

TRANSPORT BUSINESS STRATEGY



Safe, Clean, and Affordable... Transport for Development

*The World Bank Group's
Transport Business Strategy for 2008-2012*

Safe, Clean, and Affordable...
Transport for Development

*The World Bank Group's
Transport Business Strategy 2008-2012*



THE WORLD BANK
WASHINGTON, D.C.

© 2008 The International Bank for Reconstruction and Development / The World Bank
1818 H Street NW
Washington, DC 20433
Telephone 202-473-1000
Internet: www.worldbank.org

This volume is a product of the staff of The World Bank. The findings, interpretations, and conclusions expressed in this volume do not necessarily reflect the views of the Executive Directors of The World Bank or the governments they represent.

The World Bank does not guarantee the accuracy of the data included in this work. The boundaries, colors, denominations, and other information shown on any map in this work do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Rights and Permissions

The material in this publication is copyrighted. Copying and/or transmitting portions or all of this work without permission may be a violation of applicable law. The International Bank for Reconstruction and Development / The World Bank encourages dissemination of its work and will normally grant permission to reproduce portions of the work promptly.

For permission to photocopy or reprint any part of this work, please send a request with complete information to the Copyright Clearance Center Inc., 222 Rosewood Drive, Danvers, MA 01923, USA; telephone: 978-750-8400; fax: 978-750-4470; Internet: www.copyright.com. All other queries on rights and licenses, including subsidiary rights, should be addressed to the Office of the Publisher, The World Bank, 1818 H Street NW, Washington, DC 20433, USA; fax: 202-522-2422; e-mail: pubrights@worldbank.org.

To order additional copies of this publication, please send an e-mail to the Transport Help Desk transport@worldbank.org

Transport publications are available on-line at <http://www.worldbank.org/transport/>

CONTENTS

- FOREWORD..... IX**
- ACKNOWLEDGMENTS..... XI**
- ABBREVIATIONS AND DATA NOTES XIII**
- OVERVIEW 1**
- 1 ORIGINS OF THE REPORT 11**
 - 1.1 The 1996 transport strategy.....11
 - 1.2 The evolution of development issues12
 - 1.3 The Independent Evaluation Group’s review of transport13
 - 1.4 The 2008 transport business strategy14
- 2 FOCUS ON DEVELOPMENT IMPACT..... 17**
 - 2.1 Transport and the Millennium Development Goals17
 - 2.2 Serving international trade.....18
 - 2.3 Making cities more efficient and livable20
 - 2.4 Increasing rural economic opportunity21
 - 2.5 Accessing health care and education22
 - 2.6 Making transport safer and cleaner23
 - 2.7 Measuring impact and sharing knowledge23
 - 2.8 Implications of the development focus25
- 3 FOCUS ON POLICIES..... 27**
 - 3.1 The roles of governments27
 - 3.2 Rationalizing public and private sector roles in transport delivery.....28
 - 3.3 Improving the performance of state-owned enterprises30
 - 3.4 Preserving the value of public assets31
 - 3.5 Encouraging private sector participation.....33
 - 3.6 Setting transport prices35
 - 3.7 Fostering competition and strengthening regulation36
 - 3.8 Making transport more inclusive37
 - 3.9 Improving transport safety and security.....39
 - 3.10 Combating transmission of HIV/AIDS41
 - 3.11 Reducing transport emissions and climate change42
 - 3.12 Fighting corruption45
 - 3.13 Implications of the policy focus.....46
- 4 FOCUS ON MODES OF TRANSPORT 47**
 - 4.1 The modes of transport47
 - 4.2 Roads48
 - 4.3 Railways51
 - 4.4 Urban transport.....53
 - 4.5 Ports and maritime transport.....55
 - 4.6 Inland waterways56
 - 4.7 Airports and aviation.....58
 - 4.8 Multimodal transport59
 - 4.9 Implications of the modal focus61
- 5 FOCUS ON REGIONS 63**
 - 5.1 Regions, diversity, and partnership64
 - 5.2 Sub-Saharan Africa64
 - 5.3 East Asia and Pacific66
 - 5.4 Europe and Central Asia67

5.5	Latin America and the Caribbean	68
5.6	Middle East and North Africa	70
5.7	South Asia.....	71
5.8	Global partnerships supporting regional programs	72
5.9	Implications of the regional focus.....	72
6	TRANSPORT BUSINESS STRATEGY 2008–2012	75
6.1	Comparative strengths	75
6.2	Strategic objective.....	80
6.3	Strategic directions	80
6.4	Process adjustments	82
6.5	Results framework.....	83
6.6	Implementation Action Plan	90
6.7	Resource implications.....	94
ANNEX A	TRANSPORT LENDING TRENDS 1996–2007.....	95
ANNEX B	MAIN OPPORTUNITIES FOR INCREASED PRIVATE SECTOR PARTICIPATION IN TRANSPORT ACTIVITIES.....	99
ANNEX C	MIGA PRODUCTS.....	103
ANNEX D	WORLD BANK REGIONS.....	105
	REFERENCES.....	107
	ADDITIONAL RESOURCES	113

BOXES

Box 2-1.	The impact of roads on agricultural production	21
Box 2-2.	Ratio of social indicators in villages in rural Pakistan that do not have all-weather motor accessible roads (sample A) relative to those that do (sample B)	22
Box 2-3.	The power of results.....	24
Box 2-4.	The impact of transport on national economic growth	25
Box 3-1.	Reforming state-owned transport enterprises: Lessons from experience.....	31
Box 3-2.	Output-based contracts.....	32
Box 3-3.	Sustaining road maintenance financing in Sub-Saharan Africa	33
Box 3-4.	Issues in the design of economic regulations in transport.....	37
Box 4-1.	Road projects in Ethiopia and Vietnam	48
Box 4-2.	China's Third National Rail Project	52
Box 4-3.	Colombia's Integrated Mass Transit Systems Project	54
Box 4-4.	Croatia's Rijeka Port Gateway Project.....	56
Box 4-5.	Vietnam's Inland Waterways and Port Rehabilitation Project	57
Box 4-6.	Egypt's Airports Development Project.....	58
Box 4-7.	The Pakistan National Trade Corridor Program, 2005-2007: A trade corridor project with regional benefits	60
Box 5-1.	Tailoring responses to needs in the East Asia and Pacific Region.....	66
Box 5-2.	Getting the best value for transport investments in Latin America	69
Box 5-3.	Global initiatives that support regional programs	73
Box 6-1.	IFC support of private sector participation in transport infrastructure: Illustrative projects ..	76
Box 6-2.	MIGA contribution to private sector participation in transport infrastructure: Illustrative projects	79

FIGURES

Figure 3-1. Division of household transport responsibilities in Makete, Tanzania	38
Figure 3-2. Changes in number of road accident deaths, by region, 2000-2020	39
Figure 3-3. World transport emissions of carbon dioxide, by vehicle type, 2000	44
Figure 3-4. Carbon dioxide emissions in Europe, by freight mode	44
Figure 3-5. Carbon dioxide emissions in the United Kingdom, by passenger mode (measured for modern vehicles at average loading)	44
Figure 4-1. Length of the road network, by region, 2005	49
Figure 4-2. Ratio of road network to population, by region, 2005	49
Figure 4-3. Registered vehicle ownership, by region, 2005	50
Figure 4-4. Ratio of vehicle ownership to population, by region, 2005	50
Figure 4-5. Railway network, by region, 2005	51
Figure 4-6. Modes of transport for daily trips in nine cities in China	54

TABLES

Table 3-1. Projected health losses from traffic accidents as a proportion of the total health losses in each region, plus ranking of road deaths and injuries as a cause of healthy life-years lost, by region, 2002-2030	39
Table 6-1. IBRD net staff by network and sector mapping	76
Table 6-2. Transport staff overview by appointment type and location	77
Table 6-3. Intersector synergies and cooperation	84
Table 6-4. Indicative applications of World Bank Group instruments in the transport sector	85
Table 6-5A. Results Framework—Transport Sector: Rural Access	86
Table 6-5B. Results Framework—Transport Sector: Freight Transport	88
Table 6-6. Strategic directions: Implementation Action Plan	90
Table 6-7. Process adjustments: Implementation Action Plan	92

FOREWORD

Around the world, in much of development work, transport is the ultimate enabler. By serving other sectors of a nation's economy, it puts development goals within reach. We know, for instance, that an estimated 75 percent of maternal deaths could be prevented through timely access to childbirth-related care, facilitated by transport. We know that girls' enrollment in education can more than triple after completion of a rural road. And, we know that lowering transport costs along a modernized international corridor can unlock growth potential, create jobs, and bring wealth to local communities.

Mobility—the ability to access health care, education, jobs, and markets—may be something that citizens of developed countries take for granted. Yet for the 1 billion poor people in developing countries today who lack access to basic all-weather roads, for the 40-60 percent of people in developing countries who live more than 8 kilometers from a health care facility, or for poor urban dwellers who must spend up to five hours daily commuting in order to make a living, safe, clean, and affordable transport is a necessity.

In striving to achieve its development objectives—and foremost to eradicate poverty—the World Bank Group is mobilizing the transport sector to the fullest possible extent. To that end, the transport business strategy outlined in this document aligns Bank Group instruments along a few key strategic directions that will pave the way to truly sustainable development, one where transport plays a crucial role.

In a world with rising levels of greenhouse gases, poor road safety, and the all too frequent spread of communicable diseases along international routes, transport must be looked at anew. A coherent way forward requires innovative thinking and cooperation among sectors to optimize the role of transport without jeopardizing personal and commercial mobility. In particular, we need to look at the evolution of urban environments, where half the world's population lives, with most of those people in developing countries. Reliable, comprehensive, affordable urban transport systems will have to play a critical role in helping bring urban development under control, while simultaneously helping diminish the carbon footprint of a growing metropolis.

We hope the directions proposed in this document will make it easier for the development community, and all the partners of the World Bank Group interested in transport, to mobilize the resources required to address the critical issues identified. We also hope it will allow us all to join forces to implement policies and projects that will ultimately support developing and transition countries on their journey towards sustainable growth and better livelihoods.

Let us, then, embark together on the path towards *safe, clean, and affordable... transport for development.*



Katherine Sierra
Vice President, Sustainable Development
The World Bank

ACKNOWLEDGMENTS

This report of the World Bank Group was prepared under the guidance of the Bank's Transport Sector Board (TSB). The TSB is chaired by the director of the Energy, Transport, and Water Department of the World Bank's Sustainable Development Network. It comprises the managers of transport development operations in each of the World Bank's six regions and the manager of the central transport department based in Washington, D.C. The TSB includes representatives of the International Finance Corporation (IFC) and Multilateral Investment Guarantee Agency (MIGA), which together with the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), and the International Center for the Settlement of Investment Disputes (ICSID) form the World Bank Group.

The document was prepared by a team led by Paul Amos, with contributions by Anthony Bliss, Ravi Bugga, Robin Carruthers, Isabel Chatterton, Jean-Charles Crochet, Moustafa Baher El-Hefnawy, Marc Juhel, John Hine, Henry Kerali, Bert Kruk, Tesfamichael Nahusenay, Nicolas Peltier, Edith Quintrell, Cordula Rastogi, Peter Roberts, Charles Schlumberger, Elizabeth Wang, and Sam Zimmerman, under the overall guidance of Jamal Saghir, chair of the Transport Sector Board. Anna Piasecka and Barbara Gregory were responsible for production and publishing.

Particular thanks are extended to Maryvonne Plessis-Fraissard who, as chairperson of the TSB during the early period of the transport business strategy preparation, guided the process, and provided her valuable support and encouragement.

The Bank appreciates the insights, inputs, and advice received from staff involved in transport and other sectors throughout the World Bank Group. Their dedication, expertise, and experience have been critical to this report's content.

The Bank is committed to coordinating its transport sector activities with other regional and global partners and sought comments on the emerging ideas from peers, partners, and nongovernmental organizations. Their comments, criticisms, and suggestions have contributed greatly to the quality of the final product. While taking full responsibility for the views expressed herein, the TSB would like to acknowledge contributions made by the following: Asian Institute of Transport Development, Delhi; Australian Agency for International Development (AusAID); Canadian International Development Agency (CIDA); Disability Consultation Group (various contributors); European Bank for Reconstruction and Development (EBRD); European Investment Bank (EIB); FIA Foundation for the Automobile and Society; Gender and Transport Network (GATNET) (based on 160 messages from 29 participants); GTZ-KfW combined response (Germany); Indian Government Planning Commission; Institute for Transportation and Development Policy (ITDP); International Transport Workers' Federation (ITF); Irish Aid; Islamic Development Bank (IDB); IT Transport Limited (ITT); Japan Bank for International Cooperation (JBIC); Japan International Cooperation Agency (JICA); Monash University Accident Research Centre; Netherlands Directorate Road Infrastructure and Traffic Safety; New Zealand's International Aid and Development Agency (NZAID); Norwegian Agency for Development Cooperation (NORAD); Organisation for Economic Co-operation and Development (OECD); REAL Support Systems, Limited; Sub-Saharan Africa Transport Policy Program (SSATP); Swedish International Development Cooperation Agency (SIDA); University of South Australia, Transport Systems Centre; Warsaw School of Economics; Warsaw University of Technology; World Health Organization (WHO); Yousaf Sikander.

ABBREVIATIONS AND DATA NOTES

AAA	Analytical and Advisory Activities
ADB	Asian Development Bank
AFESD	Arab Fund for Economic and Social Development
AFR	Africa Region
AusAID	Australian Agency for International Development
CAS	Country Assistance Strategy
CIDA	Canadian International Development Agency
CMEA	Council for Mutual Economic Assistance (or COMECON)
CODE	Committee on Development Effectiveness
EAP	East Asia and Pacific
EBRD	European Bank for Reconstruction and Development
ECA	Europe and Central Asia
EIB	European Investment Bank
ESW	Economic and sector work
EU	European Union
FAA	Federal Aviation Administration
FY	Fiscal year
GAC	Governance and Anti-Corruption
GDP	Gross Domestic Product
HDM-4	Highway Development and Management Tool
IAP	Infrastructure Action Plan
IBRD	International Bank for Reconstruction and Development
ICSID	International Center for the Settlement of Investment Disputes
IDA	International Development Association
ICAO	International Civil Aviation Organization
IEA	International Energy Agency
IEG	Independent Evaluation Group, formerly OED (Operations Evaluations Department)
IFC	International Finance Corporation
IFRTD	International Forum for Rural Transport and Development
ILO	International Labour Organization
ITDP	Institute for Transportation and Development Policy
ITF	International Transport Workers' Federation
IDB	Islamic Development Bank
JBIC	Japan Bank for International Cooperation
KICA	Japan International Cooperation Agency
LAC	Latin America and the Caribbean
MIGA	Multilateral Investment Guarantee Agency
MNA	Middle East and North Africa
NZAID	New Zealand's International Aid and Development Agency
NORAD	Norwegian Agency for Development Cooperation
OECD	Organisation for Economic Co-operation and Development
OED	Operations Evaluations Department
OPCS	Operations Policy and Country Services
PRI	Political risk insurance
SAARC	South Asia Association for Regional Cooperation
SAR	South Asia

SACTRA	Standing Advisory Committee for Trunk Road Assessment
SSATP	Sub-Saharan Africa Transport Policy Program
SSIU	Sector Strategy Implementation Update
SIDA	Swedish International Development Cooperation Agency
TA	Technical assistance
UNAIDS	Joint United Nations Programme on HIV/AIDS
WBG	World Bank Group
WCO	World Customs Organization
WHO	World Health Organization

All dollar amounts are U.S. dollars unless otherwise indicated.

Billion means 1,000 million.

Fiscal year is July 1 – June 30.

It is the vision of the World Bank Group to contribute to an inclusive and sustainable globalization—to overcome poverty, enhance growth with care for the environment, and create individual opportunity and hope.

*Robert B. Zoellick
President
World Bank Group*

OVERVIEW

The 1996 World Bank strategy, *Sustainable Transport*, had as its pillars social, financial, economic, and environmental sustainability, acknowledging the likelihood of tradeoffs (for example, between safety and costs, or financial returns and user fees, or vehicle standards and air quality). This background paper was prepared to inform the update of the 1996 strategy. It presents in more detail the arguments for broadening the transport agenda, and seeking stronger intersectoral connections and synergies. Overall, the goal of the Bank strategy is safe, clean, and affordable transport that contributes to economic development. We are thus moving from a strategy based on transport modes to a business approach driven by results, inside and outside the transport sector. As with other infrastructure sectors, transport is above everything an access agenda, aimed at unlocking growth and development potential in an inclusive fashion.

Safe transport

Safe transport acknowledges the prominence of people's health in the Millennium Development Goals and the safety of transport users, transport workers, and the larger community.

For health

Between 40 and 60 percent of the people in developing countries live more than 8 kilometers from a health care facility. So, good transport services are essential for getting health care and improving health. That is why transport is now explicitly linked to the World Bank's new "Healthy Development" strategy. In addition to ensuring broader access to social and health services, we are working with our clients to mitigate the spread of HIV/AIDS along transport corridors.

For safety

Road crashes kill an estimated 1.2 million people a year and injure 50 million more, disproportionately affecting the poor. More than half the road deaths in urban areas in developing cities are pedestrians and cyclists. Fatalities are projected to rise 80 percent by 2020 in low- and middle-income countries, just as they fall by 30 percent in high-income countries.

Going forward, we will be seeking greater safety and security in air and sea transport, in passenger and freight transport, and in national and global supply chains. We are placing special emphasis on road safety, extending our support to include not only road safety components embedded in road infrastructure projects, but also larger standalone projects to formulate national policies and strategies that would improve road safety across the board. Cross-sectoral approaches, such as adding hospital and ambulance components in road programs and road safety components in health programs, will also be pursued.

Clean transport

Clean transport acknowledges the contribution of transport to the wider environmental aims of the Millennium Development Goals.

For air quality

Urban air pollution, 90 percent of it generated by motor vehicles, kills an estimated 800,000 people each year. That is why we are focusing on phasing out highly polluting vehicles, improving public transport, and monitoring air quality more intensively.

For climate

Transport now produces an estimated 15 percent of global greenhouse gas emissions. The strong connection between economic growth and transport-generated greenhouse gases can be moderated over time by changes in travel behavior, logistics decisions, technology choices, and transport modes. These changes can also be influenced by planning, by fiscal and regulatory measures, and by public investments in infrastructure, which we intend to support. Within this policy mix, it seems likely that fiscal instruments on fuel consumption will have to be at the core.

Going forward, we will be working to help restrain transport energy consumption. We are assessing and controlling transport emissions, favoring shifts to low carbon modes. We are setting guidelines for environmentally effective transport planning and decision making, and we are seeking ways to mitigate the effects of transport on the climate—and the effects of climate change on transport assets. We intend to build climate change issues into project appraisals where appropriate. We will issue technical papers on: parameters for estimating energy use and emissions by mode and circumstance; valuation of emissions in transport project appraisals; incorporating such values into cost-benefit analysis; the impact and treatment of discount rates; and other relevant factors.

