studies and Policy Center.

4.24 Organization of the Bus Industry. Sri Lanka has a complex system with over 10,000 small private operators and 93 peoplized companies, competing with each other (see Table 9). The peoplized companies are a result of a series of reforms since 1978 which converted the depots of the former Ceylon Transport Board, a public company with an exclusive franchise on bus transport, into independent peoplized companies.

4.25 The objective of peoplization was to create self-financing viable public-private business ventures with social obligations such as operating school services and catering to special needs. It was expected that, since the social obligations would be transparent, the companies would perform better than when they were a centralized public monopoly. Peoplization has had some benefits over the old structure of bus service provision. The companies have shown close to an 80% increase in total revenue earned, and a 41% increase in the passenger km operated per day, compared with corresponding figures for the period prior to peoplization in 1990. However, operating deficits have more than doubled during the same period. The structure of the peoplized companies may contribute to this problem.

²⁸ Most of the material from this section has been taken from the following background papers presented at the Workshop on Transport Sector Strategy, Colombo July 3/5, 1996. Gómez-Ibáñez, J.A., Harvard University, "Competition in Sri Lankan Bus Services: Prospects and Alternatives"; Premaratne, M.C., "Methods of Managing Routes Served by Multiple Operators"; and Lye, "Study on Transportation Services Provided by School and Office Vans". Valuable comments were also received from J. Diandas.

Table 15: Performance of the Peoplized Bus Sector

Year	Passenger Km Operated	Costs (Rs M)	Revenues (Rs M)	Operating Deficit (Rs M)
1980	23,701	1,791	1,564	227
1985	15,249	2,771	2,333	438
1990	13,674	2,900	2,617	283
1995	19,308	5,339	4,701	638

4.26 The former employees of the CTB hold 50% of the shares²⁹, and occasionally hold management at ransom when unpopular reforms are suggested. There are incidences where managers are voted out of management because of suggestions for reform. There seems to be no incentive to control costs under the current structure of ownership. This is a serious concern, as the liability of these companies is mounting. Other signs indicating the absence of long-term planning for cost cutting, is the low levels of fleet maintenance. It is estimated that 665 buses will go out of service by the end of 1996.

4.27 The peoplized companies are dependent on the Government for financial support, which they receive in a number of ways. First, they get new buses supplied at nominal cost. The companies just received an injection of 3,500 new buses to their fleet. As it stands now, more than 60% of the buses in operation are less than 3 years old and have been supplied after peoplization. Second, they get support for non-remunerative rural routes and for discount student fares. The support for non-remunerative rural routes and discounted school season tickets are partial reimbursement for services which would not be provided if not for the reimbursement. Despite these forms of support, many companies do not cover their operational deficits. The operational deficits, which had been reduced following peoplization in 1990, have started to escalate (Table 15). Among the reasons for escalation in operating deficits is the fact that tariff increases have not been in line with increases in expenditures.

4.27 Recommendations for Reform. There are a number of recommendations which came out from the Tilakaratna Report (1995)³⁰, background papers, Committees appointed by the Minister of Environment, Transport, and Women's Affairs and from discussion at two workshops in Colombo.

4.28 To improve the efficiency of investments in transport, there was unanimous agreement that urban and regional development and transport planning should be

²⁹ Shares were determined only on the value of movable property available in respective depots at the time of peoplization. However, if lands and buildings and the vehicles that were provided subsequently are capitalized the public share would exceed 75% in all companies.

³⁰ Tilakaratna, W.M., T.P. Gunawardena, M.C. Premaratne, and M. Fernando, Report of the Committee on Reorganization of the Peoplized Companies and Private Bus Operation, July 1995.

coordinated, so that transport development plans are consistent and reasonable. At present there is no established mechanism to carry out integrated transport planning. For example, the Regional Development Plan for the Southern Province was developed without input from transport planners. This would require *setting up an institutional structure to carry out such integrated planning*. The recent proposal approved in Cabinet to create special human settlement committees at the provincial and district levels was endorsed in discussions of the recommendations of this report with a wide range of stakeholders. These committees to be chaired by the chief secretary of the province or district will include the relevant provincial and district officials as well as representatives from relevant national agencies. Also needed for coordinated transport planning is a body to be responsible for transport sector strategy and policy (see paragraph 2.29).

4.29 To attain economic and financial sustainability it is necessary to *raise bus fares* to a level that would allow an efficient private bus operator offering service without excessive overloading to recoup the costs of providing that service, including an adequate reserve to replace their buses approximately every 100 months. During discussions of the recommendations of this report, there was agreement that fares to meet such operating conditions ought to be phased in and regular annual fare increases be implemented to keep them at appropriate levels. Subsidies need to be targeted to maintain selective support for non-economic rural bus routes and low fares for poor schoolchildren³¹. For other services, fare increases should follow the following formula:

- an increase between 35% and 50% (over and above the recent 15% increase) to be phased in over 2 to 3 years
- regular annual increases linked to a weighted index of bus costs to reflect the mix of imported and local inputs used in bus service provision
- separate indices as needed for long distance and local services
- index to be applied to average fares, with the NTC and PTAs allowed some discretion in determining how to translate average fares to individual stages of increments
- higher fares for premium services would be allowed
- surcharge for night and early morning services would be allowed

4.30 Some *institutional changes* will be needed to ensure that fares keep pace with costs, despite political pressure to keep fares low. A law needs to be passed requiring the NTC to phase in increases and to approve regular annual fare increases in the manner described in paragraph 4.29. The law would stipulate that the increases would not be

³¹ In the December 1996 Workshop, it was agreed that there might be an argument for providing some financial support for the peoplized companies as long as they were providing socially important services, such as night and early morning services or school fares, that the private companies were not. However, to the extent that the differences between the private and peoplized companies in this regard were narrowed, then it weakens the case for special aid to the peoplized companies in the form of concessionary loans for bus purchases and other forms of preferential support.

subject to Cabinet approval, although Parliament could review and disapprove an increase if it thought it inappropriate. A study is needed to determine the increase required to make fares compensatory and to devise the cost index to govern the regular annual increases. The Government should give top priority to drafting the fare increase law.

4.31 Other policy and institutional changes to improve the economic and financial sustainability of the road transport sector relate to the structure of the bus industry. The present 93 peoplized companies should be clustered to improve their management and performance. During discussions of the recommendations of this report, there was sentiment that it might be advisable to have more than the 11 companies proposed in the law currently before Parliament. Private buses should remain unclustered for at least several years in recognition that the proposed consolidation bill before Parliament might reduce some of the advantages of low costs and overheads that the private operators currently enjoy.

4.32 Until the law is passed, the NTC and PTAs should use their statutory authority to supervise bus schedules, dispatching, and provision of evening services to improve the quality of service that the private and peoplized companies offer. This is currently being experimented upon in the Western and Southern provinces, and needs to be extended to other provinces. In this regard, it is important to affirm that the peoplized as well as the private companies are subject to the regulatory authority of the NTC and PTAs. If the NTC and PTAs are unable to improve the performance of the private sector, then forced consolidation of private buses into companies, and a system of competitively bidding for exclusive route franchises for limited terms of 5 years, would need to be introduced. To implement all these measures, it would be necessary to strengthen the capacity of the NTC and PTAs to supervise bus operations. The Government should carry out the recommended clustering and monitor the efforts of the NTC and PTAs to improve bus services.

E. PRICING AND FINANCING IN ROADS³²

4.33 **Structure of User Charges.** A well structured system of user charges should incorporate economic and environmental sustainability principles, in addition to their revenue-raising function. The system of charges currently in use in Sri Lanka, meets the criteria of financial sustainability, since, as a class all road users meet all the financial costs of the road system. Estimated road expenditures are in the order of Rs 7 billion, while revenues from road user charges are about Rs 12 billion. However, the system of charges in place masks certain inefficiencies. First, not all road users are meeting the distance-based cost of damage to the system. Damage is caused primarily by diesel-powered heavy vehicles. With the exception of articulated trucks, the remaining heavy vehicles do not meet the distance based costs of damage.

³² Much of the material in this section derives from a presentation by Jayaweera, D.S., "Are the Current User Charges in Roads Adequate?", Transport Sector Strategy Workshop, Colombo, July 3/5, 1996.

Table 16: Structure of Charges and Costs for Road Usage in 1995

Vehicle Category	Damage Cost in Rs per km	Revenue in Rs per km
Car	0.63	2.59
Utility	0.96	1.64
Medium Truck	1.72	1.21
2-Axle Truck	1.29	1.09
3-Axle Truck	2.36	1.75
Articulated Truck	1.75	2.50
Medium Bus	1.05	0.67
Large Bus	0.55	0.79
Motor Cycle	0.09	0.49

Source: Calculated from Updated Costs and Revenues from the TSPC using the a cost-allocation formula developed in a Road User Charges Study for Sri Lanka which used HDM as a basic model for damage costs.

4.34 The costs that are recovered from users do not meet all the economic costs, when the non-private costs of road use are taken into account, but some users meet these costs to a larger extent than others. Cars and motorcycles meet more than their share of road damage costs, and seem to be meeting some of the non-private costs of extra road space, as they do contribute to congestion and air pollution. Similarly, for large articulated trucks. Medium trucks and buses do not seem to be meeting not only the costs of damage, but the costs of road space and air pollution.

4.35 The current system of prices in the road sector relies on indirect charges for road use, paid by highway users in the form of fuel taxes, import duties, insurance and registration fees. This form of charges is not efficient and fair across classes of users. The considerable pavement damage done by trucks are more related to truck use and weight than ownership, and fuel consumption rises roughly with truck weight. Even if fuel taxes are raised for the classes that are now not meeting their full share, they will not substitute completely for costs of damage, since pavement damage rises exponentially with axle loads. It may be necessary to use some surcharges in registration fees and to charge for surpassing axle load limits.

4.36 It is recommended that a new system of road user charges be developed, which incorporates the two main purposes of user charges: (a) to raise revenues to finance highway services; and (b) to change the behavior of vehicle owners and users, particularly by making them take into account the full costs of their use of roads. As such, a system of road user charges should include in addition to budgetary costs of road provision, the social and environmental costs (pollution and congestion).

4.37 In particular, this will require: (a) changing the price of diesel and modifying the diesel tax; (b) restructuring the annual revenue licensing system; (c) implementing a road management system (including pavement, roadside, and bridges) so that the actual costs of road damage can be calculated and apportioned correctly; (c) opening up the petroleum

market so that there is more competition thus lowering the price of fuel allowing a non-inflationary increase in the taxes on fuel; (d) imposing central area parking controls to regulate Colombo's congestion. Parking controls will only affect local traffic, and not through traffic which is half of current area traffic, and will also not affect trucks, so there is a need to think of a congestion tax for through traffic (such as a penalty for use of roads during congested times); and (e) restructuring the system of subsidy allocations in the sector. This is of particular importance for subsidies to school vans. At present such subsidies are being used for purposes other than what they are meant for because it is easy to obtain a certificate from the Motor Registry as a school van, and insurance companies are unable to distinguish between designated and other users. Many of the vans operating are not actually carrying students and not only are they not paying their fair share of the costs of road usage, but are being subsidized for road usage.

4.38 All these recommendations were endorsed by participants at two workshops held in Colombo.

4.39 **Financing Road Maintenance.** With respect to financing maintenance, and related to the issue of reforming road user charges, the Government needs to find a mechanism to protect funds generated for road users for maintenance purposes. A "Road Maintenance Fund" is a possible option (see Box 7 for the advantages and disadvantages of a road maintenance fund).