Affordable transport

Affordable transport acknowledges that the physical supply of transport is not enough. Efficient and affordable freight transport and logistics services are critical for trade, both domestic and foreign. And efficient and affordable personal mobility is essential, in both urban and rural areas, to make cities work better and to diversify rural economies.

For businesses

Affordable transport is the key to trade and competitiveness. In OECD countries transport accounts for a quarter of all logistics costs, and in developing economies it can account for an even larger share. The Bank is thus seeking to control transport costs and facilitate trade in competitive economies. More effective transport services can improve the trade competitiveness of low- and middle-income countries, where domestic suppliers account for the majority of transport costs. Optimizing these services for freight, however, will not automatically meet the needs of poor households.

As part of the transport-for-trade agenda we will identify opportunities to promote regional economic integration and increase cross-border trade. In both national and regional programs we will encourage client countries to adopt corridor approaches to investing in transport infrastructure and improving transport services, especially along multicountry regional routes.

For individuals

An estimated 1 billion people in low-income countries lack access to an all-weather road. So, affordable transport can enhance mobility and inclusion. It can promote social, economic, and political integration, by keeping a country together despite geographic disparities, by overcoming potential disputes over access to resources, and by defusing the seeds of conflict that sometimes arise from feelings of isolation.

One of the best ways to promote rural development is to ensure good accessibility to growing and competitive urban markets. And improving urban transport improves both urban areas and the wider economy. We are thus promoting urban and interurban transport strategies to increase access for the urban and rural poor.

The Bank believes that national and municipal governments will benefit by assessing new models of delivery that can offer better value through more affordable service per unit of subsidy. The key here is to capture, through competitive means, the benefits of private sector efficiencies in the delivery of municipal services. We will thus reinvigorate private participation in transport to improve management skills, increase operating efficiency, and impose market discipline on project delivery and operations.

Background

The World Bank Group's work in the transport sector includes lending activities by IBRD/IDA and IFC, MIGA guarantee products, policy discussions, and analytic and advisory activities. The previous strategy that addressed transport as a whole was endorsed by the World Bank Group's Board of Directors and published in May 1996. That report, entitled *Sustainable Transport: Priorities for Policy Reform*, advocated economic, financial, environmental, and social sustainability in transport policies and systems. Going forward, those sustainability principles espoused in *Sustainable Transport* (as it is referred to in this report) will continue to guide the Bank's work in the transport sector.

An implementation update of the Bank's 1996 transport strategy has recently been discussed in the "Sector Strategy Implementation Update: Third Review" (September 26, 2007). The update proposes to strengthen the alignment of the transport sector approach with the Millennium Development Goals, adopted by the United Nations in 2000, as well as with a number of other factors, namely:

- The Bank's 2003 *Infrastructure Action Plan* (IAP) (2003b): results on 2003-2007 have been reviewed and a second-generation IAP 2009-2011—Sustainable Infrastructure Action Plan—is under preparation where this business strategy will fit in
- The Bank's subsequent rebuilding of engagement in publicly financed transport infrastructure
- The enduring need to match investment with good public governance, now supported by the World Bank Group Governance and Anti-Corruption (GAC) action plan
- The principle of "ownership" by countries of their development policies
- The need to be responsive to the changing needs of middle-income countries
- The need for measurable results from development aid
- A ten-year review of the Bank's work in transport by the Bank's Independent Evaluation Group.

Meanwhile, the trends of trade globalization, urbanization of populations, increasing motorization, now also coupled with the climate change challenge, have continued to create higher and more complex demands on freight and passenger transport systems in developing countries. This report offers

guidance to staff, partner countries, and other stakeholders in development, on an updated transport strategy.

This paper focuses on transport in four main ways: its development impact (Chapter 2); transport policies (Chapter 3); modes of transport (Chapter 4); and regional transport priorities (Chapter 5). Each focus has influenced the update, which is summarized in Chapter 6.

Focus on development impact

Chapter 2 argues that transport contributes to development in many ways. It encompasses passenger and freight operations, spans urban and rural areas, includes public and private transport, meets economic and social needs, and serves domestic and international demands. It can do so through five main routes:

- Facilitating economic growth and regional integration through international trade
- Making cities work better for their citizens, for the environment, and for economic growth
- Creating economic opportunity and growth in rural areas
- Providing access to facilities that deliver health and education services
- In all these functions, becoming safer and cleaner for users and the community.

If the Bank were to maintain the predominance of attention given over the past ten years to the support of nonurban transport needs and specifically to transport services that rely on roads, it would miss many opportunities to maximize the contribution that its transport interventions can make to economic development. Therefore, the business strategy makes a strong case for widening the scope of the Bank's engagement in the transport sector. With such widening, however, comes a responsibility to put more effort into demonstrating the impact of such engagement, measuring the results, and sharing knowledge.

Focus on policies

Chapter 3 discusses 11 key policy issues in which Bank support can help the transport sector put into practice the principles of economic, financial, social, and environmental sustainability. These priority areas are:

- Defining public and private sector roles in transport delivery
- Improving the performance of state-owned enterprises
- Preserving the value of public assets
- Setting transport prices
- Encouraging private sector participation
- Fostering competition and strengthening regulation
- Making transport more inclusive
- Promoting transport, and especially road, safety
- Combating transport-related transmission of HIV/AIDS
- Reducing transport emissions to protect urban air quality and the global climate
- Fighting corruption.

Not all of these areas are cause for concern in all countries. Different countries will inevitably weigh and analyze them differently, and the Bank would anticipate a wholly legitimate and valuable diversity in the policies and institutions that are established for their resolution. Nevertheless, that resolution will be crucial to the sustainability of the transport of a country. As such, these areas provide a systematic checklist for deepening the transport agenda that is integral to the business strategy.

Focus on modes

Chapter 4 emphasizes the modal diversity of transport and in particular the roles that different modes of transport play in meeting the spectrum of freight and passenger demands. It describes the subsectors of road transport, railways, urban transport, maritime transport and ports, inland waterway transport, airports and aviation, and multimodal transport. It stresses the importance of those users of roads in rural and urban areas who walk, cycle, or use other nonmotorized modes.

It notes the strong growth in demand in many developing countries for all types of transport services and the infrastructure on which those services rely. It argues the case for balanced multimodal investment to create a system that exploits the comparative economic advantages of different modes to the benefit of the transport system as a whole, to create both integrated urban passenger transport systems and efficient freight corridors to serve regional integration and international trade. The modal focus confirms and extends the conclusion of Chapter 2: the desirability of widening the focus of Bank transport interventions beyond single mode solutions to look at transport needs as a whole. This more holistic view of transport is reflected in the business strategy.

Focus on regions

For the strategy to be successful, it needs to respond to the day-to-day transport problems and demands for Bank services in a wide range of developing countries. In the poorest countries, the main challenge in the transport sector remains how the Bank and other donors can together concentrate effort, advice, and lending resources to meet the basic transport needs of the poor and help create or improve access to markets for their products. With limited borrowing capacity, these countries need blended financial support (combining loans and grants) and help to mobilize private finance alongside public resources.

In contrast, most middle-income countries have been successful in raising their level of access, trade, and development beyond basic thresholds. Many now have secure access to private capital markets. They aspire to the levels of personal mobility, urban transport systems, and freight logistics infrastructure of more developed countries. This implies a number of approaches: programmatic forms of lending; more dependence on middle-income countries' own systems of project appraisal; use of more diversified financial products; and provision of analytical and advisory services that are relevant to their more advanced level of integration into the world economy. The aim is to consolidate the progress they have made while not neglecting the considerable pockets of poverty that remain and being ready to assist them in responding to global issues.

Although there are clearly regional differences in individual priorities, regional perspectives consistently turn up some common emerging challenges. Examples include the need for improved transport and logistics to strengthen trade competitiveness, the challenge of urban road congestion and other urban transport problems, the widespread incidence of premature death and injury through road accidents, and the needs of isolated rural communities for basic connectivity to transport systems. Regional priorities have been given great weight in the business strategy.

Regional priorities

Over the past ten years the proportion of Bank Group's transport lending directed to Sub-Saharan Africa and South Asia has significantly increased. Though there will continue to be strong year-to-year fluctuations, the overall regional balance of lending activity is not expected to change markedly over the next five years. While urbanization and urban transport problems are growing in all areas, there are other issues that bear most heavily in particular regions, and these are discussed in more detail in Chapter 5. Key elements of the regional directions are:

- **Sub-Saharan Africa.** A key focus will be the two thirds of rural people who lack reliable access to an all-weather road and the even larger number of urban people who live in slums in worsening environmental conditions. The former are locked into subsistence living and cut-off from health care and education; the latter are growing rapidly in number and need access to urban jobs and services, for which cost-efficient urban transport is a must; for both groups, transport and logistics costs are excessive.
- **East Asia and Pacific.** Transport has performed well in many countries in facilitating impressive trade-driven economic growth and poverty reduction. The Bank Group is now also looking at ways in which the capacity and quality of transport infrastructure and services can be enhanced both to sustain that growth and to share its benefits more broadly in the region and with people in remote areas.
- **Eastern Europe and Central Asia.** Economic transition continues and market forces increasingly shape all facets of transport demand. But following an investment hiatus during the transition process, nearly all countries in the region face quality and technology deficiencies, as well as big maintenance backlogs in their transport infrastructure. Infrastructure modernization and enterprise reform remain key goals.
- **Latin America and the Caribbean.** The Bank Group is working at promoting measures to increase the sources, quality, and productivity of investment to help mitigate a massive reduction in public and private investment in transport since the 1980s, which resulted in excessive transportation and logistics costs that penalize trade.
- **Middle East and North Africa.** The Bank Group will continue to offer support for strategic infrastructure improvements and capacity building in transport, including frameworks for successful private sector participation, in particular in urban transport. So far, the private sector has contributed little to the region's transport needs.
- **South Asia.** Investment climate surveys in the South Asia region have pinpointed transport as a particular constraint for regional and international trade. Furthermore, at the micro level, many rural households lack access to all-season roads, and many megacities are hampered by the lack of reliable urban transport systems. The Bank Group will give attention to both challenges.

Components of the business strategy

Chapter 6 describes the main components of the transport business strategy. The objective of the business strategy, consistent with *Sustainable Transport* and aligned with the principle of country ownership, remains:

to help partner countries to establish the governance, strategies, policies and services that will deliver transport for development in a way that is economically, financially, environmentally and socially sustainable.

Strategic directions

The business strategy widens the directions and deepens the routes that will be taken to meet the evolving development agenda. For the five-year period ahead, the business strategy sets five key strategic directions, as summarized below. In implementing those directions, it recommends priorities for each region, four process adjustments, and a plan for monitoring progress.

Strategic direction 1. Create the conditions for increased support for transport investment and governance. During 2008-2012, the Bank Group will work with all development partners, including the private sector, to channel more resources towards investments in transport assets, infrastructure and services. The increase in resource mobilization will be matched by increased attention to governance through the implementation of the WBG Governance and Anti-Corruption Action Plan.

Strategic direction 2. Deepen engagement in the roads and highways subsector. The construction, management, and maintenance of roads and highways will continue to be the dominant subsector for Bank Group engagement. This arises from the predominant role of road transport in most countries for a wide range of development needs, the scale of the investment and maintenance challenge in the subsector, and the need to be responsive to the demands of partner countries.

The Bank Group will pursue a broader agenda in the roads subsector to meet principles of environmental and social sustainability, in ways that give increasing attention to four main issues:

- The performance, affordability, and inclusivity of transport services that use road infrastructure and that deliver the ultimate benefits of roads to people and goods.
- The need to make roads safer for all their users and for those nonusers put at risk.
- The strategies to support reduction of the high proportion of greenhouse gas emissions due to road-based private and commercial transport.
- The potential for transmission of HIV/AIDS through major road construction sites and new road corridors into previously isolated areas.

Strategic direction 3. Increase engagement in the urban transport subsector. This engagement will reflect the escalating development challenge of urban transport. In every region, the combined effects of population growth, urbanization, and motorization are compromising the efficiency and livability of cities. The Bank Group's engagement will include support for an increase of investment in and efficiency of urban transport, with special emphasis on public transport. Analytic and advisory services and country dialogue will support capacity building in urban transport governance to enhance the role and quality of affordable public transport. This complex urban transport agenda also includes the interaction of land use and transport, the mechanisms for financing

transport systems, the mobilization of the private sector to deliver public services, the management of demand for private vehicles, the regulation of vehicle emissions, and the needs of pedestrians and nonmotorized forms of transport. Strategic and operational coordination with the urban development agenda will be enhanced.

Strategic direction 4. Diversify engagement in transport for trade. Driven by increasing globalization and regional economic integration, diversification of engagement will be implemented by increasing support for public and private infrastructure investment to overcome transport bottlenecks in the trade in goods and services. Although much of the Bank Group's existing road transport lending is for major trade routes, more diversified support will be given for investment in nonroad transport infrastructure (railways, ports, inland waterways, and airports) and attention to the transport services that use them, including multimodal services. The Bank will help countries develop the institutional capacity to implement transport and logistics strategies that address nonphysical barriers as well as infrastructure deficiencies, improve the management of public infrastructure assets, and encourage greater private sector participation.

Where appropriate, regional transport projects will be identified and supported, particularly when these can help improve service and cost in landlocked countries. Corridor approaches will be adopted for the diagnosis of needs and design of strategies for major trade routes. The Bank Group will also help countries to meet international safety and security standards, particularly in ports and in aviation.

Strategic direction 5. Transport and climate change: control emissions and mitigate impact. Bank Group's activities in the transport sector in the years ahead will cover the issue of greenhouse gas emissions from transport as a priority for action, with attention paid to both mitigation in terms of operational services and adaptation in terms of infrastructure sustainability to climate change effects. In line with this direction, the work will encompass the domain of technology policy to support the adoption of carbon saving technologies and to help the adaptation of current technologies to the conditions and needs of the Bank Group's client countries.

Process adjustments

In implementing the five strategic directions, the Bank Group intends to adjust the way it does business in the transport sector, in four main ways.

Process adjustment 1. Increase the proportion of Bank Group's transport lending made through program approaches. This will strengthen long-term client relationships and reduce the costs and time of project preparation.

Process adjustment 2. Enhance the quality of policy dialogue and sharing of transport knowledge. The Bank Group's analytic and advisory activity in transport includes the economic and sector work that is important to properly inform policy dialogue, as well as the technical assistance to build capacity and implement change. These activities are essential to maximize the development effectiveness of the Bank Group's engagement in transport.

Process adjustment 3. Improve monitoring and evaluation. Progress and accountability in transport and development require more effort to improve measurement of the performance of transport systems, of the results of Bank Group-financed transport projects, and of the impact of alternative transport policies. Specific improvements are proposed.

Process adjustment 4. Capture synergies across sectors and Bank Group instruments. Within IBRD/IDA, the skills of the Infrastructure Network have been aligned in 2007 with those of the Environmentally and Socially Sustainable Development Network to form an integrated Sustainable Development Network, which is enhancing cooperation with IFC and MIGA. This will help strengthen the already productive links between the Bank Group's transport professionals and those working on social and environmental areas of the transport sector. In view of the strategic directions spelled out in this paper, some skill-mix rebalancing will take place within transport sector staff to adjust the Bank capacity to meet agreed objectives and make the most of the institution's comparative advantage. This report describes the main synergies that are expected.

Monitoring progress

The Bank Group's Transport Sector Board will take responsibility for annually reviewing progress toward implementing the transport business strategy.

The Bank Group's approach to transport will, however, continue to evolve as we learn from experience. It therefore offers a flexible framework that is open to new ideas, and adaptable to country demands for financial support and analytical and advisory activities.

1 ORIGINS OF THE REPORT

*This report follows up on the World Bank Group's comprehensive 1996 transport strategy, described in *Sustainable Transport: Priorities for Reform* (World Bank 1996). That strategy has successfully guided the Bank's transport work for more than a decade and still embodies the Bank Group's commitment to economic, financial, environmental, and social sustainability in transport systems and policies.*

After a decade of success, however, the time is right to revise the Bank Group's agenda to give more attention to emerging issues, including the commitment of the development community to achieving the Millennium Development Goals, the rising concerns about climate change, the increase in traffic congestion, and the recognition of access as a key to both economic opportunity and good governance. All of these new concerns point to the need to make transport systems safer, cleaner, and more affordable.

*The themes of this Report reflect some of the thinking behind the business strategy update that was presented to the Committee on Development Effectiveness (CODE) in 2007. **Safe** acknowledges the prominence of health outcomes within the Millennium Development Goals; **clean** reflects the greater contribution that transport can make to the environmental aims of the Millennium Development Goals and to the mitigation of climate change impact; and **affordable** acknowledges that efficient freight infrastructure translated through well-functioning markets into affordable transport and logistics services is critical for trade and access to all economic and social opportunities. Finally, **transport for development** asserts that, while transport can have many purposes, the Bank Group's focus must be on its contribution to economic development.*

1.1 The 1996 transport strategy

The World Bank Group works extensively in transport to support the development programs of its partner countries. That support is provided in a variety of ways, including policy dialogue with governments, analytical and advisory services, and lending and guarantee products to the public and private sectors.¹

In recent years, the Bank Group's Transport Sector Board (TSB) has issued many specialist reports and papers on specific transport issues and modes (references to these and websites where they can be obtained are provided in this report in the References and Additional resources sections). However, the last transport strategy report that addressed the sector *as a whole* was published in May 1996. That report, *Sustainable Transport: Priorities for Policy Reform*, advocates economic, financial, environmental and social sustainability in transport policies and systems. It argues that a number of policies will promote the attainment of sustainability: sound institutional and regulatory frameworks; greater private involvement in service delivery; competitive or contestable markets where possible; economic pricing of infrastructure; and attention to transport-related public health problems. The sustainability objectives and principles set out in *Sustainable Transport* (as it will be referred to in this report) have guided the Bank's work over recent years and will remain central to the Bank Group's work in the transport sector.

¹ A fuller description of products and their potential applications in the transport sector is given in Table 6-2.

1.2 The evolution of development issues

Five years after the publication of *Sustainable Transport* the international development community agreed upon the Millennium Development Goals. Despite being prepared earlier, the principles stated in *Sustainable Transport* were generally well aligned with the Millennium Development Goals, even though transport does not constitute a specific goal. As an enabler rather than an outcome itself, transport is often a critical means for achieving improvements in health care, education, economic opportunity, and social participation. Thus, one objective for the Bank Group's transport business strategy is to articulate how transport and development goals come together.

Several other issues that have implications for implementation of the transport development agenda have also emerged or developed since the publication of *Sustainable Transport*:

- The Bank Group has affirmed that, to attain development goals, economic growth must continue to be emphasized, as well as social measures aimed at delivering benefits directly to the poor; the Bank's *Infrastructure Action Plan* (World Bank 2003b) has revitalized the Bank's commitment to infrastructure in support of economic growth. Transport constitutes around half of the Bank's infrastructure business and is therefore central to the second-generation IAP—Sustainable Infrastructure Action Plan—now under preparation.
- The transport business strategy seeks to diversify involvement in transport logistics by increasing support for investment (public and private) for a wider range of transport infrastructure in the supply chains of developing countries. The report also gives attention to policies that will support well-functioning markets in the (mainly private) transport services that will use the new infrastructure. To ensure that transport is affordable, competition between private suppliers is likely to lead to the greatest efficiencies, with governments contracting for specific services. The traditional model of supply by state-owned enterprises controlling infrastructure and fares has not always served the poor (or anyone else) very well. The Bank Group believes that governments may benefit from assessing new models of delivery and pricing (such as those involving public-private partnerships, output-based contracting, user taxes on fuel consumption and traffic congestion), which may offer better and more affordable service per unit of subsidy. The key is to capture through competitive means the benefits of private sector efficiencies in the delivery of public services. But while private ownership of transport services is widespread and beneficial, the private sector has had so far a limited role in financing basic common-user transport infrastructure. This role peaked in the 1990s and is currently meeting only a small fraction of overall transport needs (mainly in airports and port terminals). In accordance with the Bank's Infrastructure Action Plan, the Bank Group is therefore now successfully reengaging in publicly financed transport infrastructure, while fostering private-public partnerships to the largest feasible extent.
- The importance of good public governance in successful development is regularly confirmed by experience: the need for competent state institutions to make and implement policy, the complementary roles of public and private sectors, the roles of markets and regulations, the importance of fighting corruption, and many more. Governance is especially important to the transport industry because of its size and complexity, the strong public interest in its performance, and the heavy involvement of both public and private sectors in its delivery. Along with developing its lending for transport, the Bank Group is equally responsible for maintaining support for complementary governance and institution building measures that will

ensure that transport investment brings benefits to users and to the poor. The GAC action plan will be fully incorporated in sector analytical work and country dialogue.

- The principle of “ownership” by countries of their development policies and processes has been increasingly accepted by the international development community. Ownership arises from choice. The Bank Group should support transport administrations in building the capacity for sound public policy choice and implementation. That support will beneficially include the Bank’s advice on what alternatives (whether policy or project alternatives) should be considered, how they have worked elsewhere, and how they might be compared. Nonetheless, there is merit in being less prescriptive about which course is “best” for the country concerned.
- The Bank Group’s lending programs to some middle-income countries declined after 1996, partly because the Bank’s methods of engagement did not always evolve in a way that the countries found to be most relevant to their needs and growing economic stature. While declining participation in middle-income countries has been less pronounced in the transport sector than in the Bank as a whole, there is no room for complacency. Approaches in these countries need to be particularly responsive to changing needs and circumstances.
- The world is looking for quantifiable results from development aid and investments, not just money transfers. The transport sector is one of the Bank Group’s largest areas of development finance, representing some 15 percent of its lending commitments since *Sustainable Transport* was published (a statistical summary of activity in the transport sector since 1996 is given in Annex A). It is important that the Bank measure the impact of interventions in this sector and build this experience into future projects. It is also important for both the Bank Group and its partner countries that better transport statistics and performance indicators be kept for making decisions and monitoring the results.
- In the meantime, both IFC and MIGA activities have increased in the Transport sector, with IFC getting involved in 93 projects for \$2.1 billions over the period, and MIGA in 8 operations for a total commitment of \$330 million (as of June 30, 2007).
- Climate change has been given wider international and Bank attention in recent years and is now a compelling public policy issue. Transport currently contributes about 15 percent of global greenhouse gas emissions (and around a quarter of energy-related emissions). That proportion is increasing, as is the proportion of such emissions attributable to the Bank Group’s regions of operation. The Bank Group therefore intends to build climate change issues into its project appraisals, where appropriate. It will issue technical papers on parameters for estimating energy use and emissions by mode and circumstance; valuation of emissions in transport project appraisals; incorporating such values into cost-benefit analysis; and the impact of and treatment of discount rates.

Meanwhile, globalization, urbanization, and motorization have continued to create higher, changing and more complex demands on freight and passenger transport systems.

1.3 The Independent Evaluation Group’s review of transport

While the transport business strategy was being prepared, the Bank’s Independent Evaluation Group (IEG) undertook an in-depth review of the performance of the Bank’s support for the transport sector during 1995–2005. This independent evaluation included a detailed analysis of 284 projects that were

completed in the period and drew upon staff and stakeholder interviews, an extensive literature survey, and a review of analytical and advisory work (IEG 2007).

The independent evaluation concluded that the Bank's transport sector activities have been well managed and effective, providing for a solid portfolio. It noted that efforts in the ten years focused heavily on intercity highway construction and rehabilitation; it expressed the view that while highways remain important to development, continuing Bank relevance to the sector as a whole would be enhanced by a more diverse and multimodal engagement. It also observed that, on the whole, success with institution building and ensuring infrastructure sustainability had been modest.

IEG concluded that, past successes notwithstanding, the time had come to reassess priorities and develop a revised agenda that better meets emerging challenges to improve the sustainability of human actions in transport and to improve peoples' welfare. It recommended, in summary, that:

- The focus of the Bank's transport operations should go beyond intercity highways and give more attention to issues of environmental damages, energy efficiency and climate change, traffic congestion, safety, affordability and trade.
- In implementing its transport business strategy, the Bank should give emphasis to six issues: transport pollution and realization of environmental gains; synergies with other relevant sectors of Bank Group attention; enhancement of knowledge sharing and analytical and advisory services and their contribution to country strategies; continuing support of private participation in transport through coordination among IBRD/IDA, IFC, and MIGA; increasing attention to governance and corruption issues; and redeployment of staff and budget resources accordingly.
- Monitoring and evaluation in the sector should be built up and aligned with the strategy. The Bank should develop intermediate indicators applicable to a broad range of projects; launch an enhanced program of impact evaluations for selected programs; evaluate experience with sectorwide approaches;² and support an independent evaluation of the Sub-Saharan Africa Transport Policy Program within two years.

The IEG Report has provided a timely, objective and authoritative platform for this business strategy, in terms both of its detailed analysis of transport sector activity since publication of *Sustainable Transport* in 1996, and the thrust of its conclusions and recommendations. These align closely with the Bank Group's own conclusions as to the adjustments necessary to the implementation of its transport strategy, and are reflected in the directions set out in Chapter 6.

1.4 The 2008 transport business strategy

The proposed adjustments to the Bank's transport strategy were presented to the Bank's Committee on Development Effectiveness (CODE) on September 26, 2007, as part of the "Sector Strategy Implementation Update: Third Review." This Report offers further elaboration of those strategic adjustments and guidance to staff, partner countries, and other stakeholders.

The themes of this report reflect some of the thinking behind the transport business strategy. *Safe* acknowledges the prominence of health outcomes within the Millennium Development Goals; it implies

² A term used for operational and financial instruments that give budgetary and other support over a sector or subsector as a whole, as opposed to single investment loans.

safety for transport users, for transport workers, and for the wider community. **Clean** reflects the contribution that transport can make to the environmental aims of the Millennium Development Goals. **Affordable** acknowledges that physical supply of infrastructure is not enough. Efficient freight infrastructure, translated through well-functioning markets into affordable transport and logistics services, is critical for trade. Similarly, efficient and affordable transport underpins personal accessibility and mobility in both urban and rural areas. Finally, **transport for development** asserts that, while transport can have many purposes, the Bank Group's focus must be on its contribution to economic development.

The report is divided into six chapters. Chapter 2 describes the development benefits of transport and explains why the transport business strategy should seek broader engagement in the sector as a whole. Chapter 3 focuses on what the Bank Group considers to be the key issues of transport policy and governance to be addressed in the update. Chapter 4 illustrates the diversity of transport challenges by taking a modal focus, summarizing the development roles of different modes of transport and specific issues relevant to each mode. Chapter 5 focuses on the geographic diversity of transport by highlighting strategic priorities in different regions and the regional partnerships that are being pursued. It also describes those global partnerships that provide an umbrella within which to pursue the regional and local programs. Finally, Chapter 6 describes the main strategic directions contained in the business strategy and the process adjustments that will help in implementing it.

2 FOCUS ON DEVELOPMENT IMPACT

Transport contributes, and could contribute more, to the achievement of the Millennium Development Goals in five key ways:

- **By facilitating economic growth and regional integration through international trade.** High transport costs magnify the impact of distance and reduce trading opportunities, while good freight services can make traded goods more affordable and help developing countries to build more complex supply chains that facilitate trade. Furthermore, a reduction in international transport costs for traded goods can give producers more disposable income.
- **By making cities work better for their citizens, for the environment, and for economic growth.** Rapidly growing urban populations and numbers of private vehicles are overwhelming the roads in many cities, leading to increasing congestion, poor service and reliability of road-based public transport, low mobility, more accidents, and poor air quality. Yet, stronger institution building, more incentives, and better regulation can improve existing city transport systems by making them more affordable for taxpayers and users and by making them safer and cleaner through proper maintenance, investment, and service expansion.
- **By creating economic opportunity and growth in rural areas.** Poor transport is often the main restraint on economic progress and poverty reduction in rural areas. Improving access to markets encourages rural farmers to modernize with fertilizers, mechanized equipment, and new seed varieties, which, in turn, raises yields, lowers unit costs, and increases demand for inputs and credit. Rural transport also provides access to labor markets and thus the opportunity to earn nonfarm income. Moreover, the same road that provides access to product, service, and labor markets often provides the right of way for electricity lines and water pipes.
- **By providing access to facilities that deliver health care and education.** Better access to education and health facilities increases enrollment rates in rural schools and leads to more visits to health care services. The impact on girls and women, who often suffer disproportionately from poor transport, is especially profound, as better transport services help to ease the risks of travel and the burdens of collecting firewood and water and thus allow more opportunities for school attendance, home hygiene, and prenatal care.
- **By becoming safer and cleaner for users and the community.** Although improvements in transport are essential to meeting the Millennium Development Goals, transport also creates its own set of problems, which detract from those goals. In the transport business strategy the Bank intends to provide more support to help mitigate transport's contribution to three major problems: the growing incidence of road traffic accidents, the health and environmental impact of vehicle emissions and the broader contribution of transport activities to climate change, and the role of transport in the transmission of disease.

2.1 Transport and the Millennium Development Goals

The Millennium Development Goals are now the main focus of the world's development effort.³ These

³ See the Bank's website about the Millennium Development Goals at <http://go.worldbank.org/D0OS4C8BK0>.

goals both contribute to economic development and are in themselves primary ends of that process: freedom from hunger, universal primary education, gender equality, reduced child mortality, improved maternal health, control of disease, environmental sustainability, and global development partnership.

People who enjoy a high level of personal mobility also put a high value on it. In that sense, there is a reasonable case for transport opportunity to be considered a goal of development. Nevertheless, specific passenger trips or freight movements are, for the most part, a means to other ends. Such ends include education, employment, production, distribution, trade, health and social service, civil administration, and many others. It is the essential contribution of transport to achieving these ends that links transport to the outcomes targeted by the Millennium Development Goals.

Transport is therefore a necessary, though not sufficient, contributor to economic development. But its contribution cannot be taken for granted. In rural areas, nearly a billion of the world's poorest people still do not even have adequate access to one all-weather road. In most of the cities that will soon contain half of the developing world's population, public transport systems are struggling to cope. Many countries that have enjoyed strong trade growth in recent years are now facing capacity and quality constraints in transport and logistics.

This chapter articulates the rationale for the Bank Group's involvement in the transport sector. In particular it describes five main areas in which transport contributes, and could contribute more, to the achievement of the Millennium Development Goals:

- By facilitating economic growth and regional integration through international trade
- By making cities work better for their citizens, for the environment, and for economic growth
- By creating economic opportunity and growth in rural areas
- By providing access to facilities that deliver health care and education
- In all these functions, by becoming safer and cleaner for users and the community.

This five-part structure is an abstraction that helps to describe specific development impacts of transport. Transport in the real world is a much more complex business. It contains numerous individual modes performing different roles. It has both freight and passenger roles. And its rural, urban, regional, national, and international dimensions are not separate but interrelated. These dimensions are explored in more detail in Chapter 4.

2.2 Serving international trade

The role of trade in economic development is highlighted in the eighth Millennium Development Goal that seeks to "develop a global partnership for development," and in its targets for an "open, rules-based, predictable and non-discriminatory trading system that addresses the special market access needs of the least developed countries."

Good freight transport services integrate developing countries into longer, more complex, and more demanding supply chains that facilitate trade. These services do not stand in isolation from the domestic economy; domestic freight flows can enter the productive process many times, contributing to the local economy as well as to internationally traded products. Beyond trade-related gains in growth, a reduction in international transport costs for goods whose price is set by international supply

and demand can give producers more disposable income. For this reason it is important to encourage competition in transport supply, so that such gains do flow through to producers.

Freight transport and logistics service providers include shipping companies, coastal and barging operators, stevedores, airlines, air freight companies, road haulage companies, train operating companies, international freight forwarders, third-party logistics providers, and many others. They, in turn, depend on transport infrastructure: waterways, ports, airports, air and maritime navigation systems, roads, railways, and various kinds of intermodal transfer, storage, and terminal facilities. The costs of freight transport depend partly on the quality and capacity of the infrastructure that service providers use and partly on the governance and market structures within which they operate.

Transport costs do not just include the tariffs. They can also include many indirect, but by no means hidden, costs that can render the trade of some countries closed, unpredictable, and influence-based. These costs can include: slow, irregular, and unreliable transit (which increases inventory costs); excessive handling and storage costs due to poor terminal infrastructure; losses due to theft, deterioration and damage to goods (or excessive insurance premiums to cover these risks); and sometimes also bribes paid to officials. As tariff barriers have diminished, direct and indirect transport costs have, for many countries, become the most important levy on trade. The Logistics Performance Index and Indicators, first issued by the Bank in 2007, illustrates how logistics efficiency impacts on trade competitiveness (Arvis *et al.* 2007).

High transport costs magnify the impact of distance and reduce trading opportunities. For example, it can cost three times as much and take five times as long to move a container 500 kilometers inland in China as it would in the United States (Carruthers *et al.* 2003). A container shipped from Yokohama, Japan, to a town 500 kilometers inland from a port in Mozambique is likely to cost more for that last 500 kilometers than for the first 14,000 kilometers.

Transport is particularly challenging to landlocked countries. Their trade relies on transit through neighboring countries, which may be minded to discriminate against transit traffic (often seen as a nuisance, a competitive threat, or an opportunity to impose formal and informal levies) rather than to facilitate it. Significantly, 16 out of 31 landlocked countries in the world are classified by donors as highly indebted poor countries. Research suggests that trade-associated transport costs for landlocked countries are around 50 percent higher than in coastal countries, and the volume of trade is 60 percent less (Arvis 2005). A large part of the transit cost to landlocked countries is associated with the border crossings. In Africa, for example, it is estimated that the cost of crossing a border can be equivalent to 1,600 kilometers of inland road transport (Wilson 2003).

Small island states, such as those in the Pacific and Indian Oceans and in the Caribbean, also experience maritime and other transport services that are often infrequent and expensive. Their transport disadvantage is partly inherent in being small markets served by smaller ships on multiple-stop feeder routes out of hub ports (similarly with aviation and airports). But the disadvantage can be partially mitigated by appropriate transport policies, infrastructure, and institutions (Castalia 2006).

The Bank Group has been active in recent years in analytical and advisory services associated with the contribution of transport to trade. It has also been heavily engaged in financing the construction, rehabilitation, and maintenance of road systems, to the benefit of road freight haulage. However, railways, ports, inland waterways, airports, and other forms of freight and trade-related transport infrastructure have collectively constituted less than 10 percent of the Bank's transport lending program over the past ten years. This may have diluted the potential scope of impact that the Bank

could have given to the policy and institutional dialogue that typically accompanies project engagement. The transport business strategy seeks to diversify involvement in transport logistics by increasing support for investment (public and private) for a wider range of transport infrastructure in the supply chains of developing countries. It also gives attention to policies that will support well-functioning markets in the (mainly private) transport services that will use the new infrastructure. In doing so, the Bank is also committed to ensure that throughout the supply chains appropriate labor standards are upheld, in compliance with ILO's core labor standards and recently updated IFC's Performance Standards on Labor and Working Conditions (IFC 2006).

As part of the transport-for-trade agenda the Bank Group will try in particular to identify opportunities to develop projects with cross-border trade impact that can promote regional economic integration. In both domestic and regional transport projects and programs it will encourage partner countries to adopt corridor approaches to infrastructure investment and transport service improvement (including multicountry regional corridors). This will lead both to more comprehensive solutions to overall logistics challenges and higher project impact. Section 4.8 provides an illustration of this approach.

Better transport infrastructure and services are most effective alongside other trade facilitation measures: liberal trade regulations, available trade finance, insurance services, security systems that comply with international requirements, efficient and honest customs services and other border services, and corridor performance monitoring, among others. This will require working, not only with transport companies but with customs services, border police, health inspection services and many other agencies involved in regulating international movements of goods and people. The Bank Group will also encourage and contribute to concerted actions taken by international bodies such as the Global Facilitation Partnership for Transportation and Trade described in Section 5.8.

2.3 Making cities more efficient and livable

Cities are a second critical area where transport and development meet. Cities are engines of economic growth. Cities also contain major concentrations of the poor, who need transport to improve their lives. Rapidly growing urban populations and numbers of private vehicles are overwhelming the roads in many cities, leading to increasing congestion, poor service and reliability of road-based public transport, low mobility, more accidents, and poor air quality. Private vehicle passengers are themselves adversely affected. But it is arguable that the larger burden of impact is borne by the other street users who do not use private cars and far outnumber private car occupants (see Section 4.4). Sound urban transport governance and investments are central to confronting these problems.

In cities where the poor are concentrated in outlying suburbs and public transport is actually available, the proportion of income spent on public transport can be high and therefore the affordability of public transport is often an issue (Carruthers *et al.* 2005). Inexpensive access to income-generating opportunities can be an important lever to help the urban poor to progress up the economic ladder.

The amount of land that can be dedicated to transport infrastructure is limited by the scarcity of space in cities. This is particularly true in the developing world, where urban population densities are often much higher than in developed countries. Practical plans that promote and facilitate urban growth patterns around efficient public transport networks can do much to help. But in much of the developing (and developed) world there is little integration of transport and land-use planning. Nonetheless, existing city transport can be improved by building institutional and regulatory structures that create public transport systems affordable for taxpayers and users and that give incentives for proper maintenance, investment, and service expansion. But transport demand by private vehicles

needs to be managed, by physical and/or pricing means. These issues are explored further in Section 4.4.