F. RESTRUCTURING THE RAILROADS³³

4.40 The railways in Sri Lanka are run by a Government Department, the SLR. It is responsible for a dense network of 1,453 km of track, which spans the island from North to South and East to West, linking Colombo with all major centers of economic activity. At 22 km of track per thousand square km of land mass, the SLR operates one of the most dense rail networks in South Asia. Though the network is extensive, railway does not currently play an essential productive role in the Sri Lankan economy; however, it plays an essential social role. Of the 3.5 billion ton-km of freight movements in 1994, 92.2% were by truck, 3.4% by coastal shipping, and 4.4% by rail. Shutdown of freight operations on the SLR would have limited effect on Sri Lanka's economy, with the exception of freight movements to and from the port of Colombo and in the transport of products such as limestone, oil, flour and fertilizer. On the passenger side it is a different story. Of the 28.4 billion passenger km in 1994, excluding motorcycles, 86.9% were by bus, 5.1% by private auto, and 8% by rail. Shutting down passenger operations would cause increased congestion in Colombo, where passenger movements are concentrated

³³ This section uses material from the following papers presented at the Transport Sector Strategy Workshop, Colombo, July 3/5, 1996. McCullough, G.J. "Efficient Utilization and Development of The Sri Lanka Rail Network"; Weerasooriya, G.P.S. and Storm, U.E., "Operation of Non-Economic Routes by Rail; and "Weerasooriya, G.P.S, "Reforming the Railway".

(see Box 11). As much as 20% of the passenger km of travel are from suburban commuters.

4.41 Need for Reform The performance of the SLR as it is currently operated is troubling. The railway operating deficit in 1995 is over Rs 1.4 billion. The operating deficit in 1994 was about the same, and represented about 5% of tax revenues and 10% of public expenditures in Transport (ports and shipping, railways, highways). Labor expenditures alone during this period were Rs 1.2 billion, greater than the combined passenger and freight revenue of Rs 0.96 billion. In the meantime, passenger output on SLR has increased significantly since 1992, growing nearly 30%, despite very poor levels of service. Freight output during the same period declined by 23%. The reason for the poor performance in terms of operational deficits, is partially due to the inability of the railway to raise tariffs, due to its expected role in meeting political and social service obligations. The SLR presents a policy dilemma for policy makers in Sri Lanka. The alternatives available in terms of extremes are to: (a) abandon the railroad (and place more burden on congested highways), (b) reform the current system of operations; or (c) continue to sustain large railway deficits.

4.42 Railway Reform. The dilemma facing Sri Lanka is not unique. Governments around the world have had to confront railway problems. In particular, reform processes have been put in place to make railway operations more sensitive to changing markets and demands for service. Sri Lanka's railway networks, technology, and operating practices, like those of many other countries, developed 50 to 100 years ago. While economic activity dependent on transport has evolved, in terms of location, product diversity, and intermodal competition, railways have remained more or less fixed. This has resulted in a loss in market share. To revitalize the railways, it is necessary to reorganize the assets, liabilities, and work force to enable railways to respond to its customers needs³⁴. Key to such a revitalization is the participation of the private sector in railway activities such as through contracting out internal functions, as well as the introduction of competition in the provision of railway services, including enhancing the capacity of the railway to compete intermodally.

³⁴ Kopicki, R. and L.S. Thompson, Best Methods of Railway Restructuring and Privatization, The World Bank, CFS Discussion Paper Series, Number 111, p.11.

Box 11: External Benefits of the Railway

There is evidence that rail services in Sri Lanka provide external benefits that offset, to some extent, the losses incurred. A major benefit is the reduction in demand for roads, thus saving vehicle operating costs, and more importantly, reduced congestion, delays and associated costs, not to mention the environmental benefits of lower air pollution per km of travel. A corridor analysis calculated the increased number of vehicles that would travel on Galle Road, between Kalutara and Colombo, in the event that the morning peak rail service is not operated. The study indicated the railway saves on the order of Rs. 200 million (US\$ 4 million) in operating costs and in congestion costs, for the morning peak. Assuming similar findings for the evening peak, total savings would be in the order of Rs. 400 million (US\$ 8 million) per year. Annual railway operating costs for this corridor are now around Rs. 90 million (US\$ 1.8 million), and around Rs. 290 million (US\$ 5.8 million) including capital and fixed costs. The estimated savings in vehicle operating and congestion costs exceed the current operational deficit, and meet more than 100% of the total costs including capital and fixed costs.

Road Link	VOC for Extra Vehicles (Rs. millions)	VOC due to Congestion (Rs. millions)	Total Increase in VOC (Rs. million)
Colombo-Kollupitiya	8	15	23
Kollupitiya-Dehiwela	9	28	37
Dehiwela-Ratmalana	15	47	62
Ratmalana-Panadura	15	54	69
Panadura-Kalutara	8	8	16
Total	55	152	207

Similar studies have not yet been done for the other suburban services, but given the congestion that already exists on parallel roads, and in the case of the Main Line, a lack of directly connecting roads, it can safely be assumed that savings will be significantly for heavy traffic areas near Colombo. This is more important in built-up corridors where it is very expensive (land acquisition and resettlement) to expand highway capacity.

Source: Weerasooriya, G.P.S., and Storm, U.E., "Operation of Non-Economic Routes by Rail", presented at the Transport Sector Strategy Workshop, Colombo, July 3-5, 1996.

4.43 The World Bank's experience in support of rail restructuring suggests that successful restructuring begins not with changes in managerial practices, but with changes in the political and economic operating environment. Restructuring is sometimes a long sequential process in which managerial changes (implementation) follows political agreement about the role of the railroad and planning of an appropriate rail system.

4.44 **Restructuring Process.** For Sri Lanka to successfully restructure a number of steps are necessary. These include: (a) acknowledge that there is a crisis in the operations and management of the railway; (b) define the economic role for the railway; and (c) develop a system plan that is consistent with the economic role. This will require adjusting transportation policy to meet the new role of the railway. There is general acknowledgment that there is a crisis in the railways. The Deputy Minister of Finance in his 1994 budget speech stated that "[Sri Lanka's] antiquated railway system is in urgent

need of modernization”. In an interview with the Sunday Times, December 15, 1996, the Minister of Transport, stated that “we will give the SLR a deadline, and if they do not achieve a given target, it would be turned into an authority, headed by a Chairman and controlled by a Board of Directors”.

4.45 Role of the Railway. To define the economic role of the railway, the Government has just completed a structured Business Plan, which defines the main focus areas of the railway as: (a) suburban passenger services; (b) long distance express passenger trains stopping only at major population centers; (c) non-stop fast trains transporting “train-load” general freight between major population centers only; and (d) special purpose non-stop unit trains for transporting bulk freight from source to destination³⁵. This Business Plan is to ensure that decision making within the SLR is based on commercial reality and that the railways are geared to change to meet an ever changing business environment.

4.46 Focus on Suburban Passenger Market. A preliminary analysis of the physical assets, markets, and operations of SLR have indicated that the railway is mostly a suburban passenger railway. The railway is able to meet up to 48% of its operating costs on passenger commuter services to and from the Colombo Metropolitan area, indicating that with proper operation and improvements in efficiency, there is an economic role for the railway in these services. Not to mention the social and environmental role in terms of reduced congestion and air pollution. A passenger survey indicated that, passengers who use this service mostly use it because it is less expensive and faster than bus.

4.47 Rationalize Intercity Passenger Services. Intercity passenger services provided by rail are in direct competition with buses. The railway does well in terms of running intercity fast passenger trains, where cost recovery levels are as high as 66% on some lines. This is a service that would be very suitable for concessioning out to the private sector, especially since passengers ride these trains for their comfort and safety compared to competing bus services. The high accident rate on intercity roads does contribute to the transfer of passengers onto the railway. In the interim, the SLR should seek fare increases for intercity passenger services to be in line with the level of fares for bus services in competing corridors.

³⁵ Policy Statement, Ministry of Transport, Environment, and Women’ Affairs, Hon. Srimani Athulathmudali, Minister, 1997.

Table 17: Countries with Railway Concessions

Passenger Rail	Freight Rail
USA	Argentina
Argentina	Brazil
UK	UK
France	Sweden
Sweden	Burkina Faso
Turkey (attempt)	Cote d'Ivoire
India	Bolivia
Thailand	Chile
Taiwan	<i>in preparation</i>
Philippines	<i>Congo</i>
Australia	<i>Gabon</i>
New Zealand	<i>Cameroon</i>
	<i>Mexico</i>
	<i>Guatemala</i>
	<i>Cameroon</i>
	<i>Pakistan</i>
	<i>Brazil</i>
	<i>Senegal</i>
	<i>Mali</i>

Source: Shaw, N., Gwilliam, K. and L.S. Thompson, "Concessions in Transport", Working Paper, The World Bank, TWUTD, June 1996.

4.48 Transfer Local Passenger Service to Road. Cost recovery for local passenger services on the railway ranges from 4% to 18%. In most cases there are lower cost bus alternatives. These services have been operated as a social service assuming that the people who use them are low income passengers. In fact a survey of the income distribution of railway riders indicated that they are less poor than those passengers using bus services. There is a need to transfer local rail passenger services to buses where buses are more efficient.

Table 18: Income Distribution of Users of Rail, Bus, and Van Passenger Services

Service	Under Rs 3,000	Rs 3,000-7,500	Over Rs 7,500	Average (Rs)
Rail	29%	55%	16%	4,900
Bus	62%	38%	-	2,900
Office Van	4%	89%	7%	4,900

Source: Weerasooriya, G.P.S. and U.E. Storm, "Operation of Non-Economic Routes on Rail", presented at Transport Sector Strategy Workshop, Colombo, July 3/5, 1996.

4.49 Rationalize Tariffs and System of Subsidies. The reason for the skew in the income distribution of railway users, is because most of them are civil servants, who purchase season tickets on the railway, which are for unlimited use, and their departments pay 75% of the season ticket price. Therefore, these passengers receive subsidies for using the railway. A typical civil servant using the railway gets a monthly season ticket for less than the cost of three days travel at ordinary ticket prices. The low income railway users who are not civil servants have to pay the full cost of travel on the railway. There is a critical need for the Government to rationalize the system of tariffs and subsidies on the railway.

4.50 Public Service Obligation (PSO) Contracts. There is a need to develop PSO contracts between the SLR and the Government that tie the level of subsidies for services that the SLR is required to provide to meet the operating costs for these services. In addition, to capture some of the external benefits of the railway and give incentives to the SLR to improve service conditions, it would be prudent to tie the PSO contracts to the level of reduction in congestion and air pollution attributable to the railway. A study needs to be conducted to determine the structure of such PSO contracts which includes attributing achievement in congestion and air pollution reduction to improved performance of the railway.

4.51 Open Access to the Network for Freight Operations. The railway transports many commodities, but its major customers for freight service are limestone, oil products, and flour. Limestone is the main commodity by tonnage, but falls behind oil products and flour in terms of tonne-km and revenue. Cost recovery for these freight services even with the existing levels of tariffs and inefficiencies in operation is between 60% and 85%, indicating that, with improvements in efficiency, these services may be viable for private operation. One option is to open access to the railway network for freight shippers. Under an open access policy, SLR would make available track to private freight operating companies, in return for access payments. Access payments, based on incremental costs to SLR, would provide a source of revenue to the railway, and access rights would enable new carriers to finance needed motive power and other capital to improve freight operations. This would allow the SLR to focus on the key services to its passengers. The SLR and BOI with assistance from other agencies should continue to advertise and develop contract access agreements with freight shippers and other potential carriers.

4.52 Commercialization and Modernization³⁶. To allow the railway to compete effectively with trucking and bus services, as well as to manage contract access agreements and negotiations for PSO, it is necessary to have the SLR operate following commercial principles. This requires not only increased productivity, but management of railway operations as a business. The SLR needs to set up a commercial business group within the commercial section at the railway, that will manage both the commercial services deriving from access agreements, as well as the PSO agreements with the

³⁶ Adapted from a note prepared by Ed Storm, December, 1996.

Government for provision of non-economic passenger services. This group will need to be appropriately staffed, and should have a separate budget allocation. It should also be given responsibility for negotiating other profitable business opportunities, such as developing lands owned by the railway. To support this commercial unit, there is an urgent need to upgrade the accounting system at the railway. The current system is slow (often in arrears by several months) and only provides data that is too consolidated for any use. Computerization of the various accounting sub-systems as well as updating of the accounting rules and procedures in use will be critical, to determine revenues and costs by line of business, as well as to provide up to date balance sheets including valuation of the railways assets. Also critically needed is an improvement in the procurement procedures at the railway.

4.53 Labor Rationalization. The railway, as the port, has a large labor force. The restructuring options recommended in this report will make some employees redundant. There is a need for labor retrenchment schemes, including compensation, re-training, assistance in finding employment, as well as retirement schemes. To improve the level of productivity of remaining employees, training is needed in accounting procedures, computers, proper maintenance practices, and modern methods of management and operation. There is also a need for an objective and transparent system to address grievances at the railway, redefine work rules to improve productivity, evaluate employee performance, and link promotions and pay increases to productivity improvements. This requires improving the level of communication between management and the railway staff as well as the unions.

4.54 Government Agreement on Reform. The Government has accepted in principle, to open access to the railway track and other rail facilities to the private sector and other public-private operators³⁷. The proposed direction of reform for the SLR is consistent with advice from the Minister of Transport. In her speech at the Transport Strategy Workshop in Colombo, July 1996, the Minister stressed the public role of the railroad in providing passenger services but also acknowledged “a lot of possibilities for private sector-public sector collaboration in freight” (see Volume II of the report for the speech).

4.55 Maintenance. The practice of misclassifying expenditures between capital and recurrent items (see Box 6) needs to be stopped. The SLR should develop a system of consistent definitions of what constitutes maintenance, rehabilitation, upgrading, modernization, and new investment. These definitions should be used in the budgetary process as well as in the accounting systems at the railway. Once such definitions have been agreed upon, sufficient funds should be allocated for maintenance and rehabilitation activities to capture the accelerated deterioration of the assets of the railway.

³⁷ Policy Statement, Ministry of Transport, Environment, and Women' Affairs, Hon. Srimani Athulathmudali, Minister, 1997.

4.56 Investments. In addition to the policy reform measures outlined above, some investments are needed to make the railway an effective competitor with road transport. The railway should continue the ongoing track rehabilitation program, funded by the OECF, to improve the quality of services on the railway. Of utmost importance, to support the ongoing restructuring, is the need for a study to quantify and design public service obligation contracts between the Government and the SLR. Investment is also needed to upgrade the accounting and management information systems (MIS) at the railway. To better provide services to the suburban passenger market, the railway needs Diesel Multiple Unit (DMU) trainsets and other supporting rolling stock. For long-distance passenger services, such as in the planned electrification of the Colombo-Kandy line, the BOI should continue to seek private sector participation to upgrade these services, when analyses indicate that they are economically feasible. It is critical that evaluation of electrification proposals be done on an economic and financial return basis, and that they be compared to other investment options such as upgrading services on rail without electrification and investing in the parallel road network. A key input to such comparative evaluation is a mode-choice demand model, which needs to be developed. The last mode-choice model was calibrated in 1987 and is in need of updating, since a number of changes have occurred since then, including the private provision of bus services and an escalation in the share of motorcycle and threewheeler traffic. There is also a need to invest, with private sector participation, in providing rail access to the planned intermodal facilities at ICD and improving rail access from Galle port to the Galle-Colombo line. Other investments such as for common access facilities will be defined as the railway negotiates contract access agreements with private shippers.

V. ENVIRONMENTAL AND SOCIAL SUSTAINABILITY³⁸

A. PHYSICAL PLANNING AND ENVIRONMENTAL ISSUES IN TRANSPORT³⁹

5.1 Demand for Transport. Since the mid 1980s, the demand for freight and passenger transport has been growing faster than population and GDP in Sri Lanka. There has been an immense increase in the share of private modes (other than buses) in transportation, with automobiles and motorcycles now accounting for about 40% of the total (these estimates need to be verified!). In particular, motorcycle travel has been growing at an accelerating rate, which has ominous implications since two wheeled scooters and motorcycles are far more polluting than automobiles (22 times more vehicular emissions per mile traveled). When normalized in terms of passenger km, the differential in favor of cars is even higher.

5.2 The magnitude of this increase, as well as shift in mode, can be seen from the fact that the passenger km from private automobiles excluding motorcycles has been growing from 1,238 million in 1985 to 2,717 million in 1990, and 7,938 million in 1995. The estimated passenger km for 1995 by motorcycles is about 19,000 million.

5.3 During the same period, passenger km on private buses increased sharply from 14,060 (1985) to 22,565 (1990) to 31,355 (1995) while public bus use barely moved between 1985-90, going from 15,249 (1985) to 13,674 (1990) increasing to 19,308 (1995) after purchasing new buses. Passenger km on the railways were similarly static going from 2,101 to 2,781 to 3,404. Thus the increase in road motorization was fueled in part by a huge drop in the utilization of public transport.

5.4 It is probable that the increase in motorization involved a shift in mode from non-motorized to motorized (e.g., from bicycle to motorcycle), in addition to the shift from high occupancy vehicle to low occupancy (e.g., from bus to automobile). Demand studies would be needed to assess the reasons for this shift as well as to estimate the elasticity of consumer response with respect to different attributes of each mode, including, as in the case of private vs. public buses, service quality, and reliability etc. This is important for assessing the best policy options to tackle the environmental problems caused.

³⁸ Most of the issues and suggested recommendations in this section come from a joint workshop held by the Government of Sri Lanka, UNDP, OECF, ADB, and the World Bank to discuss sector strategy. There was broad representation from within the country of the stakeholders in transport including the private sector. In preparation for the workshop, background papers were prepared. These papers dealt in detail with key issues and appear in Volume II of this report.

³⁹ Material for this section has been taken from notes by Ajay Kumar and Sheoli Pargal.

5.5 Congestion and Safety. A number of studies have estimated the cost of congestion in the Colombo Metropolitan Region. According to a 1993 study by the Metropolitan Environmental Improvement Program, the cost of congestion per year is projected to increase from Rs. 240m in 1992 to Rs. 778m in 2002, spreading across a radius from the city center of 26.5 km to 28.7 km respectively⁴⁰. More recent estimates indicate that the cost of congestion in the Western Province (Colombo Metropolitan Region) in 1995 were around Rs. 550 million (US\$ 9 million)⁴¹. The degree of congestion and associated cost is expected to double over the next decade⁴². In addition, estimates indicate that for a 6% increase in GDP, the demand for road space increases by 8%. In addition to the costs of congestion are the costs of accidents and the direct environmental costs resulting from pollution. All these estimates need to be refined with the ongoing congestion analysis. The level of safety in Sri Lanka, when measured in terms of fatalities per 10,000 vehicles, is low compared to its East Asian neighbors which have much higher levels of motorization (Table 19). Adding the cost of accidents per year to the costs of congestion brings the total cost of congestion and accidents to Rs. 420.5m in 1992, Rs. 631.6m in 1997, and Rs. 930.4m in 2002⁴³. The significance of these numbers can be gauged from the fact that GDP in 1992 was Rs. 384.36 billion, so that in 1992 the cost of accidents and congestion was about 0.1% of GDP. While this figure is not as high as other countries with levels between 1-2% of GDP, the trend and distribution is disturbing. Between 1980 and 1992, the number of road accidents reported in the Western Province divisions alone rose by 94% compared to 54% in the rest of the country. More than half of the accidents involve pedestrians and cyclists, and about 10% of them are fatal.

Table 19: Road Accident Fatality Rates by Country

Country	Year	Fatalities/10k Vehicles	Vehicles/10k Persons	Fat/100K Persons
Sri Lanka	1992	20.0	501	10.0
Malaysia	1993	7.0	3523	24.5
Thailand	1993	8.4	1927	16.3
Indonesia	1990/92	10.6	571	6.1

Source: Taken from the International Road Federation Statistics except for Malaysia which is taken from PDM.

5.6 Environmental Pollution. World Health Organization (WHO) data show that twelve of the fifteen cities with the highest level of particulate matter and six of the

⁴⁰ Urban Development Authority (1995), Revised Colombo Metropolitan Regional (Outline) Structure Plan: Colombo Metropolitan Region Annexures, page 9-10.

⁴¹ TSPC estimates.

⁴² Colombo Urban Transport Study, 1996.

⁴³ Urban Development Authority (1995), Revised Colombo Metropolitan regional (Outline) Structure Plan: Colombo Metropolitan Region Annexures, page 21.

fifteen cities with the highest level of sulphur dioxide in the world are in Asia. The immediate and long term implications for the health and quality of life of the inhabitants of these cities are manifested in increased morbidity and mortality rates, lower productivity of the labor force, deterioration of physical capital and infrastructure, and the loss of amenity and ecological values.

5.7 The sources and severity of air pollution vary. They depend on a city's economic base, income levels, and topographic and meteorological conditions. Pollution from motor vehicles produces about one fifth of the incremental CO₂ in the atmosphere arising from human activity (which has implications for global warming), one third of the CFCs emitted (ozone layer depletion), and about half of the nitrogen oxides (which contribute to acidification and thus ecological damage). Road motor vehicles account for more than three quarters of the transport sector's contribution to global air pollution.⁴⁴

5.8 Health Impacts. The health impact of different pollutants varies. Lead from leaded gasoline is toxic. It is absorbed by the blood and accumulates in the body. It is associated with damage to the central nervous system, resulting in learning disorders in infants and young children. Particulate, especially the very fine ones, affect the lungs and aggravate or cause respiratory disorders. Sulphur dioxide has a similar effect, which has, however, not been clearly differentiated from the effect of particulate per se. Nitrogen oxides and volatile hydrocarbons do not have direct health impacts but are precursors of ozone, which has an impact on human health. Carbon monoxide has a debilitating effect and causes death at high levels.

5.9 Air Pollution. Sri Lanka has limited experience in air quality monitoring and management. To address this gap, the UNDP-funded, World Bank-executed Metropolitan Environmental Improvement Program (MEIP) began work in Colombo in 1990, along with four other metropolitan areas in Asia. MEIP's mission is to assist Asian urban areas tackle their rapidly growing environmental problems. In 1992, MEIP-Colombo prepared a draft proposal for air quality management in the Colombo Metropolitan Area, the Clean Air 2000 Action Plan.

5.10 Sri Lanka's air pollution problem appears to be currently at manageable levels. Yet based on projected rates of economic, demographic, and vehicular growth, the air pollution situation in Colombo could come to resemble that of more severely affected Asian metropoli. The Clean Air 2000 Action Plan⁴⁵ notes that the transport sector is the biggest contributor of air pollutants to the environment in the Colombo Metropolitan area. It is responsible for 88% of particulate emissions, 4% of SO₂ (94% of SO₂ is from industrial sources), 82% of NO_x, and 100% of HC and CO emissions. Thus it is clear that the transport sector's contribution to environmental problems overall in the Colombo metropolitan area is quite high.