Urban population growth has been rapid since 1996, yet more than 600 million more people will move into cities in developing countries in the next ten years (United Nations 2003). This implies a need for new transport capacity to serve the equivalent of over 70 cities the size of London or Moscow. Indeed, by 2025, more than half of the developing world's population will be living in cities (United Nations 1996). Yet, in the past ten years the Bank's engagement in urban public transport projects has represented less than 8 percent of transport lending (it is part of the General Transport category of lending shown in Annex A). The transport business strategy will seek to increase Bank engagement in the urban transport subsector.

2.4 Increasing rural economic opportunity

In poor rural areas, isolation caused by poor transport is often the main restraint on economic progress and poverty reduction. Poor transport restricts opportunities to trade even within local markets. It raises the costs of production and distribution, reduces the profit margin from sale of produce that can be traded, and limits production yields to levels below their potential. It thereby slows efforts to migrate from subsistence to income-producing agriculture. The economic impacts of improved access can be cumulative and far-reaching. Access to markets makes it worthwhile to modernize agriculture through mechanization, use of fertilizers, and planting of higher-yield varieties. This, in turn, increases demand for inputs and corresponding demand for and availability of sources of credit. When road access is improved to remote rural areas, the economic effect can be dramatic (Box 2-1).

Rural transport also provides access to labor markets and therefore creates the opportunity to earn nonfarm income. Studies in China indicated that investment in improving low-standard roads generated 1.57 yuan of agricultural GDP for every yuan invested, but generated more than 5 yuan of nonfarm GDP (Fan and Chan-Kang 2004). Evidence from both Latin America and Bangladesh also shows that investments in rural roads provide a high share of benefits to the poor (Ahmed and Hossain 1990). Moreover, the same road that provides transport access to product, service, and labor markets often provides the right of way for electricity lines and water pipes.

It is therefore not surprising that poor people in rural areas view isolation as a major reason for their poverty. The Bank has attempted to quantify this problem. The results are summarized in a Rural Access Index that measures the proportion of rural dwellers who live within 2 kilometers of an all-season road. In the richer IBRD-supported countries, 94 percent of rural people live within 2 kilometers of an all-weather road. In the poorest group of 15 Sub-Saharan African countries, only 37 percent live within 2 kilometers of an all-weather road (Roberts and Shyam 2005). Rural roads already constitute over half of the total length of roads built, rehabilitated, or maintained with Bank

Box 2-1. The impact of roads on agricultural production

Guinea: In areas where rural roads had been provided, the area sown with crops doubled compared with other areas. Output sold to market for cash almost quadrupled. In areas where no such access improvements were made there was no change: citizens remained locked into traditional subsistence living (République de Guinée Ministère des Transports 2005).

Colombia: An improvement of rural roads in areas previously inaccessible to vehicles reduced travel times and transport costs by 80 percent. Farmers responded by increasing production of goods for market (particularly perishables) by between 50 percent in one area to 200 percent for some products in others (Evans 1990).

funds.⁴ They remain an enduring priority for the Bank, together with policies for their maintenance and management (and are discussed in more detail in Sections 3.4 and 4.2).

Inland waterways are also an important transport resource for people living in delta areas and those living along rivers, canals, or lakes. Their particular contribution to development is described in more detail in Section 4.6. The proportion of transport investment used to maintain and improve inland waterways in regions endowed with rivers, lakes, and a legacy of canal systems is often very low relative to their transport role. The Bank Group will support partner countries in efforts to efficiently use inland waterways in a way that also protects the interests and livelihoods of riparian communities.

2.5 Accessing health care and education

Five of the eight Millennium Development Goals seek health or education improvements. Basic mobility plays a critical role in delivering and providing access to health care and education. Most programs that directly target these goals (programs involving schools, health clinics, emergency services, nutrition programs, and social services) depend on road transport (motorized and nonmotorized) to underpin their delivery.

In a study in Bangladesh, out of 129 villages surveyed, those with better access were found to be better off in terms of health and participation of women in the economy (Ahmed and Hossain 1990). An investigation by the Bank's Independent Evaluation Group of the benefits of paving rural roads in Morocco (OED 1996) found that improved access to education and health facilities increased enrollment rates in rural schools and led to more visits to health care services. The impact on women, who often suffer disproportionately from poor transport, was especially profound—girls' enrollment in education in the project zones more than tripled within a few years of project completion. In health terms, women's daily burden of collecting firewood was dramatically reduced as paved roads increased the affordability of butane for heating water for cooking and washing clothes (Levy 1999). Recent surveys by the Bank in Pakistan tell a similar story (Box 2-2).

Accessibility to basic services remains a priority area for Bank Group engagement in transport. But provision of infrastructure by itself does not solve the social and economic transport needs of the poor. The poor do not own motor vehicles, and the existence of a road does not automatically lead to the provision of affordable

Box 2-2. Ratio of social indicators in villages in rural Pakistan that do not have all-weather motor accessible roads (sample A) relative to those that do (sample B)

Indicator	Ratio A/B
Girls' net primary school enrollment rate (NER)	0.66
Boys' net primary school enrollment rate (NER)	0.87
Female literacy rate (for ages 10 years and above)	0.57
Male literacy rate (for ages 10 years and above)	0.83
Immunization coverage ⁽¹⁾	0.85
Contraception ⁽²⁾	0.63
Prenatal consultation	0.50
Births assisted by skilled attendant	0.67
Births at home	1.07
Postnatal consultation	0.71

⁽¹⁾ Fully immunized 12–23 months based on recall and record.
⁽²⁾ Percentage of married women of age 15–49 who ever used contraception.
Source: Essakali 2005.

⁴ Based on analysis of all roads projects completed between 2002 and 2006.

transport services. More attention will be given to the transport *services* that use new roads. Markets can be made to work more efficiently to provide safe and affordable transport services through policies that affect the cost and availability of transport service vehicles (import and sales taxation, import controls and duties, vehicle taxes, road transport regulations, anticartel measures, etc.) However, this is not only a matter of government policies; the Bank will also continue to support NGOs, which often are the conduit for service innovation at the local level.

As in cities, rural transport in many developing countries is also characterized by an enormous range of trips made by nonmotorized transport: on foot, by bicycle, barrow, and cart (and in some places by small boat). In an analysis of five districts of Malawi the motorized mobility rate was found to be only about one-tenth of a trip per person a year. Over 99 percent of out-of-village trips (including virtually all to health or education facilities) were made by nonmotorized modes of transport (walking, cycling, animal-drawn vehicles, etc.) over an average round-trip distance of nearly 20 kilometers. Indeed, the average round-trip distance just to reach a motorized form of transport in these districts was over 11 kilometers (Hine and Rutter 2000). The issue of nonmotorized transport is discussed further in Section 3.8.

2.6 Making transport safer and cleaner

It is clear that improvements in transport are essential to meeting the economic, social, and environmental aims of the Millennium Development Goals. Unfortunately, transport also creates its own set of problems, some of which detract from those goals.

Sustainable Transport already emphasizes the importance of the environmental and social dimensions of transport. In the transport business strategy the Bank intends to provide more support to help mitigate transport's contribution to three major and specific health and environmental problems: road traffic accidents, the role of transport in transmission of disease, and vehicle emissions (with effects on local air quality and global warming). On this last point, the business strategy will focus on the transport impact on climate change, with attention paid to both mitigation in terms of operational services and adaptation in terms of infrastructure sustainability.

These problems bear heavily on developing countries. Around 83 percent of the world's road fatalities, 94 percent of deaths attributable to urban air pollution, and 96 percent of HIV/AIDS infections are found in low- and middle-income countries (UNAIDS 2004). Within countries, these impacts usually fall disproportionately on the poor. These three areas are discussed in more detail in Sections 3.8–3.11.

2.7 Measuring impact and sharing knowledge

There are deficiencies in international statistics about the performance of transport infrastructure and services generally. The Bank Group has accepted the need to put more effort into measuring the results of its own development interventions (OPCS 2004). Measuring the physical and economic performance of the transport sector is challenging, but the Bank has made a start in the rural roads subsector. Over time, the performance indicators will be most effectively improved if countries that routinely collect extensive statistics about many smaller industries can be encouraged to give similar attention to the transport sector.

Better use can be made of the Bank Group's existing project appraisal and monitoring systems to give more attention to specific intermediate development targets that can be cost-effectively measured

Box 2-3. The power of results

Trade and Transport Facilitation in South East Europe

The project addressed in a comprehensive manner (including transport, customs, health, and immigration functions) and on a regional basis the long delays that were occurring at road border crossings throughout South East Europe, impeding trade and development in the region. Results monitoring was an integral part of the project design and a direct input into its effectiveness. Over the first three years the project had recorded an average 63 percent reduction in customs clearance times, combined with a 60 percent increase in customs revenue collected, plus a 65 percent reduction in border crossing times. Results were measured specifically by country and border crossing, so that immediate benchmarking was available to all participants. Based on the demonstrated success a second project is being prepared to cover railway and river transport in the region. This emphasis on measuring corridor performance is being adapted in the development of new corridor trade and transport facilitation projects in the Eastern Europe and Central Asia region.

*Project ID P070086: South East Europe Trade and Transport Facilitation Project, approved May 2000.
Implementing agency: Customs Directorate.*

Provincial road maintenance in Argentina

Effective long-term monitoring of the impacts of performance-based road maintenance contracts let in 1996–1997 in Argentina enabled the benefits to be clearly demonstrated: the share of roads in poor condition fell by 41 percent to 6 percent, unit costs were 12–18 percent lower than traditional contracting, and the achieved economic rate of return was estimated to be 60 percent because of the savings in vehicle operating costs. Demonstration of such results has led to a much wider application of performance-based road maintenance to both national and provincial roads in Argentina.

*Project ID P070628: Argentina Provincial Road Infrastructure Project, approved June 2005.
Implementing agency: Provinces.*

(Box 2-3 provides illustration). For example, in cases where such impacts can be isolated, it is important to try to measure the impact of major road investments on the prices of freight and passenger services, as well as on vehicle flows and time savings.

An enduring long-term challenge is to quantify the impact of specific transport investments on economic growth and, through economic growth, on poverty reduction. Despite the difficulties (described in Box 2-4), well-designed research can improve understanding of how various linkages to growth work and so how they might be strengthened.

Knowledge of how transport performs, what it can achieve, what works (and what does not) in transport policy and practice is only valuable if it is disseminated to those who can use that knowledge. *Sustainable Transport* emphasized the importance of this role in the transport sector. The Bank Group has played its part in generating and sharing knowledge products both at central and regional levels. However, the benefits of enhancing the Bank Group's transport knowledge-sharing activities and analytical and advisory services were stressed by IEG (IEG 2007). Such enhancement is included in the transport business strategy.

Box 2-4. The impact of transport on national economic growth

Why is it so difficult to measure the contribution of transport interventions to economic growth? There are four main reasons:

First, there are many steps between cause and effect: (a) transport infrastructure (which forms the majority of Bank-supported investment) facilitates (b) further supply activity (freight and passenger transport services) which serves (c) market demands (distribution of goods and personal travel) which are themselves at least one (and usually more) steps away from (d) economic growth. Second, the supporting conditions and actions necessary to trigger these various steps are not fully understood. Third, the time lags involved between cause and effect are not known, but may sometimes be very long. Fourth, there are reverse links from growth back into transport demand and investment that are difficult to disentangle.

Therefore, to define a point at which the growth impact of a specific transport project can be said to have occurred, isolate it from the impacts of many other policy or economic changes that may (or may not) have taken place, and then measure its unique contribution to economic growth is a formidable research challenge that has not yet been, and will probably never be, fully met.

One of the most thorough reviews of evidence concerning the relationship between transport and economic growth concluded that it is "dependent on the context within which transport interventions take place—the state of economic development, the degree of integration of markets, the extent to which there is already a well-developed transport infrastructure, the strength of competitive forces in the areas affected by transport change; the capacity (of beneficiaries) to respond to the opportunities and threats of wider markets, and on the incidence of congestion" (SACTRA 1996).

2.8 Implications of the development focus

This chapter has shown that transport makes a multifaceted contribution to development that includes passenger and freight operations, spans urban and rural areas, includes public and private transport, meets economic and social needs, and serves domestic and international demands. If the Bank Group were to maintain the predominance of attention given over the past ten years to the support of nonurban transport needs, and specifically to transport that relies on roads, it will miss many opportunities to maximize the contribution that its transport interventions can make to economic development. Thus, there is *prima facie* case for widening the scope of Bank Group engagement in the transport sector.

3 FOCUS ON POLICIES

Eleven policy issues described here together provide a checklist for deepening the policy agenda of the transport business strategy: rationalizing public and private sector roles in transport delivery; improving the performance of state-owned enterprises; preserving the value of public assets; setting transport prices; encouraging private sector participation; fostering competition and strengthening regulation; making transport more inclusive; improving transport safety; combating transmission of HIV/AIDS; reducing transport emissions; and fighting corruption. Although countries will inevitably weigh and analyze all of these issues differently, how decision makers resolve them into enforceable policies and implement them through institutions and regulations will be crucial to the sustainability of the country's transport systems. Bank Group support can help the transport sector put into practice the principles of economic, financial, social, and environmental sustainability and build systems that are cleaner, safer, and more affordable.

The goals of fostering competition and strengthening regulation underlie many of the recommended policies in the transport business strategy. Competition creates incentives to managers to meet market needs at the lowest possible cost, and it encourages them to innovate to obtain market advantage. Regulation protects public interests and can set parameters—for example, for energy efficiency or vehicle safety—that shape the response of competitive markets. To ensure that transport is safe and clean, regulations or other governmental interventions are likely to be required, whether assets are under public or private ownership. These policy measures can help to improve the access to transport services for those now underserved and most in need (rural women, the disabled and elderly, the poor who rely on nonmotorized transport). They can also help all transport users by raising safety standards to reduce the toll of traffic accidents, by requiring greater fuel efficiency and more controls on vehicle emissions to improve air quality and protect the global climate, and by combating corruption (such as informal payments to inspectors, traffic police, or customs officers), which can facilitate dangerous driving, unsafe vehicles, noxious exhausts, or vehicle overloading.

To ensure that transport is affordable, competition among private suppliers is likely to lead to the greatest efficiencies, with governments contracting for specific services. The traditional model of supply by state-owned enterprises controlling infrastructure and fares has not always served the poor (or anyone else) very well. Monopoly supply has often meant that costs have been higher than they need be and that services have not been very responsive to needs. Controlled fares have sometimes resulted in increasing losses for the public transport provider and progressive deterioration because of the inability to reinvest. The Bank Group believes that governments may benefit from assessing new models of delivery and pricing (such as those involving public-private partnerships, output-based contracting, user taxes on fuel consumption and traffic congestion), which may offer better and more affordable service per unit of subsidy. The key is to capture through competitive means the benefits of private sector efficiencies in the delivery of public services.

3.1 The roles of governments

Whether transport contributes effectively to development and whether it is safe, clean, and affordable often depend on the wisdom of government policies and the capacity of governments to implement those policies. Governments (and their subnational divisions and municipalities) are responsible for the governance of the transport sector. While a full description of the Bank Group's work in public sector governance is given elsewhere,⁵ this section deals with issues that arise out of four key roles of the public sector in the transport sector:

⁵ <http://www.worldbank.org/publicsector/>.

- ***Policymaker:*** Discerning the public interest in transport and translating these interests into the legal, institutional, and regulatory frameworks governing the sector.
- ***Custodian:*** Maintaining good stewardship of public assets, including deciding how they should be financed, operated, and maintained (either through state operators or private managers and concessionaires).
- ***Regulator:*** Administering conditions of market entry to the various parts of the transport industry, investigating the exercise of market power and anti-competitive practice, influencing pricing and service levels where justified, and setting rules and standards to protect public safety and the environment.
- ***Customer:*** Purchasing transport services via implicit or explicit public service agreements or on behalf of particular community groups (for example, through subsidizing transport for students, or to remote areas, or for poor or disabled people).

Good transport policies are transparent and consultative. Nearly all transport policies, plans, and systems impinge upon a wide range of user and community groups. Consultative and participatory mechanisms are not only desirable, but essential to gaining all the information and perspectives needed for good policymaking in transport.

Many Bank Group interventions in the transport sector try to improve public sector performance in one or more of these areas through policy dialogue and advice, capacity building, financial and information systems development, conditions attached to project loans, and other means. This chapter highlights and summarizes the Bank Group's views on 11 key policy issues that governments face in performing their roles. These issues are crucial to the Bank's sustainability objectives in transport, and the transport business strategy will give particular attention to them.

3.2 Rationalizing public and private sector roles in transport delivery

Throughout the world, transport infrastructure and service delivery are shared by the public and private sectors. The public-private balance in each country stems from its history, culture, and circumstances. The Bank Group is mindful of the need to respect alternative policy approaches (Amos 2004). The treatment of this issue is helped by drawing a broad distinction between transport services (for example, road haulage companies, shipping companies, airlines) and the transport infrastructure that service suppliers use (for example, roads, seaports, and airports).

Transport services

Public sector supply of transport services has often been disappointing. Experience suggests that private operation of transport services leads to a better outcome, if markets are competitive (or periodically contestable) and if the regulatory framework protects public interests from any misuse of market power. To ensure that transport is safe and clean, regulations are likely to be required, whether assets are under public or private ownership. To ensure that it is affordable, competition among private suppliers is likely to lead to the greatest efficiencies, with government acting as a customer when appropriate (for example, in public passenger transport) to contract for specific social services.

Transport infrastructure

Transport infrastructure is more contentious. As with state-owned transport services, state-owned infrastructure companies face an enduring challenge to maintain adequate efficiency incentives (discussed further in Section 3.3). But many countries are uncomfortable with fully private ownership

or free-market operation of transport infrastructure. The discomfort arises from the presence of natural monopolies (for example, rail and waterway networks); the existence of market power due to exclusive location (some ports and airports); the practical or economic difficulty of fully recovering costs from user charges (road networks, waterways, passenger railway networks, and metro systems); and the “lumpy,” long-term, and risky nature of much transport investment (which limits private financing). In some countries there is also a public perception that transport infrastructure is an inherent part of the public patrimony and should be run for the public good rather than for commercial gain.

Public ownership of transport infrastructure is a legitimate public policy choice. The public sector is the owner and usually the “manager” of nearly all the world’s roads, inland waterways, navigable airspace, and shipping channels, as well as most of the basic port, airport, and navigation infrastructure, most metro and tram networks, and most national railway infrastructure (including over 95 percent of the rail network outside North and Latin America). The Bank Group will remain engaged with partner countries to improve the management capacity and operating efficiency of publicly owned transport enterprises (Section 3.3). But there are often ways for governments, as custodian of such assets, to seek the benefits of greater private sector participation in their financing, management, and operation. The Bank will continue to encourage partner countries to consider these options for public-private partnership (Section 3.6).