⁴⁴ Sustainable Transport: Priorities for Policy Reform, 1996. The World Bank: Washington, D.C.

⁴⁵ MEIP, October 1992 .

5.11 An indication of the environmental impact of this immense increase in motorization, coupled with the shift away from mass/public transport modes, is provided by the data on vehicular emissions over the past four years (Table 20).

Table 20: Growth in Vehicular Emissions 1992-96

Pollutant	Vehicle Emissions in '000 Kg in 1996	Change 1992-96
CO	320.64	199%
HC	73.81	156%
NOx	113.77	564%
SOx	16.01	124%
Aldehydes	4.50	3114%
PM	9.66	928%

Source: Transport Studies Planning Center.

5.12 Mobile sources of pollution in Sri Lanka are currently not controlled. Vehicle emissions discharge pollutants directly to the external air in restricted corridors. The quality of fuel plays an important role in the emission of exhaust gases. The diesel fuel permitted for use in Sri Lanka contains up to 1.1% sulphur, contributing to the high levels of sulphur dioxide emissions. The diesel in Sri Lanka also contains a large quantity of "high ends" which results in high emissions of hydrocarbons. Leaded gasoline is also used; about 0.43 grams per liter of tetra ethyl is allowed which is high in comparison to leaded gasoline in other countries. Imports of second hand vehicles and motorcycles further contribute to the problem of emissions, since they have poor combustion performance.

5.13 Policy Options. The relative importance of the environmental/health and time costs of transport related congestion will determine the appropriate policies to be adopted to alleviate the problem, but for the most part policies that attack one aspect will have a beneficial effect on the other. A detailed list of recommendations is summarized in Box 12.

5.14 It has been recognized that Colombo needs a balanced transport strategy which makes some provision for private transport but, at the same time, realizes that the city must retain and be based upon a strong, comprehensive, public transport system.⁴⁶ We revisit the Clean Air 2000 Action Plan in order to determine whether it is properly aligned to address the needs of such a strategy.

5.15 The Clean Air 2000 Action Plan was to reduce air pollutants in the Colombo Metropolitan Region by the year 2000. Based on a review of the available air quality data, the Action Plan concluded that by year 2000, the following reductions in ambient levels should be achieved: carbon monoxide 40%, oxides of nitrogen 30%, lead 30%,

⁴⁶ Colombo Urban Transport Study (March 1996)

oxides of sulphur 75%, and hydrocarbons 20%. To reach the targets, 50 actions were recommended falling under seven headings: vehicle inspection and maintenance; fuel reformulation, pricing and fleet mix; emission inventory and monitoring; standard setting; institutional framework and regulatory compliance; economic instruments; transportation planning and traffic management. Of these, emission inventory and monitoring, institutional framework and regulatory compliance, and transportation planning and traffic management, are clearly longer term measures that involve structural and institutional policies.

5.16 The remaining four measures are likely to be implementable in the short term. Following Eskeland (1994), we can rank them in terms of increasing marginal cost as (least cost) economic instruments, standard setting, vehicle inspections, and, finally, fuel reformulation (maximum marginal cost).⁴⁷ For more information on the recommendations under Clean Air 2000, see Annex 1.

Critique of actions recommended under Clean Air 2000 Plan

5.17 Appropriate policy design requires knowledge of the behavioral dimensions of the phenomenon of motorization. All the actions suggested under the Plan, however, tackle vehicular emissions from the same angle: the mitigation of the impact of motorization. There has been no attempt to look at the issue analytically - *why has there been this particular pattern of motorization and what options exist to reverse or stem the increase in motorization?*

5.18 This has effectively meant ignoring most policies that would lead to the modification of behavior including those that would reduce individual trips, encourage traffic to move away from particularly vulnerable areas or times, or switch to four-stroke rather than two-stroke motorcycles. Given that such a large proportion of the increase in passenger miles traveled has been due to a shift from public to private modes of transport, this is a surprising lacuna. Further, this has resulted in limited analysis of the alternatives to private vehicle use or design of strategies to make them more attractive. The existence of viable public mass transit alternatives is a pre-condition for switching away from reliance on private modes to the use of public modes.

5.19 Economic instruments affect the demand for polluting trips (like fuel and congestion taxes or road user charges). While they are indirect (in terms of impact on pollution), they may be easy to implement. In addition they would generate revenues that could be earmarked for supply side improvements like rehabilitation of roads, as well

⁴⁷ Ranking the different options for reducing air pollution emissions in order of increasing marginal cost, the least cost option is retrofitting engines to use compressed natural gas (CNG) or liquefied petroleum gas (LPG); setting emission standards follows; then comes the inspection of first, high use vehicles and then, passenger cars; and finally fuel improvements. From Eskeland, Gunnar S. 1994. 'A Presumptive Pigovian Tax: Complementing Regulation to Mimic an Emissions Fee'. The World Bank Economic Review, 8 (3).

as building secondary arteries and highways that improve traffic flow and reduce the congestion and associated pollution from slow moving traffic. The weakness of relying on reducing congestion to improve air quality is that the impact will depend on where traffic is diverted and on the resulting distribution of traffic speeds. In particular, supply side improvements aimed at reducing congestion usually result in attracting more traffic on the roads.

5.20 It is possible that high duties or taxes on new vehicles could have a perverse impact on the environment by increasing the incentive for consumers to keep on using older, less efficient vehicles. As one of the main causes of the air pollution problems in Colombo is the state of the vehicle fleet, some more thought may need to go into this. Policies that encourage fleet turnover would be important in ameliorating the environmental impact of transport in Colombo.

B. ENVIRONMENTAL PLANNING AND IMPLEMENTATION⁴⁸

5.21 With respect to environmental planning, it is important for expedient implementation that the critique concerning the Clean Air 2000 Plan be taken into consideration when updating the plan. More importantly, for effective implementation it would be necessary to set new priorities and limit the plan to do-able objectives; eliminating the rest. A time frame for realizing actions is also needed.

5.22 The general feeling after discussion with key stakeholders is that over the past three years since the preparation of the Clean Air 2000 Plan, the original flavor of the document has been lost. The National Task Force for the Environment, needs to become more effective in ensuring implementation of the key actions selected as priorities. In particular, the following will be needed:

- revitalize the goals and aspirations of the original document
- encourage actions which could be pursued by the private sector
- examine the possibility of a Greater Colombo Metropolitan Transport Authority, to be responsible for overall evaluation, programming, and standard setting

⁴⁸ Material for this section has been taken from a note by Ajay Kumar and Sumith Pilapitiya, and a presentation by Ravi Perera at the Transport Sector Strategy Workshop in Colombo, July 1996.

Box 12: Beyond the Recommendations of Clean Air 2000

As the city center grows the demand for transport and parking facilities is expected to also grow, and this must be explicitly taken account of when planning for the future. In the longer run (15 to 20 years) conversion of passenger services to electrified mass transit may become a crucial element of the metropolitan transport strategy. This would lead to a direct reduction in train noise and emissions and an indirect reduction in noise and exhaust emissions due to fewer bus and car trips.

Both noise and air pollution emissions are high in Colombo due to the age, composition, and condition of the vehicle fleet, the low quality of available fuel, and the use of leaded gasoline. It is hence important to require better maintenance of vehicles, strict vehicle inspection and licensing, and the introduction of unleaded and better fuel. The existing vehicle inspection system does not function well, so an improvement in institutional capacity is required. Emissions are not only dependent upon fleet size and quality, but also determined by the characteristics of trips since emission volumes are much larger during starts and stops. Thus easing congestion would have a direct impact on vehicular emissions.

Supply side policy options include the construction of key highway improvements and new highways to develop a better network, as well as improving the level of service on the railway network. Highway improvements would reduce congestion initially and also remove traffic from environmentally sensitive areas; however, capacity improvements alone are not sufficient, as traffic tends to fill the space it is provided. Rehabilitation of roads and railways on a priority basis would help to maximize carrying capacity (and safety), thus minimizing traffic congestion. Both rehabilitation and new construction measures would require substantial capital expenditures. Traffic management, including the rationalization of bus routes is also important. This is a relatively low cost measure and could be implemented along with congestion pricing.

On the supply side, again, a high priority must be given to restructuring of the public and private bus systems. By making bus transport less crowded, more reliable, and increasing its on-time performance, more consumers are likely to choose to travel on buses as opposed to private automobiles. A somewhat more ambitious undertaking would be to upgrade the suburban rail to mass transit standard - since experts agree that the potential for this exists. Indications are that a high frequency, high capacity, reliable service would be required to divert traffic away from other modes/ road transport (Colombo Urban Transport Study, 1996).

It appears that despite the capital cost of retrofitting, using CNG for public transport i.e., for high mileage restricted range vehicles like urban buses and taxis, would be cost effective at crude oil prices between US\$ 10-20 per barrel, and justified in terms of the benefits from lowered emissions (URBAIR discussion paper "Environmental Considerations for Cleaner Transport Fuels: Technical Options" (November 1994). The World Bank: Washington, D.C.).

On the demand side motor vehicle users should be made to pay the full social cost of driving. Possible instruments include: (a) congestion pricing; (b) incentives to use public transport which may come from pull factors on the supply side, as well as push factors that make driving increasingly costly and unattractive in comparison with other options; and (c) controlled car parking on city streets. This would do little to discourage through traffic but would make trips to the city more expensive.

5.23 In the case of air pollution, the Government should focus its efforts in the short-run to reductions in particulate emissions. Sri Lanka is in serious violation of WHO ambient air quality standards for particulates while it complies with ambient standards for lead. Additional efforts to control particulate emissions include:

- better enforcement of existing laws against poorly maintained and heavily polluting diesel vehicles. In particular, enforcement against “belching” vehicles might be improved by simple Polaroid cameras.
- import of crude oils with lower sulphur content or other characteristics that might reduce particulate emissions
- strengthen the capacity to enforce emission laws
- carry out studies to find practical measures to control traffic and congestion and reduce particulate emissions

C. TRAFFIC MANAGEMENT FOR CONGESTION CONTROL AND SAFETY⁴⁹

5.24 On the sub-issue of traffic management, there are a number of causes for congested and unsafe use of road space: (a) growth in private vehicle ownership coupled with declining public transport facilities; (b) both slow and fast modes sharing the same right of way; (c) poor coordination between transport and land use; (d) conflict between motorized and non-motorized modes conflict within motorized modes; (e) physical design constraints; (f) lack of firm policies for traffic management; (g) poor driving behavior; (h) lack of public awareness; and (i) poor enforcement.

5.25 The fiscal deficit and other constraints to capacity expansion on the roads to deal with growing demand for infrastructure facilities and reduce congestion, suggest that there is an urgent need to address traffic management and safety issues. Among the major constraints to proper management of traffic is the in existence of a body with responsibility for traffic management and safety in the Colombo Metropolitan Region (CMR), and nationally. There are a number of inter-agency committees and working groups but these function merely as administrative bodies without any statutory power, resources and technical capacity to plan and program.

5.26 Recommendations to improve the situation, including the need for a national level planning agency and a transport authority for the CMR are:

- controls on parking and other measures to discourage the use of private motor vehicles in congested and polluted urban areas
- priority for buses in the allocation of street space in congested urban areas
- raising the cost of private diesel motor vehicles, which could be based on targeted increases in the annual and new registration fees for private diesel motor vehicles

⁴⁹ Material for this section has been taken from a presentation by Roger P. Parker of WS Atkins International, Ltd. and a summary by Ajay Kumar.