Separating services and infrastructure

Transport infrastructure and transport services are sometimes tied together in one vertically integrated entity. This can effectively extend a natural infrastructure monopoly into a potentially contestable market for transport services. Partner countries may therefore be able to improve performance by separating infrastructure and services. Examples include the separation of national airlines from their host airports, stevedoring from port infrastructure, and ports from shipping companies. In these cases, both private participation and competition in transport services can be facilitated to the benefit of customers and development, while leaving infrastructure under public control.

Separation of service and infrastructure is a more complex issue for railway systems, however. The technological, operational, safety, and economic interfaces between railway infrastructure and train services are not always benign and, in practice, require active management. Separation of the institutions that manage each side typically adds complexity, transaction cost, and regulatory burden to achieve clear and effective responsibility and accountability at the interfaces. Full separation is currently confined to relatively few railways in Europe and Australia, while about 97 percent of all the world’s railway traffic is carried on vertically integrated railways, either public or private.

Even in the case of railways, however, with favorable market conditions and complementary policy measures, separation can provide a platform for attaining beneficial outcomes. These may include increased competition in rail freight markets (though there are also many instances, particularly in North America and Europe, of third-party access to lines owned by railway companies that are vertically integrated); the ability to tender passenger train operating concessions; and greater transparency in use of public subsidies (for example, to support infrastructure only). Vertical separation in railways is therefore not desirable as an end in itself, but may have value as part of a wider package of structural reforms in particular circumstances.⁶ The Bank Group therefore remains

⁶ The practical challenges and solutions to managing economic interfaces in multioperator railway environments are described in more detail in Amos and Bullock 2006.

open-minded on the issue of separation and will support partner countries committed to achieving efficient and effective railway services under either integrated or separated models.

3.3 Improving the performance of state-owned enterprises

Given the heavy public sector involvement in transport, particularly in infrastructure, the majority of the World Bank Group's transport operations in the near to medium term will continue to involve transport departments, agencies, and enterprises that are publicly owned and operated. The contribution of transport to development is heavily influenced by the effectiveness of these entities. Bank financial support can sometimes be justified only in the context of a parallel reform program, because it is not in the long-term interests of partner countries and their citizens to provide funding that simply perpetuates nonperforming institutions, without the structural reforms and capacity building that can create enduring improvement.

State-owned transport enterprises may face many obstacles to sound business management. The multiple, changeable, and often conflicting pressures that bear on governments can filter down to the management of the enterprises, leading to lack of clear purpose and weak commitment to specific goals. Fluctuating national budgets can weaken business and investment planning. Public service norms and procedures can lead to commercial inflexibility. Board members and senior managers may be selected through political patronage rather than on merit.

Improving the performance of state-owned enterprises typically requires separating the policy and regulatory functions of government from the operational and commercial functions of business management. This separation is not sufficient on its own but enables more far-reaching reforms: a more professional and independent board of directors; management selected on merit; management accountability through short- and medium-term business planning targets; business segmentation and concentration on core functions; greater freedom of pricing to reflect costs and markets; use of internationally recognized commercial accounting and auditing standards; and formal agreements between enterprises and government for reimbursement of the public service obligations imposed by governments through mandated service or tariff conditions. Arm's length or semi-autonomous supervision also facilitates more transparent oversight of safety and environmental performance, which can be more easily overlooked when government departments are responsible both for regulatory and commercial functions.

While it is easy to delineate the principles, restructuring of any large enterprise is complex and sensitive. Future interventions in transport that involve reform of state-owned enterprises will take account of lessons learned (Box 3-1).

Traditionally, sector reform has often been sought by applying conditions to individual loans ("conditionality"). Experience in the transport sector in this regard has been much the same as in the Bank Group as a whole: "The track record indicates that using conditionality to induce policy and institutional change seldom succeeds unless there is adequate understanding and support for it within the country" (OPCS 2004). Country ownership rather than conditionality is the key to change.

Box 3-1. Reforming state-owned transport enterprises: Lessons from experience

- **Stay the course.** Restructuring a complex industry or organization is a long-term process. It often requires legislative, as well as institutional and management changes, and a period of cultural adjustment within organizations before benefits emerge. Unrealistic timetables that do not allow for the time needed to work through political processes, to build the consensus needed for radical change, and to overcome organizational inertia are likely to be frustrating.
- **Emphasize performance.** Structural change is only a means to an end. That end is to improve performance. Governments can create the policy platform and framework for this improved enterprise performance, but only enterprise managements and their employees can deliver the goods. Close attention therefore needs to be given to investing in the actual process of business change management, including attraction of the best skills and experience, consultation and participation of workers, and creation of a commercial culture with incentive structures.
- **Adapt to local conditions.** Even within a particular sector of transport, such as a highways agency or rail or port company, one structural model does not fit all. The international experience needs to be mined, but then shaped to local markets and circumstances.
- **Monitor progress.** Public enterprise reform is not a “fire and forget” process. Good public custodianship requires explicit supervisory and monitoring mechanisms. When government enterprises are not working well, it is often the processes of public governance that need scrutiny as much as the enterprises themselves.
- **Respond to changes.** Transport markets and technologies are continually changing. New transport demands and opportunities will emerge with economic development and technological progress. The objective of transport policy should not be to achieve a given end-state but to create an industry adaptable and responsive to change.

Well-designed project conditions that are within the power and capacity of the beneficiaries to implement can help them to secure the most effective returns from specific physical investments, and strengthen governance and institutions in ways that bring enduring benefit. However, conditions will generally fail if they impose requirements that are outside the sphere of responsibility of the beneficiary organizations, or if they require policy or organizational changes that contradict political precepts. The Bank Group will avoid imposing wider sector policy conditions on individual project loans unless they are truly essential to the investment benefits.

Sound policy and governance in transport nevertheless remains paramount. It will be pursued through country dialogue, analytical and advisory activities, and policy-based lending. Because reform is a long-term process, Bank involvement needs to be part of a long-term relationship. This implies greater use of programmatic engagement to sustain relationships with clients over longer periods. These relationships can help to build a stronger policy framework, to build on individual pilot initiatives, to develop wider relationships involving safety and environmental programs, and to focus on longer-term outcomes. Program approaches will also permit a more effective use of Bank resources and expertise.

3.4 Preserving the value of public assets

The developing world’s transport infrastructure represents an enormous asset. The value of the road network alone in the Bank Group’s regions of operation is of the order of US\$2 trillion.⁷ Many transport infrastructure assets have extraordinarily long lives, if they are maintained. But transport infrastructure that is not well maintained deteriorates, in some cases quite rapidly (particularly in harsh climates). The government’s custodial role implies the adoption of policies that protect and preserve the economic

⁷ Extrapolating from estimates made for Latin America and Africa (Fay and Yepes 2003; Heggie and Vickers 1998).

value that is embedded in assets for which there is a continuing economic demand. Failure to do so is usually costly to users because of the asset's substandard economic, safety, and/or environmental performance and costly to governments because of the asset's premature reinstatement or replacement costs.

Assets that are managed by revenue-earning transport enterprises (such as ports, airports, air traffic control systems, railways, etc.) generate internal funds that usually contribute at least some of the resources needed for asset maintenance. However, some forms of transport infrastructure are treated as public goods, with no direct fee for use. The most important example in transport, in terms of cost impact, is the provision of public roads.

One of the biggest development challenges in transport is therefore to ensure that maintenance of the public road network is allocated the resources and attention it needs. The roads subsector cannot necessarily expect to be at the front of the queue for public resources, but does appear to be particularly prone to budget vicissitudes. The economic and political impact of cuts may not be as immediate as in many other areas of public expenditure. Moreover, expenditure on building new roads often has greater electoral reward than the less visible task of maintaining what is already there. In the 85 countries that had received World Bank Group financing for roads during the 1980s, inadequate maintenance meant that ten years later 15 percent of the total capital invested in main roads had been lost (Heggie and Vickers 1998).

Therefore, an enduring priority for the Bank that was set out in *Sustainable Transport* is to work with partner countries to improve the sustainability of their road infrastructure assets. This will require institutional arrangements that encourage a network management culture; systematic use of asset management tools; innovative technologies that can utilize local materials and labor; effective exploitation of private sector efficiencies through competitively tendered output-based maintenance contracts (Box 3-2); enforcement of maximum truck loading regulations; and stable long-term financing sources for maintenance and safety. The Bank Group and other donors will need to cooperate in helping many countries to attain the capacity to successfully adopt these approaches.

Road funds, often replenished from fuel and vehicle registration taxes levied on road users, have been found helpful in some countries, because they secure some stable funding sources for road maintenance. If adopted, road funds should form part of a wider framework for sound road administration. As in other areas of public enterprise reform, the main objectives should be sound asset and financial management and efficient construction and maintenance operations. A dedicated

Box 3-2. Output-based contracts

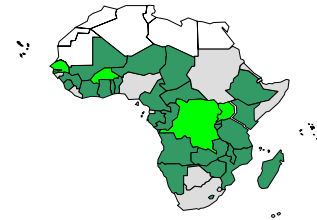
A form of private management contract that is being increasingly applied by partner countries with Bank support is the output-based or performance-based contract for the management and maintenance of road networks (Stankevich et al. 2006). Such contracts are established on a multiyear basis and pay a private contractor for delivering objectively defined infrastructure performance levels, rather than simply for carrying out defined maintenance engineering tasks (or inputs). When let by competitive tender, such contracts can improve asset management and yield better value for money than traditional approaches to road maintenance. In many countries where maintenance work has traditionally been carried out by a works department of the road agency, this approach will often need to be introduced in phases, with complementary measures to help build the capacity of local private industry to respond to the new market opportunities (Andreski et al. 2006).

Website on Global Partnership on Output-based Aid: <http://www.gpoba.org/index.as.p>

road fund can form an influential feature of such a framework, with revenues generated from direct and indirect road user charges in the form of fuel levies, vehicle registration fees, road tolls and (with evolving technology) more general road pricing. More detailed Bank analysis of road funds is given in Gwilliam and Shalizi 1997, Gwilliam and Kumar 2002, and in Heggie and Vickers 1998. An independent assessment of road funds and the conditions for their success has also been made by the Bank's Independent Evaluation Group (OED 2005) and by the Sub-Saharan Africa Transport Policy Program (Box 3-3).

Box 3-3. Sustaining road maintenance financing in SSA

The second-generation road fund has become a significant feature of road sector reform programs in SSA. According to a recent review of the status of road sector policy reforms in SSA, there are at least 27 countries in SSA with road funds in place. This number has shown a substantial growth since 2000 and is likely to increase further in the coming years as a result of ongoing reforms in West and Central Africa (the countries in light green on the map). Senegal, Burkina Faso and the Democratic Republic of Congo are finalizing the last steps for the creation of second-generation road funds. Uganda, after being for many years the only country in East Africa without a road fund has recently established one.



The results of financial audits indicate that, in general, funding arrangements are more transparent than in the past and an increasing number of road funds now have considerable financial autonomy. These road funds raise most of their revenues from road user charges and most of the proceeds are channeled directly to their bank account. Road funds have secured a more stable and predictable flow of funds for road maintenance.

The results of the survey on road funds performance indicators show, on average, road funds have an amount of two months equivalent of road maintenance works as a minimum amount of cash available in their bank accounts. The time period for paying the undisputed contractors' bills varies from 5 to 90 days with an average time of 32 days. For comparison, the time difference between the budget and road maintenance cycles in some countries, which have not established a road fund as yet, is currently around nine months and delays for paying contractors bills have reached one year. Road funds also provide a basis for the development of local small-scale contractors (e.g. around 2,000 local contractors have been promoted in rural Tanzania).

Overall, the road maintenance needs are becoming more visible. The creation of road funds has sustained a stable flow of funds for road maintenance. This should not imply that road funds raise sufficient revenues to meet all the assessed demands for maintenance but the reported fact of about one third of countries meeting routine maintenance needs on a regular basis is a large improvement on the situation ten, even five, years ago.

Source: Benmaamar M., SSATP Discussion Paper No. 6. 2006.

3.5 Encouraging private sector participation

At the time that *Sustainable Transport* was published in 1996, some observers believed that private investment would play the main role in meeting developing countries' infrastructure needs. The authors of *Sustainable Transport* were less sanguine; they concluded that "the public sector will continue to bear the primary responsibility for provision of transport infrastructure." Experience suggests that so far they were right. However, the private sector, under appropriate contractual conditions, should be able to play a larger role, and in particular to stimulate innovation.

The World Bank's Private Participation in Infrastructure (PPI) project database tracks infrastructure projects in developing countries that involve private participation in funding and risk taking.⁸ During the 15-year period after 1990, private investments in transport showed early growth but subsequently declined. The peak was in 1997 with total "expected" investment of US\$18.4 billion. This had steadily dropped to US\$2.9 billion by 2003, though with a strong upturn since then that is mainly confined to the port and airport sectors. These data, though the best available, tend to give an optimistic view of the extent of private investment so far.⁹ In the 15 years to 2004, only six countries accounted for nearly 80 percent of the total investment recorded: China (18 percent), Brazil (16 percent), Malaysia (11 percent), Mexico (11 percent), Argentina (11 percent), and Chile (10 percent). In most of the other 150 or so developing and transition countries, new private finance for transport infrastructure varied from little to none.

For the period covered by this report, the public sector will continue to be a major owner and operator of basic transport infrastructure throughout the Bank's regions of operation. But the Bank Group will also support the reinvigoration of efforts to attract increased private sector participation that will improve management skills, attract private funds, increase operating efficiency, and impose market discipline on project delivery and operations. The new financing sources that can be tapped by private approaches could also be vital for poor countries. Annex B provides a detailed summary of the many areas where private sector participation can be pursued; they are categorized by mode of transport and broken down by transport infrastructure, transport services, and ancillary activities. Experience suggests that the most promising areas for increasing private participation in partner countries appear to be in port terminals, airport operations generally (and terminals in particular), freight rail operations, toll roads (particularly on high-density roads in middle-income countries), urban public transport operations, and a range of maintenance and other ancillary activities associated with the different modes.

There are many models for increasing private sector participation in transport. These include management contracts, lease contracts, franchises and concessions, or full privatization. They can also include construction, operation, and financing of infrastructure on existing or new facilities.¹⁰ The success of all models in meeting development objectives will depend on structures that provide clear delineation of rights and obligations, including the allocation of commercial and other risks, on transparent competitive procedures for selecting private participants, on the regulatory arrangements that apply, and on the rights of recourse in situations of alleged breach of agreements. Chapter 6 (Table 6-2) shows how World Bank Group financial and other instruments can be applied and combined to offer a full range of public, private, and combined public-private solutions to transport development needs. The Bank has published a number of toolkits that can help countries implement higher levels of private involvement in the different transport subsectors, and these are referenced by mode in Chapter 4.

In whatever form, private or combined public-private transport projects that are supported by the Bank Group should meet the standards of cleanliness, safety, and affordability that would be applied under alternative structures. Private sector participation in former state-owned enterprises often has implications for employment levels and practices. Genuine social dialogue between all stakeholders is

⁸ The PPI database can be found at <http://ppi.worldbank.org/>.

⁹ The investment recorded in the database is that which was "expected" at closure: it does not track actual disbursements (many projects lapse or investment commitments are renegotiated downward after closure). The total investment recorded also includes the portion (often significant) of public sector investment committed to these projects by government, or sourced from international financial institutions and bilateral agencies; thus, not all the finance recorded is private finance.

¹⁰ A detailed discussion of the many alternative forms of private sector participation is in Klein and Hadjimichael 2003.

required to reach a common understanding and agreement on how to proceed while safeguarding social rights of all parties involved, in particular transport workers. Ways of analyzing and dealing equitably with these issues have been addressed in a Bank-sponsored toolkit on labor issues (World Bank 2004b).

3.6 Setting transport prices

Sustainable Transport rightly emphasizes the role of cost-reflective prices in attaining efficient use of transport resources. It also recognizes the case for peak pricing of congested facilities and the importance of market-based elements to recover those elements of fixed infrastructure costs that cannot be clearly attributed to specific user groups. In practice, most pricing for commercial transport is set at least partly to recover costs and reflect market conditions. Where markets are competitive or sufficiently contestable, there is a strong case against government interference in pricing mechanisms. Where market power is more concentrated, as it is for some types of infrastructure, regulatory oversight of pricing may be justified. In both cases, however, permanent subsidies are not warranted.

Where infrastructure is more appropriately treated as a public good, as in the case of road and inland waterway systems (other than high-density tolled freeways), costs are recovered through fuel taxes, vehicle registration fees, and other taxes rather than pricing. Most countries in the world also treat passenger public transport as a public good. Widespread government and municipal intervention in pricing and subsidized provision of infrastructure and services are prevalent in both developed and developing countries. The reasons are not difficult to comprehend. Beyond simply the political profile of such services, there is often a policy aim of transport “equity”—the idea that accessibility and affordability of basic transport service (like health and education) is something that a government should ensure is available to the widest range of its citizens, including passengers who could not otherwise afford the full cost, or who live in remote or lower density areas, or who need to travel in time periods when average costs of provision may be high. Some countries also choose through low prices actively to encourage the use of public transport as an alternative to private travel. In the case of high-capacity, fixed-track systems, some countries are persuaded by the economic case that recovery of the fixed costs from fares will lead to underutilization of sunk assets and may not maximize community economic benefit. Apart from budgetary subsidies, a certain level of internal cross-subsidy is also prevalent within nearly all public passenger transport systems (as it is in other network industries, such as electricity, gas, water, postal services, and broadcasting).

Budgetary support of passenger transport services is a legitimate public policy choice, if it is affordable to taxpayers and if mechanisms exist to deploy resources in an efficient way. Unsustainably high levels of subsidy, ratcheted up by holding down fares at times of political pressure, typically lead to long-term instability in funding, poor and fluctuating service, and inadequate investment. Budgetary support should not therefore be simply a question of picking up the bill for whatever losses occur, but should be based on financial capacity and specific support aims and criteria, allied to efficiency incentives. Even then, if suppliers are protected from competitive forces, subsidies to them can end up benefiting their managers and employees more than the users.

Partly for these reasons, the traditional model of supply by publicly owned (state or city) monopolies under controlled fares has not always served the poor (or anyone else) very well. Monopoly supply has often meant that costs have been higher than they need be and that services have not been very responsive to needs. Controlled fares have sometimes resulted in increasing losses for the public transport provider and progressive deterioration because of the inability to reinvest. Governments and municipalities may benefit from assessing new models of delivery that may offer better and/or more affordable service per unit of subsidy. The key is to capture through competitive means the benefits of

private sector efficiencies in the delivery of those services sought by city governments. This approach is described in more detail in Section 4.4.

3.7 Fostering competition and strengthening regulation

The benefits of competition are as real in transport as in other sectors. Competition creates incentives to managers to meet market needs at the lowest possible cost, and it encourages them to innovate to obtain market advantage. This is true of competition both between and within individual transport modes. Experience clearly favors competition “in the market” in most kinds of transport services. Competition among service providers who use public infrastructure ensures that the benefits of public infrastructure projects are passed on to users. There are also some types of transport infrastructure in which competition can be beneficially sustained (such as among container ports or among different rail freight companies).

Nevertheless, wholly free competition in the market is not always practical or the preferred option. Some transport infrastructure has features of natural monopoly or monopoly based on a unique location. Sometimes, transport markets are too thin to sustain effective competition. Some transport concessions also actively create exclusivity, either to encourage long-term investments (particularly in infrastructure concessions) or to promote a particular pattern of service (such as in passenger public transport service contracts). When some measure of market exclusivity can be justified, the Bank supports periodic competition “for the market” through a competitive and transparent bidding process.

In both competitive and exclusive markets, regulation can sometimes strengthen public interests. *Sustainable Transport* stresses the importance of strengthening economic regulation in transport as a way “to ensure fair competition, avoid predation and cartelization, and to protect the public interest.” Conversely, with an exclusive operation for whatever reason, regulation may be required to protect against abuse of market power. In the case of transport concessions, regulation may sometimes be required to give the parties to the concession agreement confidence in their recourse to contractual rights and obligations.

In short, market competition and economic regulation both play a part in establishing an efficient transport system that meets public needs. Box 3-3 summarizes some of the key regulatory design issues. More detailed regulatory policy analysis in transport, with practical examples from different countries, can be found elsewhere (Estache and de Rus 2000; Estache and Serebrisky 2004; Kessides 2004).

Finally, regulation is not a panacea. Regulation that replaces the functions of markets needs to be well considered and proportionate. It should not be the knee-jerk response to every market imperfection that may arise. Economic regulators are also rarely perfect and can be costly, ineffective, or influenced by special interest groups. It is important to justify regulation by its expected benefits relative to its costs. Competition does not need to be perfect to be effective. And some customers, particularly large companies involved in freight services, have the countervailing economic power to protect their own interests against infrastructure suppliers.

Box 3-4. Issues in the design of economic regulations in transport

Independence. Although responsibility for economic regulatory policy is a public sector role, there are advantages in delegating this policy area to a quasi-independent body at “arm’s length” from government. This type of delegation is particularly relevant in markets where the state is conflicted because it owns one of the players (for example, state railways, shipping companies, and airlines), because it is a customer (for example, a contract purchaser of public transport services), or because it is one of the parties to an agreement that is to be regulated (such as with a public-private partnership agreement).

Location. A second issue is whether transport economic regulators should be established in mode-specific organizations, for the transport sector as a whole, or within economy-wide regulatory bodies. The Transport Sector Board considers this to be a matter of practicality rather than principle. The best approach can only be judged against the scale of the regulatory task and the administrative and financial resources available to take it on. National competition policies and laws will often be capable of encompassing economic regulation of the transport industries. But transport sector expertise will usually be necessary for efficient regulatory decisions.

Process. Regulatory process should not be arbitrary and *ad hoc*. It is important to consider how to give support to governments to establish appropriate regulatory regimes that have resources and skills to carry out this most difficult task, with tools of asset valuation, regulatory accounting methods, efficiency measurement techniques, and so on (World Bank 2004a).

3.8 Making transport more inclusive

Inclusive transport development policies address the specific needs of community groups whose transport needs and constraints may either (a) differ from the general pattern; (b) not be revealed by conventional planning methods that start from surveys of current travel—from which unmet needs will inevitably be omitted; or (c) be concealed by analytical approaches that look for aggregation and homogeneity rather than diversity. There are many dimensions of inclusive planning; three key areas of specific need that were identified in *Sustainable Transport* are the transport needs of women, of disabled people, and of those who use nonmotorized forms of transport. They will be areas for special attention in the duration of the transport business strategy.

Gender

The third Millennium Development Goal (to promote gender equality and empowerment of women by eliminating gender disparity in education) and the fifth Goal (to improve maternal health) both recognize specific aspects of the differing needs of women in development. As discussed in Section 2.5, transport will need to play a key role in meeting those goals. It is evident that the transport needs of pregnant or parturient women cannot be addressed through broad-brush transport plans or interventions, but must involve a tailored approach. What is less widely acknowledged is that the disparity and disadvantage women face in their need and opportunities for transport are, in fact, a much more widespread phenomenon (IFRTD 1999, and case studies in the Bank’s transport sector resource Web page on Gender and Transport¹¹). Empirical evidence shows that in both urban and rural contexts, women have different transport priorities and needs, are affected differently by transport interventions, and sometimes bear the major part of the transport burden in families (as Figure 3-1 illustrates). Transport will be most effective for development if significant gender differences in demand and impact are properly identified and if transport policies and programs then reflect the full range of transport needs that exist. The identification of differences begins with the appropriate design of transport diagnostics and a participatory process that includes women. More detailed experience of applying a gender-sensitive approach can be found on-line in the World Bank

¹¹ <http://www.worldbank.org/responsibletransport/>.

Gender and Transport Resource Guide.¹² The Transport sector was actually among the first contributing sectors to the drafting of the World Bank Group Gender Action Plan approved in 2006.

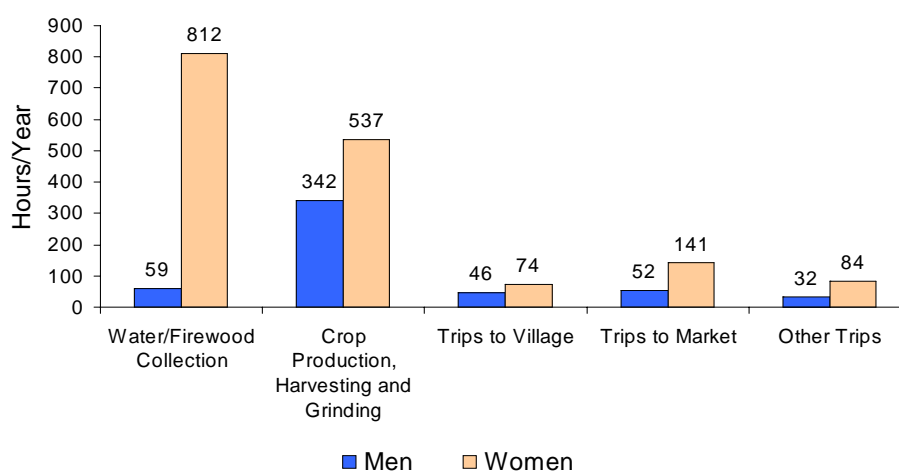
Disability

A second area for inclusive transport policy is in meeting the transport needs of physically disabled and/or elderly people, who often have the greatest personal need of transport services. Large numbers of poor, disabled people in developing countries are currently denied the basic mobility to participate in either economic or social life because of inaccessible vehicle design and/or operational practices. Exclusion increases the human and economic costs associated with disability and constrains disabled people from breaking out of poverty. Inclusion depends upon establishing the right policies and the supporting legislative, regulatory, and operational measures. In particular, the Bank will factor in its transport operations the implementation of the UN Convention on the Rights of Persons with Disabilities, adopted on March 1, 2007 (World Bank 2007b). A deeper account of the transport needs of disabled people in developing countries, and how they can be addressed through policy and practices, can be found in Venter *et al.* 2004 and Heumann and Willing (forthcoming).

Nonmotorized modes

As was stressed in Chapter 2, nonmotorized transport is important in moving both people and freight; in serving both rural and urban areas; and in achieving both social and economic purposes. Indeed, the first link in a supply chain from a poor rural area to a rich international market is often made by people carrying their produce on foot, by bicycle, on a horse-drawn cart, or in a country boat. The relative importance and specific needs of these modes can be captured by well-designed transport surveys that look beyond the movement of conventional motor vehicles. They can be supported by the way projects are conceived and the way infrastructure is designed to improve their accessibility, safety, and amenity. Policy and operational guidance on how such help can be delivered is given in World Bank publications on rural transport development (Malmberg Calvo 1998, Starkey *et al.* 2002) and for urban transport in *Cities on the Move* (World Bank 2002).

Figure 3-1. Division of household transport responsibilities in Makete, Tanzania



Source: Malmberg Calvo 1994 and Barwell 1996.

¹² <http://www4.worldbank.org/afr/ssatp/Resources/HTML/Gender-RG/index.html>.

3.9 Improving transport safety and security

Road transport

Already, around 1.2 million people die each year as a result of road accidents, comparable in death toll to a disaster such as the 2004 Tsunami happening about every three months. By 2020, road deaths and injuries are predicted to become a leading contributor to the global burden of disease and injury (Murray and Lopez 1996).

Low- and middle-income countries bear about 90 percent of the current burden of road deaths and injuries. The road safety performance gap between poor and rich countries is huge and widening, and this trend will continue unless new global, regional, and country initiatives are taken. Bank projections indicate that between 2000 and 2020 road crash fatalities will increase by more than 80 percent in low- and middle-income countries, but will decrease by nearly 30 percent in high-income countries (Figure 3-2). In developing countries, the incidence of road crash deaths and injuries afflicts the poor disproportionately, and the consequences can also plunge previously nonpoor households into poverty (Aeron-Thomas *et al.* 2004). For each death, there are many more cases of injury and permanent disability that lead to poverty and loss of productive contribution to economic activity.

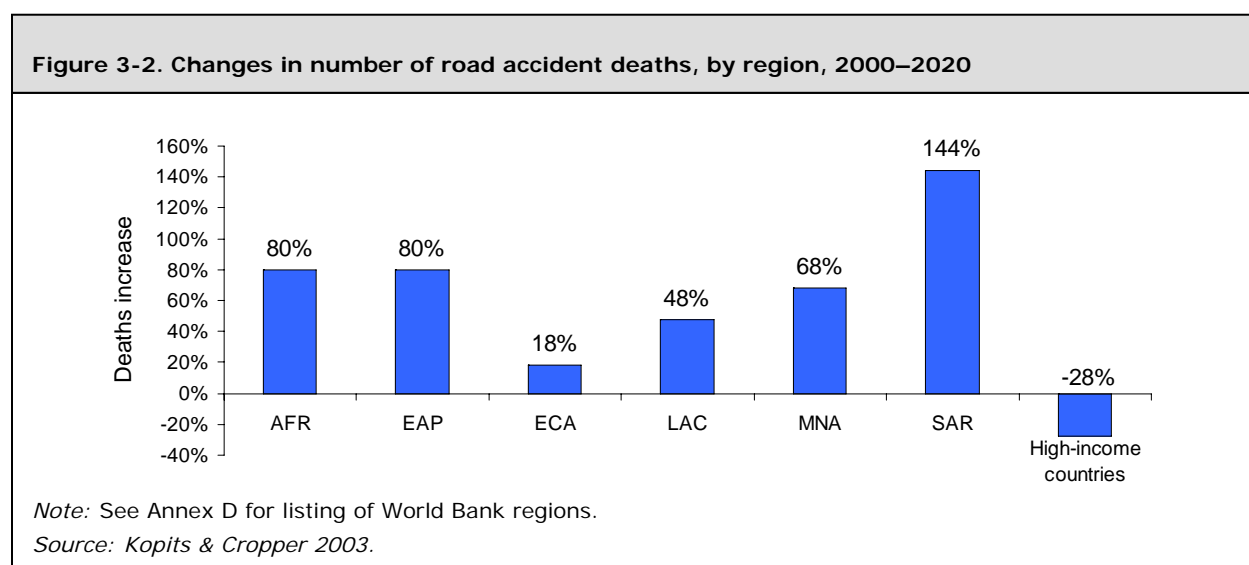


Table 3-1. Projected health losses from traffic accidents as a proportion of the total health losses in each region, plus ranking of road deaths and injuries as a cause of healthy life–years lost, by region, 2002–2030

Region	Proportion of healthy life–years lost in region due to road deaths and injuries (%)		Ranking in region of road deaths and injuries as cause of healthy life–years lost	
	2002	2030	2002	2030
Africa	2	4	10th	6th
East Asia and Pacific	3	4	6th	5th
Europe and Central Asia	2	2	7th	9th
Latin America and the Caribbean	3	3	8th	8th
Middle East and North Africa	5	8	3rd	1st
South Asia	2	5	12th	5th

Source: WHO 2005.

Road deaths and injuries are not only expected to increase in absolute terms, but also as a proportion of total health problems. Table 3-1 shows the World Health Organization's projections of health losses due to road deaths and injuries, expressed as a percentage of the total healthy life-years lost in each region from all causes (WHO 2005). It also shows the ranking of road accidents as a cause of healthy life-years lost in that region. For example, for the Middle East and North Africa, it is projected that, in the absence of mitigating actions, between 2002 and 2030, road deaths and injuries will increase from 5 percent of health losses in the region to about 8 percent and will move up as a cause of health losses from the third leading cause to the leading cause.

These trends are raising concerns globally, regionally, and nationally. In the transport and health sectors, policies and measures are required to reduce the growing vulnerability of communities to rapid motorization and road expansion, which are often occurring in the absence of an effective road safety policy.¹³

More systematic approaches can be built on the findings and recommendations made by the World Health Organization (WHO 2004, 2005) and the Bank (Peden *et al.* 2004). The benefits of improvement would be significant. Bank estimates indicate that a 30 percent improvement in the ratio of fatalities to vehicles in low- and middle-income countries by 2020 would save around 2.5 million lives and avoid 37.5 million hospital confinements and 175 million incidents of minor injuries (McIntyre *et al.* 2004).

Countries face the challenge of how to manage the road system to reduce road crashes. Safety can be made integral to the design and management of the road transport system, just as it is in the management of other transport modes, aviation in particular. However, this concept is not yet accepted in many countries, despite the high economic and human costs of road crashes.

Once a country has ownership of and commitment to this approach, it is usually necessary to develop or strengthen the capacity to implement it through:

- **Legislation and institutions.** Road safety management requires stable, long-term policy and funding frameworks, which are likely to develop only with appropriately designed legislation and institutions. The policy framework should address infrastructure design, road contractor responsibilities, vehicle standards, and driver requirements. Accountability for leadership, coordination, promotion, performance monitoring, and evaluation should be vested in a responsible agency.
- **Safety practices.** Comprehensive standards and rules are needed to govern the safety of roads, vehicles, road users, and road contractors. Compliance requires a mix of specific training, driver examinations, and vehicle inspections (with systems and sanctions to counteract corruption), and penalties and incentives for enforcement of road rules. Saving lives cannot rely, for example, simply on advertising campaigns exhorting drivers to drive more safely.
- **Results focus.** Targets for improving road safety should be set and results monitored using comprehensive and consistent systems for recording data. Agencies need to know and be held to account for safety results that fall within their sphere of responsibility and influence.

¹³ UN General Assembly Resolution 58/289 (*Improving global road safety*) was passed in 2004 with unanimous consent and underlined the need to assist the capacity-building efforts of low- and middle-income countries. World Health Assembly (WHA) Resolution 57.10 (*Road safety and health*) later that year urged member states to mobilize their public health sectors in the prevention and mitigation of the adverse consequences of road crashes. UN General Assembly Resolution A/60/L.8 (*Improving global road safety*) in 2005 placed special emphasis on international cooperation in supporting road safety capacity-building initiatives in developing countries and providing the financial and technical support associated with such efforts.

As part of its contribution to the global road safety effort, the Bank is extending its support to include not only road safety components embedded in specific road infrastructure projects but also larger, stand-alone road safety projects that would address national strategy and policy to improve road safety results across the board. Cross-sector approaches to extending the road safety agenda will also be pursued: for example, hospital and ambulance components in road programs or road safety components in health programs.

Air transport

Air transportation has become very safe in the developed world. Its reliability, flexibility, and affordability made air travel one of the most important catalysts for economic progress. However, this is not yet the case in many developing countries, where the accident rates remain unacceptably high. High accident rates not only hamper the market development efforts, they also render it difficult to finance and insure aircraft, or to establish code share arrangements with reputable partner carriers.

Accident rates are very high in Africa (3.6 fatal crashes per million departures), the Middle East (1.8), Latin America (1.7), and Asia (1.3) when compared with the United States (0.4) or Western Europe (0.6). The cause of high accident rates include primarily poor safety oversight by Civil Aviation Authorities, followed by deficient infrastructure (airports, air traffic surveillance), and operating aircraft, which do not meet international standards (equipment, maintenance).

The Bank Group considers that air transport safety must therefore be systematically included in project design and economic sector work addressing: (i) air transport policy advice (e.g. liberalization of air services) (ii) regulatory reform and capacity building at Civil Aviation Authorities, (iii) air transport infrastructure improvements (airports, air traffic surveillance), and (iv) airline fleet renewal (privatization and modernization of state-owned carriers).

Supply chain security

Transport and supply-chain security has also become a major issue in ensuring fair access of developing country exports to developed markets, and needs to be addressed as a new global public good. The Bank Group is committed to helping developing countries comply with new and updated international agreements to this effect, like for air transport the updated Chicago Convention of the International Civil Aviation Organization (ICAO), or for maritime transport the International Ship and Port Security Code of the International Maritime Organization (IMO). Simultaneously, the Bank Group is also cooperating closely with the World Customs Organization (WCO) in supporting the implementation of the Framework of Standards to Secure and Facilitate Global Trade.

3.10 Combating transmission of HIV/AIDS

Since *Sustainable Transport* was published, the cumulative evidence in many developing countries has increasingly pointed to a link between new transport routes and the spread of communicable diseases, such as HIV/AIDS (World Bank 2003a). This is due not only to a general increase in personal travel but also to the separation from family and high-risk behavior of road construction workers, truck drivers, and other transport suppliers in the informal sector. Countries affected can reduce risk by prevention policies.

Countries are being supported by mitigation strategies adopted by the World Bank and other donors as an integral part of highway improvement projects, particularly in Africa. HIV/AIDS prevention contract clauses are now included in standard Bank bidding documents. One project, the HIV/AIDS Abidjan-Lagos Transport Corridor Project (Project ID P074850, approved November 13, 2003) has been entirely designed around the concept of using the corridor as a means and focus for providing active awareness, prevention, and treatment services to corridor users, truck drivers, and border communities. The project

demonstrates that transport also has a positive role in fighting disease and can support outreach of anti-HIV/AIDS work to other hot spots, such as conflict zones and mining areas.