- raise level of awareness for traffic safety and road management among road users
- need for police training and better equipment to monitor
- improve coordination among different transport modes
- develop a strong information base
- support the use of non-motorized travel, including walking, bicycles and cycle-trailers (see paragraph 5.29)
- provide support to local governments to construct sidewalks and pedestrian crossings on congested streets in urban areas

D. ROLE OF TRANSPORT IN POVERTY ALLEVIATION AND REGIONAL DEVELOPMENT⁵⁰

5.27 There were valuable contributions from papers prepared to address this issue in the workshop as well as from participants on the floor. It was suggested that the transport industry (road, rail, air, sea and river together) has provided a relatively large volume of employment. Its expansion, which is crucial for sustainable development offers considerable opportunities for direct and indirect employment generation in the future. Recommended actions in this direction are the following:

- develop a better information base to estimate the impact of transport on economic development
- expand the role of the private sector in the development of transport infrastructure (especially roads) and services to create more jobs
- increase the participation of rural unskilled labor, particularly female, in the construction and maintenance of roads and other transport infrastructure
- support small scale manufacturing to make non-motorized and intermediate modes of transport more adaptive to rural conditions, thereby increasing the access and mobility needs for rural production
- adopt where feasible project designs to focus on labor generation capacity
- encourage participatory planning approaches for developing rural transport systems
- support where feasible cost-effective labor based methods in construction and maintenance of transport infrastructure

⁵⁰ Dominique Van de Walle provided a short note on key issues in poverty alleviation and rural development.

E. ACCESS AND MOBILITY IN RURAL AREAS⁵¹

5.28 There is a need to look at accessibility and mobility in rural areas (a) not from the perspective of urban transport and urban planning but (b) from the perspective of the needs of the rural people through their participation. Nature of rural travel is different from urban travel. It is characterized among other things by, limitation of motorized vehicles, and the bad conditions of roads. These must be borne in mind when planning for increased access and mobility in rural areas and when planning to enhance facilities alternative to existing ones. Non-Motorized Modes of Transport (NMTs) and Intermediate Modes of Transport (IMTs) may be more appropriate than buses in this context. The Government should integrate considerations for access and mobility into transport sector policy. In particular, efforts should be made to look at alternatives including bringing facilities closer to the people, thus obviating the need for travel. At present it is Government policy to establish primary schools in village areas. Research studies⁵² show that there is a primary school within 2 km of many village centers. The problem is for children attending secondary schools, where research indicates that such schools are on average 5 to 10 km away, and sometimes up to 30 km or more, in remote rural areas. Therefore access to secondary schools for rural children needs to be addressed. The Government should create a unit within the Ministry of Transport to sponsor research and developed, as well as dissemination by NGOs and others, of information relating to non-motorized and intermediate means of transport. This unit should also be responsible for safety aspects of NMT and IMT travel.

5.29 Other measures are needed to improve access and mobility in rural areas. The Government should better target support for non-economic rural bus services in order to make fares affordable for school children. The provision of this support should be on the basis of competitive bidding for non-economic rural bus services, expanding the current program to include peoplized as well as private companies. Targeted concessionary fares for poor school children should also be introduced on private buses. It is necessary to strengthen the capacity of the NTC and PTAs to supervise rural bus services and school fares. A study is needed to develop subsidy and targeting schemes for poor children, which includes mechanisms for including the private bus operators in the provision of services.

⁵¹ Two reports provided valuable inputs: J. Diandas and M.J. Sahabandu, "Study on Subsidy Allocations in Road Transport and Operation of Bus Services on Unremunerative Rural Routes", presented in Colombo, July 1996; and Intermediate Technology Development Group, "Access and Mobility in Rural Areas", Transport Sector Strategy Study, Consultative Workshop, July 3-5, 1996.

⁵² J. Diandas and M.J. Sahabandu, "Study on Subsidy Allocations in Road Transport and Operation of Bus Services on Unremunerative Rural Routes", page 71-72, presented in Colombo, July 1996.

F. REGIONAL INTEGRATION THROUGH TRANSPORT

5.30 There is need for a new emphasis to the national highway system as a means for strengthening cooperation and efficiency in all provinces. A clearly defined and upgraded “primary system” is a key to efficiency and development. The national highway system should focus not on the 11,000 km system of A and B roads but on a redefined system based on current priorities which properly connects provincial centers. This is somewhat symmetric to India’s national system of 32,000 km. The redefined system of national roads should be upgraded from its current low level of service. With respect to the Southern Highway, engineering planning for this road is being done in coordination with local planners along the route who can help mitigate traffic flow problems. Concern was expressed by some stakeholders, however, with possibly over-aggressive environmental and social opposition. The planning of the Southern Highway, and other provincial development programs, should not be done in isolation, but should take into account the need to coordinate with the feeder road network connecting to the primary system. In this regard, planners should focus on modal alternatives, including rail.

Figure 1: Dominant Position of Colombo

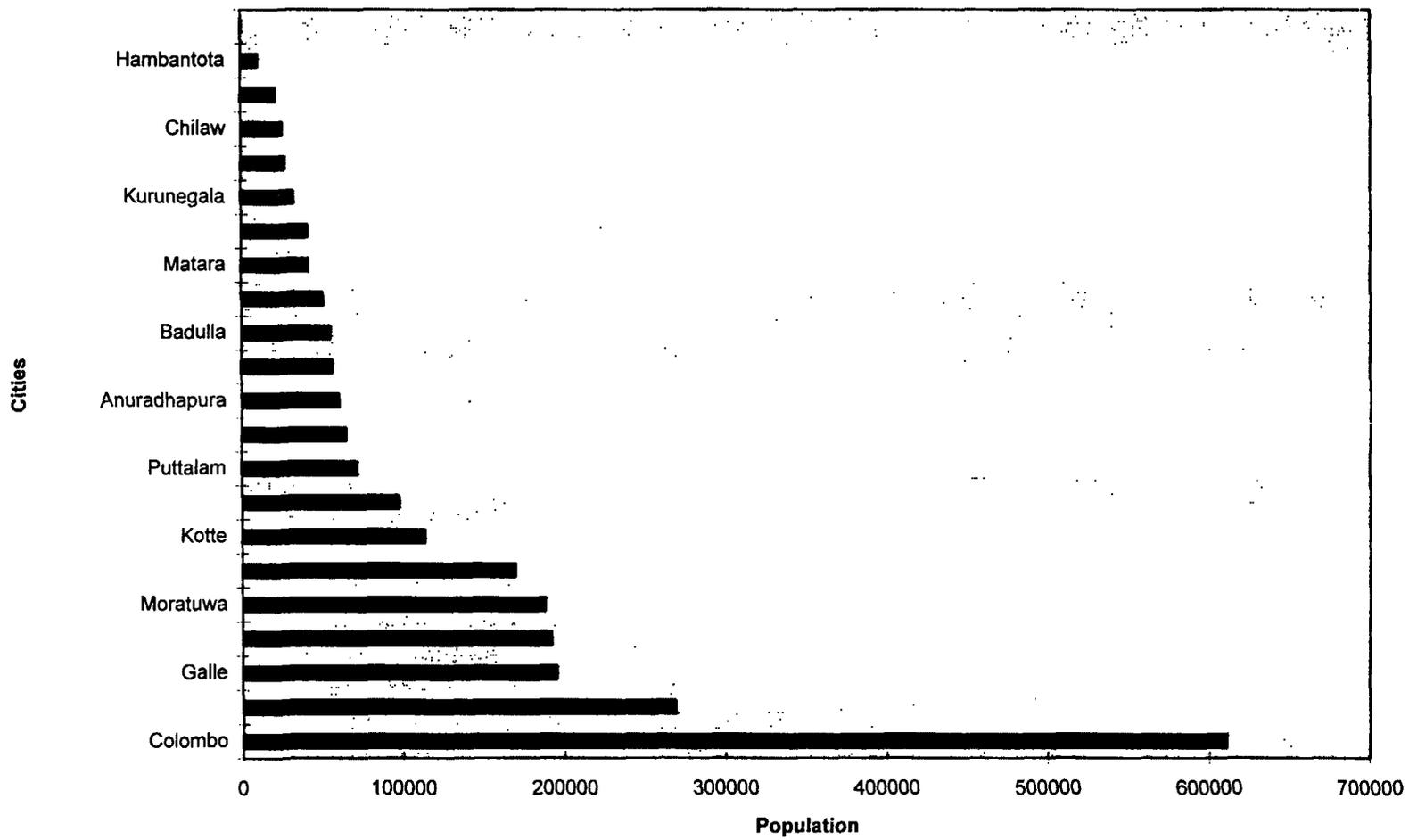


Figure 2: Modal Shift to Private Transport

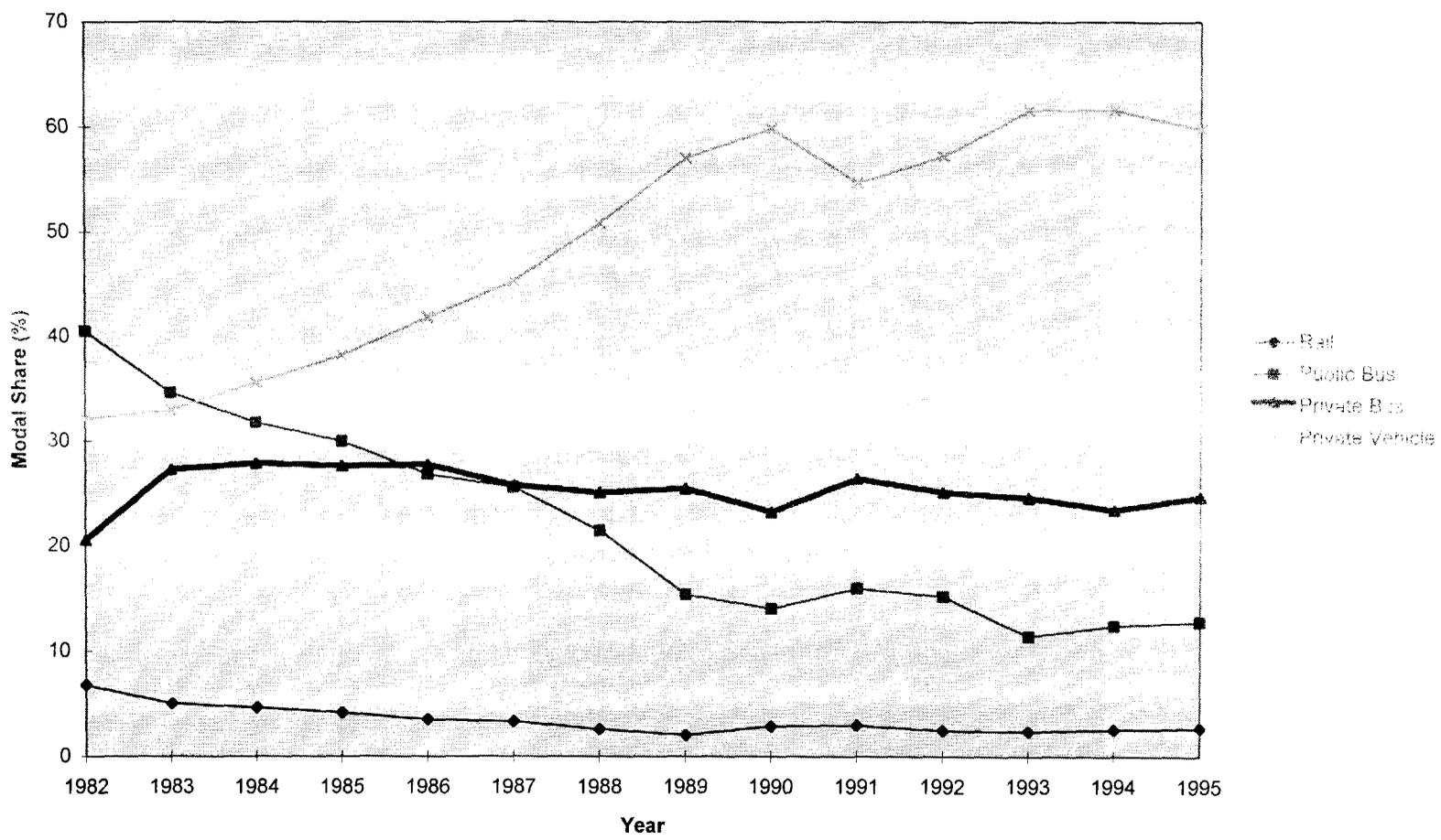


Figure 3: Expenditure as a share of GDP (%)