The Bank Group will enhance relevant transport interventions with anti-HIV/AIDS measures over the next few years as part of the contribution that the transport sector can make to fight this devastating disease. In doing so, the transport sector itself will be a beneficiary. Transport is not only a conduit, but also a victim of HIV/AIDS, which has created a void in the skills and capacities available to the sector in many countries.

3.11 Reducing transport emissions and climate change

Vehicle emissions have a direct and deleterious impact on the health and environmental targets in the Millennium Development Goals. The air pollutants most immediately damaging to human health are lead, fine suspended particulate matter (for example, dust), and in some cities ozone. Respiratory and other diseases related to local air pollution in developing countries contribute to the premature death of more than half a million people each year, imposing an economic cost of up to 2 percent of GDP in many countries (Gwilliam *et al.* 2004). Transport typically causes about a quarter of this impact, mainly from private and commercial vehicles. Accordingly, the Bank Group focuses on phasing out highly polluting vehicles, improving public transport, and monitoring air quality more intensively. Also, the impacts of air transport on the environment have always been a concern to many partner countries (particularly noise), but recent evidence on the disproportionate contribution of air travel to greenhouse gas emissions has strengthened that concern. The Bank is working with the International Civil Aviation Organization on environmental issues regarding air transport, but much remains to be done in this area.

Globally, motorized transport emissions also contribute to the greenhouse gases responsible for climate change (Stern 2006, IPCC 2007). Countries that are signatories of the Kyoto Protocol have made commitments to reduce these greenhouse gas emissions. To date, attention has been mainly given to the reductions attainable in power generation and large industrial processes. The progress in these other sectors, combined with the high growth in transport demand, means that the proportion of global emissions attributable to transport will increase. Several Bank transport projects, in the urban sector in particular, are leveraging resources from the Global Environment Facility¹⁴ to pursue local initiatives aimed at reducing vehicle emissions, particularly in cities.

Global warming is, of course, much more than just a transport issue and not one that implies action only, or even mainly, by developing countries. The transport sector generates about 15 percent of global greenhouse gas emissions.¹⁵ Developing countries (low- and middle-income countries) currently contribute only about a third of these. Both these proportions will increase. In the developing world, greenhouse gas emissions from transport are growing at 3–5 percent each year, compared with 1–2 percent a year in the developed countries. As a result, it is expected that transport energy use in the developing countries will increase from 32 percent of the global transport total in 2000 to 46 percent in 2030 (IEA/SMP 2004). This should become one of the factors to be considered in national transport strategies and policies for both passenger transport, which contributes about 53 percent of transport emissions of greenhouse gases, and for freight transport, which contributes the remaining 47 percent (IEA/SMP 2004).

There is a nearly direct short- and medium-term relationship between the volume of transport activity, the amount of energy used for that activity, and the generation of greenhouse gases. More than 95

¹⁴ <http://www.worldbank.org/environment/>.

¹⁵ This is equivalent to around a quarter of energy-related emissions.

percent of global transport energy use consists of oil-based fuels used in internal combustion engines. Policies will need to be multimodal, taking account of country circumstances, but will generally need to give particular attention to private road transport that at a global level accounts for around 70 percent of emissions, and aviation, which accounts for 12 percent (though less in developing countries). These modes are in many circumstances (though not always) the most energy intensive per traffic unit; moreover, they are fastest growing in terms of traffic volumes. Sea and inland waterway transport are together 11 percent, and railways (freight and passenger) 2 percent of total emissions (Figure 3-3).

While economic growth contributes directly to economic welfare and poverty reduction, without international action to reduce the carbon intensity of transport in general, and road transport in particular, the consequences of growth will be to increase both the quantum of emissions from transport and its proportional contribution to total emissions. The energy efficiency of specific transport modes is crucial because virtually all measures that increase the efficiency of energy use will reduce greenhouse gas emissions per unit of transport: in other words, they can permit the benefits of transport to be sustained while making it more climate-friendly. But policies will also need to consider how to alter the demand for and modal distribution of transport in economically efficient ways to reduce aggregate carbon intensity. (Figures 3-4 and 3-5 show emission rates for freight and passenger vehicle types from European studies: the numbers are indicative, and there are likely to be strong regional variations depending on the technology, age, and regulation of vehicles or vessels.)

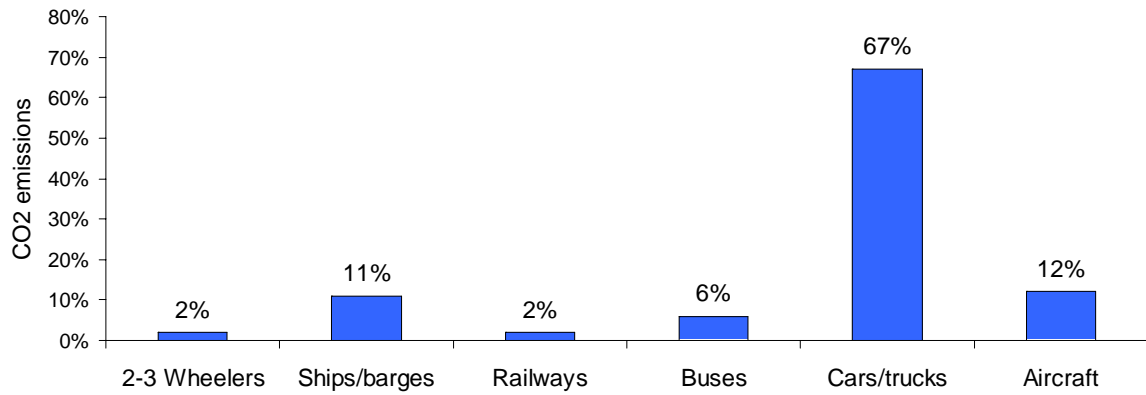
This nexus between economic growth and transport-generated greenhouse gases can be moderated over time by changes in travel behavior (of people), by logistics decisions (affecting freight), by technology choices (in fuel, engine, and vehicle design), and by distribution of transport modes (cars versus mass transit, for example). These, in turn, can be influenced by planning, fiscal and regulatory measures, and public infrastructure investments. Within the policy mix, it seems likely that taxes on fuel will need to play a central role because carbon emissions are directly correlated with fuel consumption. Thus, pricing signals will affect both the immediate consumption and, if high fuel costs are expected to be permanent, the longer-term technological and behavioral responses to achieve greater energy efficiency. Moreover, revenues from such taxes can provide part of the source of public investment in less carbon-intensive transport. However, price mechanisms alone are unlikely to be politically or socially acceptable, nor sufficient for the challenge. It will take concerted and sustained long-term effort using a mix of policies, applied over decades and on an international scale, just to stabilize the level of transport-related greenhouse gas emissions.

The good news is that many of the transport policy measures that can help reduce greenhouse gas emissions have other benefits. They already cohere with many of the Bank Group's transport policy positions associated with the transport business strategy: for example, greater attention to railways and inland waterways for freight; better urban public transport services; urban road traffic demand management to reduce congestion and facilitate better performance of public transport; support of nonmotorized transport, management of vehicle emissions, safe driving behavior (which is also more fuel-efficient driving behavior), and so on.

Improvements can be made to carbon-financing mechanisms in the Clean Development Mechanism¹⁶ to raise the scope for emissions reductions programs in the transport sector. A programmatic approach can do so by aggregating smaller projects within a program, such as by incorporating reductions from households, small enterprises, rural electrification, and transport projects. It is also important to explore the opportunities and mechanisms that exist to include the transport sector, and in particular the roads sector, in carbon capping and trading schemes.

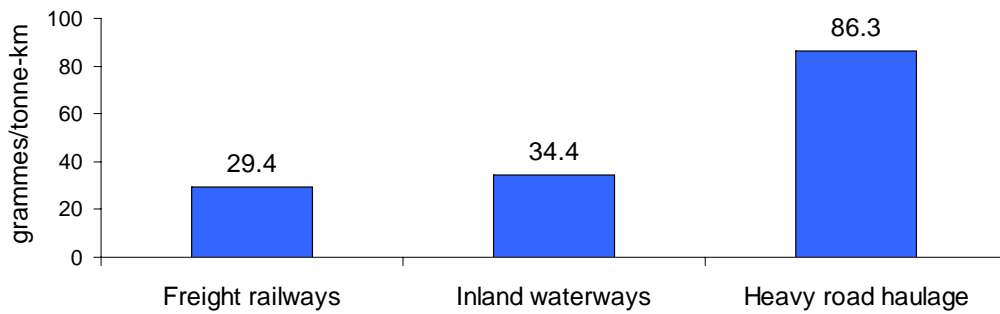
¹⁶ Clean Development Mechanism, United Nations Framework Convention on Climate Change, Kyoto Protocol 1997, http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php.

Figure 3-3. World transport emissions of carbon dioxide, by vehicle type, 2000



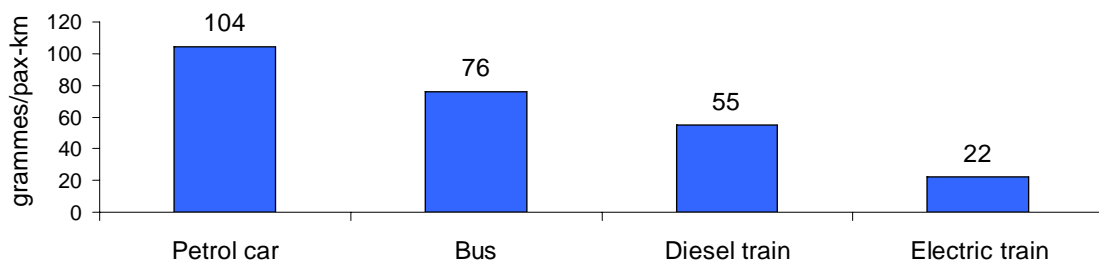
Source: WBCSD-IEA/SMP 2004.

Figure 3-4. Carbon dioxide emissions in Europe, by freight mode



Source: IFEU 2006.

Figure 3-5. Carbon dioxide emissions in the United Kingdom, by passenger mode (measured for modern vehicles at average loading).



Source: U.K. Office of Rail Regulation 2005.

The Bank Group will develop and analyze policy options, so that it can properly encourage and support long-term transport policies in partner countries that address this issue. This guidance will also identify the critical issues to be considered by governments in assessing the cost-effectiveness of other policies, such as mandated proportions of low-carbon fuels (such as biofuels) and railway electrification.

Transport policies cannot be decided on the basis of energy efficiency or emissions alone: it is important to embed these issues within a wider policy context that reflects economic efficiency, social equity and political feasibility. Policies also need to reflect local circumstances. In the richest countries that are responsible for two-thirds of transport-related emissions, and in the large, fast-growing middle-income countries, the adoption of policies aimed primarily at reducing their greenhouse gas emissions is essential to tackling the global problem. For many small, poor countries, there is a need to explore the synergies between local and global benefits with a view to avoid carbon-intensive growth by shifting policy direction early, taking advantage of carbon financing and/or climate change related financing.

The Bank Group can also lead by example in its own project interventions. It intends to build climate change issues into its project appraisals where appropriate. It will issue technical papers on parameters for estimating energy use and emissions by mode and circumstance; valuation of emissions in transport project appraisals; incorporating such values into cost-benefit analysis; the impact of and treatment of discount rates; and other relevant factors.

3.12 Fighting corruption

In some countries the transport industry is a victim of corruption. Informal payments may be demanded by vehicle inspectors, traffic police, customs officers, and others, all of which can mean higher transport costs. Some of these bribes may also facilitate dangerous driving, unsafe vehicles, noxious exhausts, or vehicle overloading that damages roads. Corruption tends to make both freight and passenger transport less safe, less clean and less affordable for the community as a whole.

As the Bank Group strengthens its engagement in freight transport and logistics, it will need to highlight the problems and costs caused by corruption and to encourage reforms that may help reduce it: for instance, electronic documentation processing or modernization of border stations to minimize opportunities for informal transactions. Similarly, government policies to improve road safety or reduce vehicle emissions will not work if the power to enforce new laws is converted into opportunity to extort payments for turning a blind eye.

Closer to home, the Bank's loans for transport projects often finance large infrastructure or equipment supply contracts. They can be targets for corrupt procurement practices. The Bank Group agenda to fight corrupt practices¹⁷ includes the creation and sharing of knowledge in this area.¹⁸ The Bank's transport sector is contributing to this effort through the development of new good practice procurement guidelines; the update and publication of an Infrastructure Contracts and Licenses database that will make certain business relationships transparent; and an evaluation and dissemination of the corruption risk characteristics of alternative market and regulatory models.

Since 1999, the Bank has also developed a Road Cost Knowledge System (ROCKS)¹⁹ to monitor and benchmark Bank-financed road and highway project costs. Updating and deeper analysis of the data are being undertaken to find correlations between costs and quality of governance in project procurement.

¹⁷ <http://www.worldbank.org/anticorruption>.

¹⁸ <http://www.worldbank.org/wbi>.

¹⁹ <http://go.worldbank.org/ZF114CJNX0>.

This analysis will help to improve strategies already being applied in a number of countries to mitigate the risk of corruption.

3.13 Implications of the policy focus

Chapter 3 has identified 11 of the most important areas for Bank support of policymaking and implementation in the transport sector to meet the objectives of economic, financial, social, and environmental sustainability. Not all of these areas are a cause for concern in all countries and regions. Different countries will inevitably weigh and analyze them differently, and the Bank Group would anticipate a wholly legitimate and valuable diversity in the policies and institutions that are established for their resolution. Nevertheless, that resolution will be crucial to the efficiency and effectiveness of the transport of a country. As such, the 11 policy areas provide a systematic checklist for deepening the transport agenda that is integral to the business strategy described in Chapter 6.

4 FOCUS ON MODES OF TRANSPORT

Roads, railways, buses, metros, taxis, bicycles, wagons, ports, ships, barges, inland waterways, airports, aircraft, and the many combinations of these—all these diverse modes of transport serve particular parts of a wide spectrum of needs that arise in moving freight and passengers. As trade has globalized and incomes have risen in many developing countries, the demand has mounted for all types of transport services and the infrastructure on which they rely. This chapter focuses on the comparative advantages and risks of seven major modes or types of transport in meeting that burgeoning demand. It makes the case for balanced multimodal investment to create transport systems that exploit and integrate the best economic, environmental, health, and safety features of different individual modes. The multimodal approach confirms the desirability of broadening Bank transport interventions beyond single-mode solutions to look at transport needs as a whole.

This more holistic view of transport, which is reflected in the business strategy, supports both integrated urban passenger transport systems and efficient freight corridors to serve regional integration and international trade. Although roads have long been an essential component of all national transport systems, usually consuming the greatest share of public and private transport investments, the projected expansion of demand for road transport in developing countries will also bring more traffic accidents, higher greenhouse gas emissions, increased urban congestion, and other adverse effects. Balanced investment in many modes of public transport can contribute to making cities work better: urban roads, railways, and even nonmotorized transport all contribute most effectively when the service offered to the public is integrated to create physical connectivity, spatial coverage, and ease of transfer. Cleaner, safer transport will mean cleaner, safer cities.

Similarly balanced investment in different forms of corridor infrastructure (connecting roads, railways, inland waterways, ports and shipping, airports and aviation) may yield better solutions than a focus on individual modes of freight transport and may achieve better coordination between, say, port investments and surface access links. Most important, multimodal integration would enable customers to choose their most cost-effective modes for specific types of freight, which would lower average transport costs and raise environmental acceptability and energy efficiency overall.

4.1 The modes of transport

Transport in all its facets is a remarkably diverse sector. The different modes—roads, railways, urban transport, ports and maritime transport, inland waterways, airports and aviation, and combinations of these—serve particular parts of a wide spectrum of freight and passenger transport demands. While some modes do compete in some markets, they are not always close substitutes and in many circumstances are not substitutes at all. So each mode makes different but complementary contributions to development, and each faces specific issues. This chapter highlights those issues and the nature of Bank Group engagement in each modal subsector.

The subsectors are generally defined here according to the Bank's own statistical categories. However, urban transport, which is not a separate subsector in the Bank's records (and is not a single mode anyway), is sufficiently distinct and strategically important to warrant special attention. Nonmotorized transport, too, is not a specific mode, but is treated as a distinct user group both of the roads network and of the urban transport system; indeed, users of nonmotorized transport need to be integrated in this way to ensure that their needs are not overlooked. As an antidote to the sometimes arbitrary modal distinctions, the chapter concludes with a case for Bank Group promotion of multimodal transport and logistics strategies.

4.2 Roads

Since the start of recorded history, roads have underpinned economic progress. Transport on early roads and rivers permitted the movement of food and raw materials and was instrumental to the development of towns, cities, and their surrounding areas. Urban agglomeration, along with the resulting growth of income and population, led to the increased demand for food and raw materials from nearby rural areas. Road networks grew as rural output and income increased. Centuries later, a surge of canal and then railway building in industrializing countries underpinned a massive expansion in trade, transport, and wealth. With the advent of the internal combustion engine and improvements in road-building methods, roads have now come to dominate land transport between settlements and regions in most countries.

It is not difficult to see why this should be so. Roads are multifunctional and can be readily accessed by a wide range of users. They provide the infrastructure used by private passenger transport (cars and motorcycles), buses, trams, taxis, paratransit services, own-account goods transport, commercial road haulage services, emergency services (ambulances, police vehicles, fire vehicles), utility vehicles (such as for refuse collection), and a variety of personal and freight transport functions carried out on foot, by bicycle, or by animal-drawn vehicles. They frequently also provide convenient rights of way for electricity, gas, telecommunications, water, and drainage systems.²⁰ It is because of their high and diverse functionality and wide range of beneficiaries that roads have become such an essential component of all national transport systems, usually consuming the greatest proportion of public and private investment resources in both infrastructure and services.

In 2005 it is estimated that road transport worldwide accounted for about 28,000 billion passenger-kilometers of travel (about 13 times the traffic of nonurban railways) and 9,000 billion freight tonne-kilometers (a similar order to railways).²¹ Low- and middle-income countries account for an increasing share of the growth in road transport,

Box 4-1. Road projects in Ethiopia and Vietnam

Ethiopia: Road Sector Development Program

This project improved 1,334 kilometers of trunk and regional roads, helped build institutional capacity for sustainable road development and maintenance, provided employment for the poor in rural road works, and helped develop appropriate and affordable means of transport. The project helped reduce vehicle operating costs by 16 percent and travel time by 25–30 percent. In addition, freight rates were reduced by 25 percent on the main import export route and by 47 percent on trunk roads.

Project ID P000755, approved January 1998.

Implementing agency: Ethiopian Roads Authority.

Vietnam: Rural Roads Project

This project involved the rehabilitation of 7,600 kilometers of roads and 26 kilometers of bridges. Moreover, over 14,000 staff were trained in rural road maintenance. The project improved accessibility to all-weather roads for about 16 million people and helped lift more than 200,000 people out of poverty. Evidence suggests that the project also led to increased health facility visits, improved school attendance, and reduced rural-urban price differences.