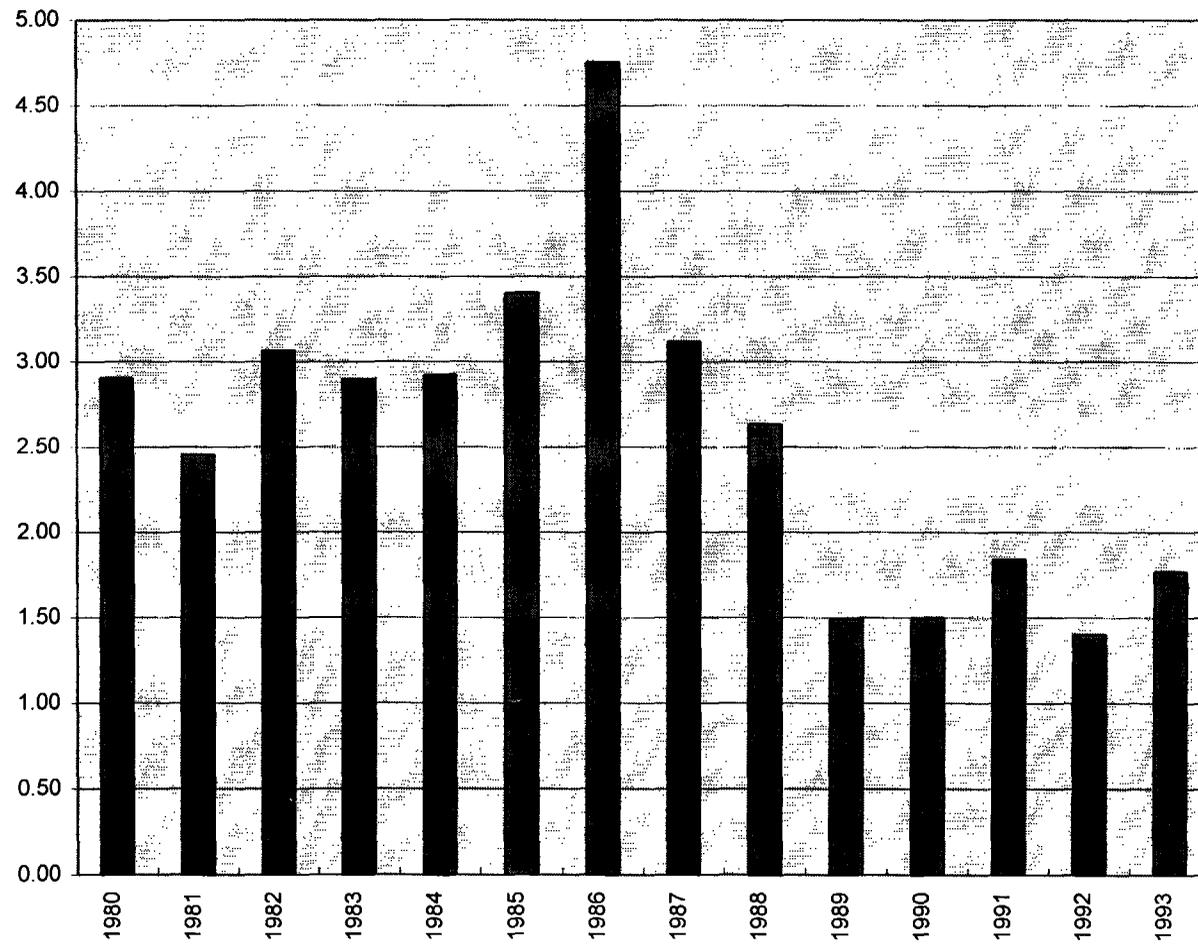


Figure 4: Demand for Land Transport

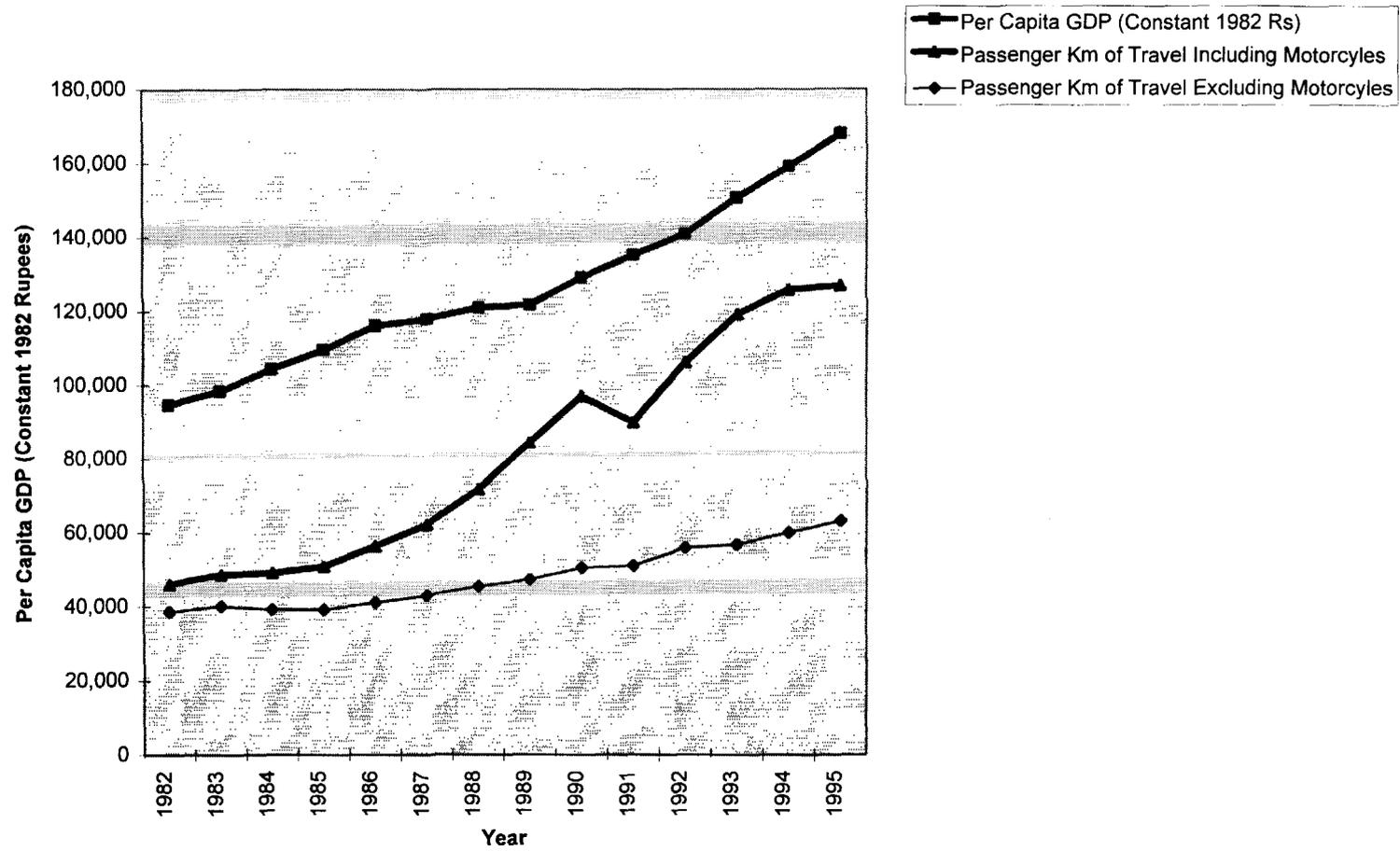


Figure 5: Composition of Public Expenditures in Transport

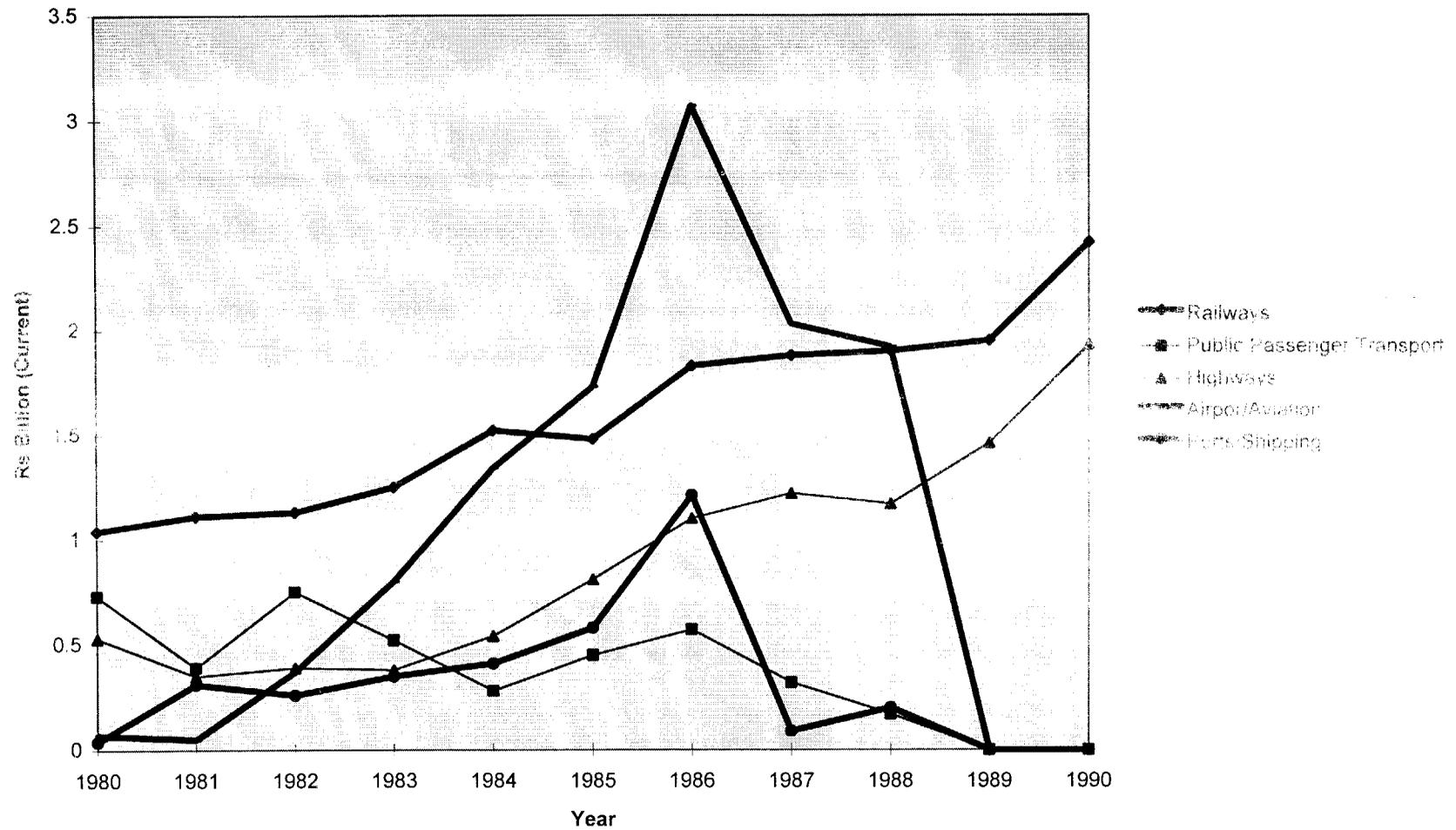
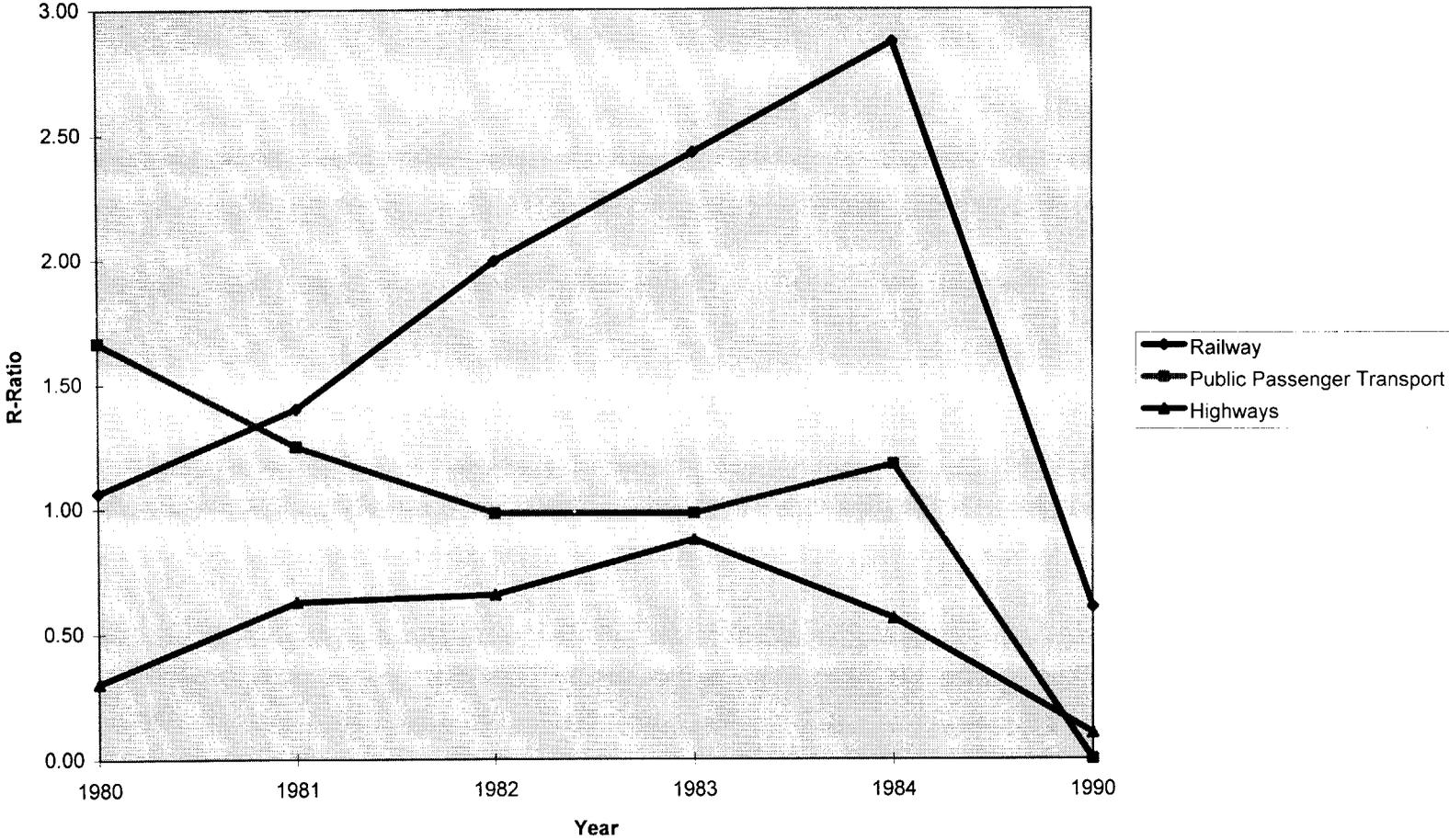


Figure 6: Ratio of Recurrent to Capital Expenditures in Transport



Impacts and Issues of Sri Lanka Clean Air 2000

Action under Clean Air 2000 Plan	Impacted pollutants	Health effect from	Impact: motorization or effects of motorization	Instrument: Direct or Indirect	Priority (short term)	Cross sector or other issues to be addressed	Cost. Implementation Issues.	Impact in short, medium or long term? ¹	Should be under CMTA? ²	Undertaken by private sector?
Vehicle Inspections and maintenance										
Smoke meters introduced to police	PM10	PM10	Effects	Direct	High	Police training required	Low	Short		
Tighten inspection standards	CO, VOC, NO2, SO2, PM10	PM10, NO2, VOCs: O3 precursors	Effects	Direct	High		Low	Short	Y	
Voluntary inspections	CO, VOC, NO2, SO2, PM10	PM10, NO2, VOCs: O3 precursors	Effects	Indirect				Long	Y	
Vehicle testing centre for inspection and maintenance	CO, VOC, NO2, SO2, PM10	PM10, NO2, VOCs: O3 precursors	Effects	Direct	High	Investment, training	Low	Short	Y	Y
Promote public awareness of benefits of maintenance	CO, VOC, NO2, SO2, PM10	PM10, NO2, VOCs: O3 precursors	Effects	Indirect		Education campaign	Low	Long	Y	
Fuel Reformulation, Pricing, Fleet Mix										
Reduce or eliminate lead	If aromatics used to compensate, Benzene increases while Lead declines. Using oxygenates, NO2 increases while VOC decline.	Lead decline but Benzene (carcinogen) and O3 precursors increase	Effects	Direct	High	Need to reconfigure refinery (assuming they do not import unleaded gasoline); also unleaded price should be attractive. Must avoid use of unleaded in cars without catalytic converters since this results in higher HC and Benzene emissions.	Low. Refinery modifications/ use of additives to raise octane => US\$ 0.01-0.02/litre	Short		Depends on plans for restructuring petroleum sector. No, if refinery is in the public sector.
Reduce diesel proportion of vehicle mix ³	PM10 & SO2 (higher for diesel), CO, NO2, VOC (lower for diesel than gasoline)	Increased lead as move to gasoline use (emissions are nil for diesel), O3, PM10	Effects	Direct			Cost determined by the instruments/ incentives to be used. Is it politically feasible? Need information on capital cost of diesel vs. petrol vehicles.	Medium		
Reduce sulphur in diesel fuel	SO2. If additives like Ba used to suppress smoke, toxic PM will rise.	PM, Toxics.	Effects	Direct			Hydrodesulfurization refinery costs are US\$0.05/litre.	Medium		
Emission Inventory and Monitoring										

Impacts and Issues of Sri Lanka Clean Air 2000

Action under Clean Air 2000 Plan	Impacted pollutants	Health effect from	Impact: motorization or effects of motorization	Instrument: Direct or Indirect	Priority (short term)	Cross sector or other issues to be addressed	Cost. Implementation Issues.	Impact in short, medium or long term? ¹	Should be under CMTA? ²	Undertaken by private sector?
Inventorise mobile and stationary sources of air pollution	Potentially all			Indirect	High: provides the information basis for focussing control efforts.	Since data on stationary sources may be confidential, involvement of relevant regulators from outside the transport sector is needed.	High		Y	Should be subcontracted to pvt. consultants.
Expand monitoring program to cover CMA and publish annual trend data	Potentially all			Indirect			Low	Medium	Y	Should be subcontracted to pvt. consultants.
Upgrade laboratory and data processing abilities	Potentially all			Indirect					Y	Y
Standard Setting										
Ambient standards for CMA	SO ₂ , NO ₂ , PM ₁₀	O ₃ , PM ₁₀		Indirect	High	Once the standard is set how is it to be enforced? Require dispersion models and technical expertise to connect emissions to ambient quality, and thereafter need to be able to identify polluters.	Depending on whether ambient monitors exist or not and whether standards in other developing country cities could be adopted without much change, it could be very low.	Long	Y	
Set motor vehicles emission standards	SO ₂ , NO ₂ , PM ₁₀ , CO	O ₃ , PM ₁₀	Effects	Direct	High	Grandfathering of existing fleet is politically necessary but may result in no improvement for a long time	Low	Short	Y	
Engine specification standards for imported vehicles	Potentially all		Effects	Direct		Decide on jurisdiction for this specification?	Low	Medium	Y	

Impacts and Issues of Sri Lanka Clean Air 2000

Action under Clean Air 2000 Plan	Impacted pollutants	Health effect from	Impact: motorization or effects of motorization	Instrument: Direct or Indirect	Priority (short term)	Cross sector or other issues to be addressed	Cost. Implementation issues.	Impact in short, medium or long term? ¹	Should be under CMTA? ²	Undertaken by private sector?
Explore feasibility of alternate fuels for public transport	Ethanol; VOC increase; LPG or CNG: NO2 and VOC increase. Lead decline	Lead, O3 precursors	Effects	Indirect	High	Bus subsector would need to be in a position to undertake the necessary improvements	CNG/LPG require high investt. in fuel storage and distribution and in retrofitting of vehicles. Ethanol is not competitive with conventional fuels (needs subsidies).	Long	Y	Should be subcontracted to pvt. consultants.
Analyse costs of achieving different levels of pollution reduction in existing power and industrial plants and set emissions standards based on cost info.	Potentially all			Direct	High	Who would enforce compliance with emissions standards? Does regulatory capacity exist? This is not related to the Transport sector so cross sector involvement is required.	Easy to identify stationary point sources. Emissions should be connected to ambient quality via dispersion models to account for local (bubble) absorptive capacity. Monitoring/ enforcement may be costly if strict command and control is followed.	Medium	Y	Should be subcontracted to pvt. consultants.
Phase-in pollution control limits in individual units	Potentially all			Direct	High	As above.	Low	Medium	Y	
Set new source emission standards	Potentially all			Direct	High	As above.	Low	Long	Y	
Institutional Framework and Regulatory Compliance										
Engine condition as criterion for issue of fitness certificate	PM10, SO2, NO2, VOCs	O3, PM10	Effects	Direct			Low	Medium	Y	
Strengthen regulations to make smoke belching a punishable offence	PM10, NO2	O3, PM10	Effects	Indirect	High			Short	Y	
Regular smoke and pollution checks	PM10, NO2	O3, PM10	Effects	Direct	High		Low	Short	Y	Y
Imported vehicles to meet export country standards	Potentially all		Effects	Direct		To be jurisdiction of which ministry?		Medium	Y	
Economic Instruments										
Higher penalties for belching vehicles	PM10, SO2, NO2	O3, PM10	Effects	Direct	High			Short	Y	
Lower duty on essential spare parts	PM10, SO2, NO2	O3, PM10	Effects	Indirect	High	To be jurisdiction of which ministry?	Low. Unless the revenue impact on the budget is high.	Medium		
Differential licensing fees for diesel and petrol powered vehicles	PM10, CO, NO2, Aromatics	O3, PM10	Motorization	Indirect				Medium	Y	

Impacts and Issues of Sri Lanka Clean Air 2000

Action under Clean Air 2000 Plan	Impacted pollutants	Health effect from	Impact: motorization or effects of motorization	Instrument: Direct or Indirect	Priority (short term)	Cross sector or other issues to be addressed	Cost. Implementation issues.	Impact in short, medium or long term? ¹	Should be under CMTA? ²	Undertaken by private sector?
Duty and taxes on new and reconditioned vehicles related to polluting potential	PM10, CO, NO2, Aromatics	O3, PM10	Motorization	Indirect		Whose jurisdiction is this? How does being a WTO member impact on this?		Medium	Y	
Transportation Planning and Traffic Management										
Incorporate land-use in transport planning			Motorization, Effects	Indirect			Could be quite high especially in terms of bureaucratic delays to highway construction.	Long	Y	
Implement study recommendations on traffic flow and transportation planning			Motorization, Effects	Indirect	High	Should involve the public, and take account of travel patterns for work and school. Requires coordinated development of public transport, highways and alternate traffic routes in addition to economic incentives to lower use of private modes.	Depends on the extent of action taken.	Short	Y	
Develop a long-term air pollution management program				Indirect		Should involve private industry, transport sector, government, environmentalists. Will require information on the relative contribution of different sources to ambient environmental quality so relies on emissions inventory.	High cost. Needs to be clearly defined.	Long	Y	Y
Non Action Plan suggestions to reduce a) motorization, and b) effects of motor vehicle use										

Impacts and Issues of Sri Lanka Clean Air 2000

Action under Clean Air 2000 Plan	Impacted pollutants	Health effect from	Impact: motorization or effects of motorization	Instrument: Direct or Indirect	Priority (short term)	Cross sector or other issues to be addressed	Cost. Implementation issues.	Impact in short, medium or long term? ¹	Should be under CMTA? ²	Undertaken by private sector?
Improve the quality and availability of public transit: buses (diesel)	CO, VOC, NO2 decline but SO2, PM10 increase to extent that diesel replaces gasoline in fuel consumption.	O3, PM10	Motorization, Effects	Instrument undefined	High	Require reorganization of bus subsector	Incomplete information	Short	The concerned authorities should coordinate closely with CMTA	Y
Improve the quality and availability of public transit: trains – diesel or electric	Electric: all emissions decline. Diesel: overall emissions decline, but to extent that diesel replaces gasoline, PM10, SO2 increase.		Motorization, Effects	Instrument undefined	High	Require independent action by the railway subsector	Incomplete information	Short	The concerned authorities should coordinate closely with CMTA	?
Tax on diesel	PM10, SO2 decline if diesel use isn't compensated for with an increase in gasoline use.	PM10	Motorization	Indirect		Relevant authority? Who gains the revenues?	Political will?	Medium	Feasibility/ demand studies needed	Can be subcontracted to pvt. consultants.
Road user charges	Potentially all	VOC, PM10	Motorization	Indirect	High	Relevant authority? Who gains the revenues?	Political will? May end up by creating red-tape.	Medium	Feasibility/ demand studies needed	Can be subcontracted to pvt. consultants.
Congestion tax	Potentially all	VOC, PM10	Motorization	Indirect	High	Relevant authority? Who gains the revenues?	Political will? May end up by creating red-tape.	Short	Feasibility/ demand studies needed	Can be subcontracted to pvt. consultants.
Parking controls to make driving less attractive	Potentially all	VOC, PM10	Motorization	Indirect		Relevant authority? Who gains the revenues? What about through traffic?	Political will?	Medium	Y	
Specifically discourage shift to motorcycles	CO, VOC, NO2, SO2, PM10	VOC, PM10	Motorization	Instrument undefined	High	Need a reliable alternative mode			Y	
Noise?			High		High					? Maybe under the environmental authority.
¹ Behaviour modification takes time. Also, some amount of demand is inelastic and hence will not adjust in the short run.										
² For Colombo. The CMTA would combine a research and planning arm with a regulatory arm.										
³ Assumes move to gasoline instead										
Note: It is not clear what is the magnitude of transport related environmental impact in terms of cost to life/health. Also, what is the ranking of such problems in terms of other environmental priorities.										

Annex 2: Estimated Investment Needs and Payoff from Proposed Reforms

It is estimated that Sri Lanka will need to spend a total of US\$128 billion (US\$ 2.4 billion per year) over the next twenty years in the highway sector alone (see Table 1). Using the current modal balance with the highway sector absorbing 50% of budget allocations in transport (including rail, ports and shipping), the total investment needs would be close to US\$ 300 billion (US\$ 15 billion per year). The public sector will not be able to sustain this high level of expenditure; allocations for the budget period 1995-99 for the transport sector are around US\$ 4.2 billion. This means that efforts will need to be made to seek funding from other sources such as the private sector and user charges and fees, as well as to increase the efficiency of investments in the public sector.

Since the highway sector is projected to absorb a big share of the estimated expenditures, an analysis was performed to estimate the savings that could be generated if key reforms were undertaken. Three reforms are analyzed: (a) putting in place a road maintenance fund which would be managed in a commercial manner and would ensure that the right amounts of funds are available for maintenance; (b) increasing the level of competition in the execution of road works which would lower the overall unit costs of road works; and (c) strengthening the capacity of the sub-national governments to undertake road works which would also increase the efficiency of execution.

Status Quo. Using the status quo, we have projected the estimated investment needs for major rehabilitation, periodic maintenance, and routine maintenance. The unit costs used for this projection are based on sampling bids to the RDA for similar works for the period 1992/93 (see consultant report titled Sri Lanka: National Roads Project-Road Rehabilitation and Maintenance Program & Equipment Management, April, 1994). The results are shown in Table 1.

Road Fund. When a well managed road fund is in place, the execution of maintenance is going to be done more efficiently, with appropriate priorities, and when needed. The benefit will show up in the reduction in unit costs of routine maintenance. Under the status quo, according to the report on the National Roads Project, Sri Lanka needs about US\$ 6,000 per km per year to maintain their network. (see Figure 1 for a cross-country comparison of the unit cost of maintenance). This high unit cost is mainly because drainage works have not been performed in the past leading to the need for more expensive routine maintenance. When a road fund is in place, it has been assumed that the unit cost will decrease to the level of international benchmarks. The international benchmarks were calculated from a 53 country data base (see Table 2). The savings generated from having a road fund in place are three fold: (a) reduction in the unit costs of routine maintenance to about US\$ 2,433 per km per year; (b) reductions in the unit costs of periodic maintenance to about US\$ 25,000 per km per year; and (c) a reduction in the number of rehabilitation's needed because appropriate maintenance is being undertaken from 3 in a 20 year period to 2 in the same time period. Implementing this policy has the potential to save around 47% over the status quo.

Increased Competition. If the execution of road works is to be undertaken in a more competitive fashion by engaging local contractors to compete with each other and reducing the market power of the RCDC, the potential savings over and above those from having a road fund are in the order of 19%, bringing the total savings to about 65%. Increased competition is expected to result in a reduction in the unit costs of all road related activities.

Strengthening Capacity of Subnational Agencies. This policy reform would make the expenditures made at the subnational level more efficient and effective. Agencies at the provincial level would be more technically and managerially capable to manage the road system and would hence make appropriate decisions and undertake them efficiently. The incremental savings from this reform are in the order of 6%, over and above those from the road fund and increased competition. The total savings of the three reforms are expected to be more than 70% over the status quo.

Sri Lanka: Estimated Capital Outlays in Roads Without Reform

Category	Length	Responsibility	Major Rehabilitation	Periodic Maintenance	Routine Maintenance	Total Costs	Estimated Savings
Class A	4,116	RDA	3,087,000,000	2,016,840,000	493,920,000	5,597,760,000	
Class B	6,858	RDA	5,143,500,000	3,360,420,000	822,960,000	9,326,880,000	
Class C&D	14,900	PC	11,175,000,000	7,301,000,000	1,788,000,000	20,264,000,000	
Local authority	68,000	PC and Others	51,000,000,000	33,320,000,000	8,160,000,000	92,480,000,000	
Total Over 20 Years	93,874		70,405,500,000	45,998,260,000	11,264,880,000	127,668,640,000	
Total per Year			3,520,275,000	2,299,913,000	563,244,000	6,383,432,000	0%
Share			55%	36%	9%		

Sri Lanka: Estimated Capital Outlays in Roads With Road Maintenance Fund

Category	Length	Responsibility	Major Rehabilitation	Periodic Maintenance	Routine Maintenance	Total Costs	Estimated Savings
Class A	4,116	RDA	2,058,000,000	720,300,000	205,800,000	2,984,100,000	
Class B	6,858	RDA	3,429,000,000	1,200,150,000	342,900,000	4,972,050,000	
Class C&D	14,900	PC	7,450,000,000	2,607,500,000	745,000,000	10,802,500,000	
Local authority	68,000	PC and Others	34,000,000,000	11,900,000,000	3,400,000,000	49,300,000,000	
Total Over 20 Years	93,874		46,937,000,000	16,427,950,000	4,693,700,000	68,058,650,000	
Total per Year			2,346,850,000	821,397,500	234,685,000	3,402,932,500	47%
Share			69%	24%	7%		

Sri Lanka: Estimated Capital Outlays in Roads With Road Maintenance Fund and More Competition

Category	Length	Responsibility	Major Rehabilitation	Periodic Maintenance	Routine Maintenance	Total Costs	Estimated Savings
Class A	4,116	RDA	1,234,800,000	518,616,000	41,160,000	1,794,576,000	
Class B	6,858	RDA	2,057,400,000	864,108,000	68,580,000	2,990,088,000	
Class C&D	14,900	PC	4,470,000,000	1,877,400,000	149,000,000	6,496,400,000	
Local authority	68,000	PC and Others	20,400,000,000	8,568,000,000	680,000,000	29,648,000,000	
Total Over 20 Years	93,874		28,162,200,000	11,828,124,000	938,740,000	40,929,064,000	
Total per Year			1,408,110,000	591,406,200	46,937,000	2,046,453,200	68%
Share			69%	29%	2%		

Sri Lanka: Estimated Capital Outlays in Roads With Road Maintenance Fund, More Competition, and Stronger Subnational Agencies

Category	Length	Responsibility	Major Rehabilitation	Periodic Maintenance	Routine Maintenance	Total Costs	Estimated Savings
Class A	4,116	RDA	823,200,000	617,400,000	41,160,000	1,481,760,000	
Class B	6,858	RDA	1,371,600,000	1,028,700,000	68,580,000	2,468,880,000	
Class C&D	14,900	PC	2,980,000,000	2,235,000,000	149,000,000	5,364,000,000	
Local authority	68,000	PC and Others	13,600,000,000	10,200,000,000	680,000,000	24,480,000,000	
Total Over 20 Years	93,874		18,774,800,000	14,081,100,000	938,740,000	33,794,640,000	
Total per Year			938,740,000	704,055,000	46,937,000	1,689,732,000	74%
Share			56%	42%	3%		

Assumed Unit Costs in \$ per km			
	Major Rehabilitation	Periodic Maintenance	Routine Maintenance
Status Quo	250,000	70,000	6,000
With Road Maintenance Fund	250,000	25,000	2,500
With Road Maintenance Fund and More Competition	150,000	25,000	500
With Road Maintenance Fund, More Competition, and Stronger Subnational Agencies	100,000	25,000	500
Source: Taken from Bid Estimates in 1993/94 for similar works in Sri Lanka and from International Benchmarks on Best Practice			

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