Project ID P039021, approved December 1996.

Implementing agency: Ministry of Transport.

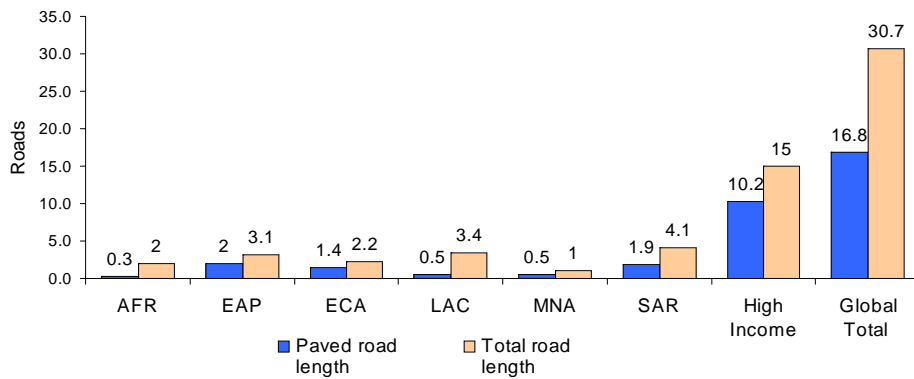
²⁰ Research undertaken by the Bank in Peru (World Bank 2006b) has shown how the simultaneous provision of roads in conjunction with other infrastructure services (i.e., electricity, telecommunications, water) can give much higher returns than if these are provided separately. At the village level, the Integrated Rural Accessibility Planning Tool: IRAP (ILO 2000) is now being applied in a number of countries to map and efficiently coordinate the provision of roads, footpaths, and tracks together with the provision of other services (for example, water sources, woodlots, schools, health centers).

²¹ The figures should be treated with caution. There are no complete or consistently defined global data sets for transport activity by mode.

whereas high-income countries have now reached a more mature, lower growth path. Comparing the regions of the developing world with high-income countries indicates the enormous scope for further growth in vehicle populations that could occur in low- and middle-income countries and the big gap in their available road capacity. Around 60 percent of the world's paved road length is currently in high-income countries (Figures 4-1 and 4-2); if this were measured in road lanes rather than simply length, the proportion of total paved road capacity in the high-income countries would be even greater.

The total length of the road network in high-income countries is now growing very slowly (in the United States the growth of the past 15 years amounted to just 0.2 percent a year), although the quality of the network is changing as an increasing proportion of roads are upgraded. In low- and middle-income countries road networks are increasing in length, on average, by about 2 percent a year. Although some networks appear relatively slow growing or static (particularly in Latin America), others are growing rapidly, in particular India (at 4 percent a year) and China (at 6 percent a year).

Figure 4-1. Length of the road network, by region, 2005

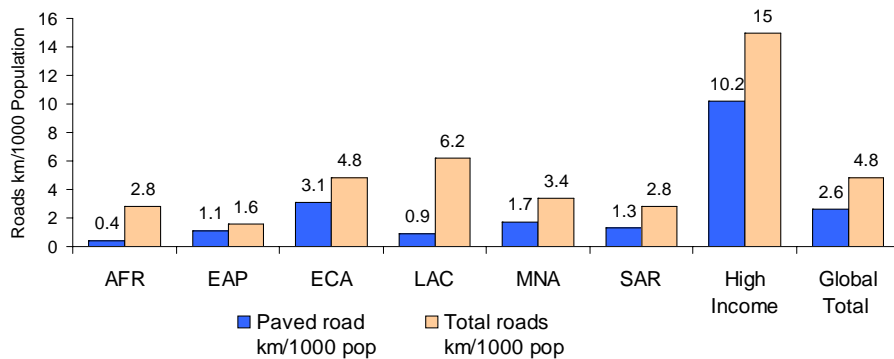


Note: Road lengths are in millions of kilometers.

See Annex D for listing of World Bank regions.

Source: International Road Federation Statistics 2005 and World Bank analysis.

Figure 4-2. Ratio of road network to population, by region, 2005



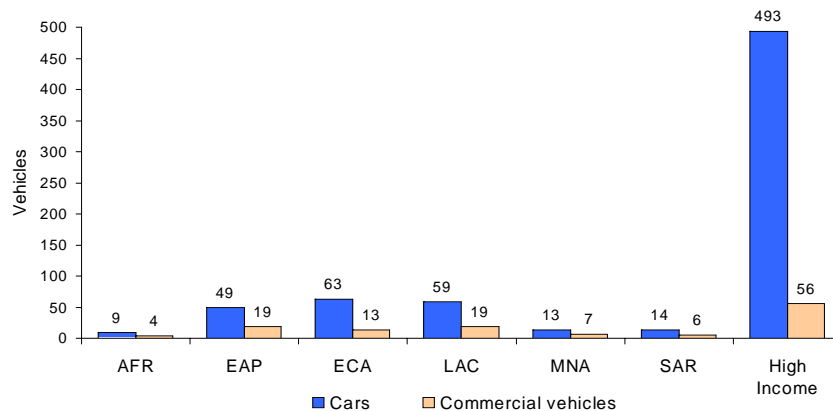
Note: See Annex D for listing of World Bank regions.

Source: International Road Federation Statistics 2005 and World Bank analysis.

The world's total population of motor vehicles is now over 800 million (Figures 4-3 and 4-4). In high-income countries the number of cars is growing at just over 1 percent a year, while commercial vehicle numbers are barely increasing at all (though average size is increasing in many countries). In low- and middle-income countries, in contrast, cars are currently increasing, on average, at around 7 percent a year, and commercial vehicles at just over 6 percent a year. As with the road networks, particularly high growth rates are now being recorded in Asia. In the past four years, India's car population has been growing at about 12 percent a year and China's at 20 percent a year.

Although most roads in most countries are appropriately treated as public goods, there are opportunities for private participation in the sector. In the 1980s and 1990s many motorway schemes, particularly in middle-income countries, were funded through a variety of public-private partnership (PPP) schemes. However, interest and funding from the private sector in these schemes declined after the financial crises of the late 1990s. The Bank Group is interested in continuing to develop ways to increase the involvement of the private sector in financing and managing road schemes. Better ways need to be found to handle the associated risks. To this end the Bank has developed a PPP toolkit to promote the continued involvement of the private sector in providing and maintaining road infrastructure (World Bank 2003c).

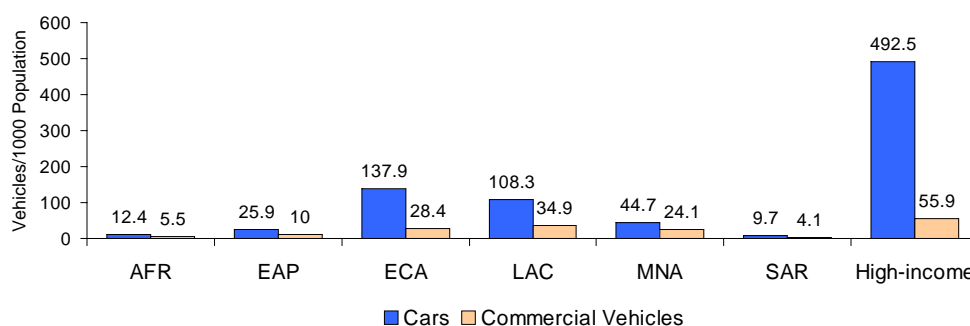
Figure 4-3. Registered vehicle ownership, by region, 2005



Note: See Annex D for listing of World Bank regions.

Source: International Road Federation Statistics 2005 and World Bank analysis.

Figure 4-4. Ratio of vehicle ownership to population, by region, 2005



Note: See Annex D for listing of World Bank regions.

Source: International Road Federation Statistics 2005 and World Bank analysis.

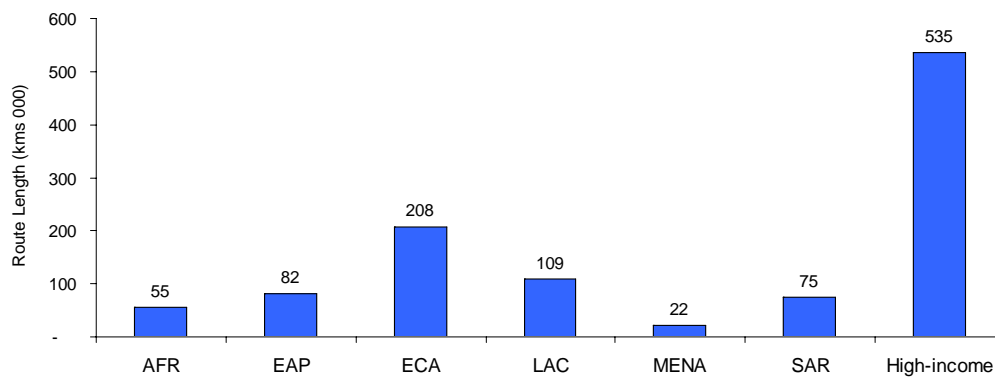
The financing and management of road network infrastructure has been highlighted in Section 3.4 as one of the major policy issues in the transport sector. We note here, however, that the high growth in the use of roads in developing countries not only exacerbates the challenges of financing and management, but also implies a set of wider issues. This growth in road transport will both promote and reflect great economic and social progress. But it will also be a cause of more traffic accidents, higher greenhouse gas emissions, increased urban congestion, and other adverse effects. As argued in Chapter 3, it is necessary for the Bank's transport business strategy to deepen its engagement in the roads sector by giving greater attention to policies for mitigating adverse effects.

4.3 Railways

Like roads, railways serve several different transport needs in freight, passenger, and regional markets. Like roads, too, the railway network is concentrated in high-income countries, although it is expanding faster now in developing countries (Figure 4-5). But railways are not as suitable as roads for all transport needs; they are efficient in a narrower range of services than roads, and the global railway network is only 6–7 percent of the length of the paved road network. Furthermore, railways must manage a more complex mix of public and private ownership arrangements. Rail freight services are critical in a large number of developing countries to the production, trade, and distribution of bulk materials, such as coal, ores and minerals, oil products, grains, chemicals, iron and steel, cement, bulk timber, and sand and gravel. Over sufficiently long distances railways can also provide efficient and effective transport alternatives for general freight, particularly in the movement of international shipping containers to and from ports. In 2000–2005, global rail freight traffic grew about 25 percent (UIC 2006). Railways can also perform a valuable economic and social role in transporting passengers in dense intercity corridors, in major cities, and in some rural regions where population density permits. In many cases these roles could only be transferred to road transport at a higher cost in road infrastructure, traffic congestion, vehicle emissions, and traffic accidents. The five-year global growth of rail passenger traffic has been about 19 percent.

In Latin America, Canada, Sub-Saharan Africa, and Australasia, private sector participation in the railway industry has increased in recent years, particularly in rail freight operations. About 40 percent of global rail freight (excluding industrial railways) is now carried by private train operators. Though the great majority of this volume is concentrated in North and Latin America, there are many private

Figure 4-5. Railway network, by region, 2005



Note: Data exclude industrial railways. See Annex D for listing of World Bank regions.

Source: World Bank Group Railways Database 2007.

railway concessions or companies in both Africa and Australasia, and some emerging niche players in Europe are using track access rights on publicly owned networks. By contrast, over 95 percent of the world's railway passengers are carried on publicly operated trains. In New Zealand, Great Britain, and Estonia rail infrastructure that had been privatized in recent years has been effectively renationalized, though in the first two cases train operations remain privately owned.

In Eastern Europe and Central Asia, railways have continued to make the transition from roles mandated by a centrally planned economy to new roles, which depend on market demands and management competence. Moreover, the ending of the political unions of the USSR, Yugoslavia, and Czechoslovakia led in the 1990s to the emergence of more than 20 newly independent national railway companies, some of which (Russia, Kazakhstan, and Ukraine) are among the world's largest railway businesses. They are now experiencing a resurgence of demand, but assets have deteriorated through the transition period and investment needs are substantial.

In the European Union, public ownership and operations predominates, but a new model of railway industry organization is taking root, driven by European Union legislation aimed at increasing the economic role of railways and gaining social and environmental benefits. This model has involved varying degrees of separation of railway infrastructure from train operations, alongside the implementation of defined access rights for third-party train operating companies. Since January 1, 2007, properly licensed freight train operators have also been granted open access to anywhere on the European Union network, where capacity exists.

In China, the high rate of economic growth in recent years has imposed increasing freight and passenger demands on a relatively sparse network, which has led to the highest average traffic utilization in the world. The 30,000-kilometer network enhancement program that has recently been adopted by the government represents the biggest burst of railway-building activity since the nineteenth century, with multiple objectives of increasing capacity, extending the network to more remote areas, and enhancing service quality (Box 4-2). India is also planning a substantial program of new dedicated rail freight lines to provide capacity and quality improvements to meet growing demand.

Many national railways in countries that do not have strong traffic flows of a kind that are most suited to railways are struggling to maintain existing markets and to finance system renewal and modernization. The main challenge for some countries is to concentrate public resources on improving rail infrastructure and services in the densest corridors, rather than to continue supporting the whole network, especially where road transport could provide good service at lower cost. Central control of the rail network is

Box 4-2. China's Third National Rail Project

China has adopted an ambitious plan to increase the capacity and performance of its railway network, the most densely utilized in the world. This project is one of a series of supportive Bank operations and in this case will help to meet the growing demand for transport of people and goods between Guizhou and Yunnan provinces. The line between the city of Liupanshui in Guizhou and the city of Zhanyi in Yunnan will be upgraded with the assistance of a Bank loan of US\$200 million. The project includes realignment of the existing track and construction of a second track throughout, to design standards that will allow operation of double-stack container trains. The upgraded facilities will reduce costs of international container transport between inland centers and ports. Analytical and advisory support services will include research on application of modern track and catenary management technologies. At the same time the Bank is pursuing a parallel policy dialogue with the Ministry of Railways on how to attract external investment into the railway industry and how to manage the economic interfaces in situations where different companies may become involved in the ownership and operation of rail infrastructure and services on the national network.

*Project ID P086515, approved January 2007.
Implementing agency: Ministry of Railways.*

also challenged where ownership could be decentralized to local or regional governments or given over to low-cost private rail operators. National transport strategies that seek to address priorities therefore need to take account of the full costs of different modes, including the implicit subsidy of road haulage costs if heavy vehicles do not pay a fair price for capital and maintenance costs of the road system or for their adverse impacts on congestion, environment, and accidents.

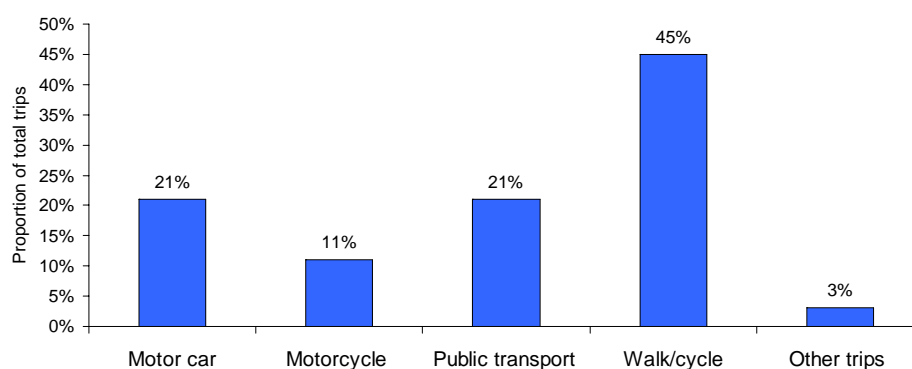
The Bank Group's lending for railway projects has significantly increased over the past five years, albeit from a very low base. This higher level of engagement is proposed to continue, reflecting the strategic intention to grow a more diversified transport portfolio that addresses transport-for-trade needs (more broadly than just road systems) and which would also give greater emphasis to public transport service and to energy efficiency. In tandem with lending operations, the Bank Group will continue through its policy dialogue and technical cooperation to bring international experience to bear in matters of railway policy, industry organization and institutions, management structure, asset management and modernization, investment prioritization, opportunities for private sector participation, and sector regulation.

4.4 Urban transport

Urban transport and urban development are closely intertwined, jointly influencing the accessibility and mobility of the increasing urban populations in developing countries. Viewed from one perspective, transport "serves" urban land-use and economic development. But transport also influences the character and amount of development. Different types and locations of transport infrastructure and services will result in different development patterns in a rapidly growing city and different access for its residents to employment, health, educational, and social opportunities. The Bank Group stresses the importance of trying to integrate land-use and transport planning, or at least to achieve consistent decision making between the two.

The most important trends affecting urban transport in developing countries are the simultaneous, explosive growth of population, income, and private vehicle ownership in cities. In China and India alone, more than 500 million more people are expected to migrate into urban areas by 2020, most of them to areas that already have more than 1 million residents. Motor vehicle ownership rates in many Chinese and Indian cities are rising even faster than population and income, in some cases more than 15 percent annually. But the challenge bears upon all regions (Chapter 5). In many, perhaps most developing cities, the social, economic, environmental, safety, and health consequences of this growth in private vehicle travel have been severe. Private vehicle travel in cities impacts all those who need to travel, even though the proportion of trips made by private transport tends to be rather low compared with public transport and nonmotorized trips. Figure 4-6 illustrates this trend for China, a middle-income country: four-fifths of urban trips are not by private car. In many parts of Africa and Asia the proportion of trips made without cars is 90 percent or more.

Efforts to accommodate the mobility and access needs of huge numbers of new residents, while dealing with the negative impacts of motorization, have created unprecedented stress on public transport systems in developing cities. Not only must they try to add service for new demand, but they must often do it in the increasingly hostile operating environment that results from road congestion. As general traffic speeds decline, bus systems require more human, material, and financial resources just to maintain the same level of service. There is a need to significantly expand and improve public transport systems throughout the developing world, with particular attention to multimodal planning and to the integration of public transport improvements with road traffic demand management.

Figure 4-6. Modes of transport for daily trips in nine cities in China

Source: Data from nine cities and World Bank analysis 2005.

Many modes of public transport can contribute to making cities work better: metrorail systems, suburban railways, trams, buses, minibuses, and shared taxis. They contribute most effectively when the service offered to the public is integrated to create physical connectivity, spatial coverage, and ease of transfer.

As in the developed world, road-based public transport will inevitably need to play the major role in most cities and will need supporting policies that give priority to buses and trams over private cars. Bus rapid transit systems have the potential to provide high-quality, cost-effective, and inclusive public transport systems in many cities. In a number of cities in Latin America, implementation of bus rapid transit systems has been used as a tool for initiating wider reforms. The Bank has recently published a toolkit on bus services (World Bank 2006c).

Existing urban rail systems can perform enhanced roles if their infrastructure and rolling stock can be improved and integrated with other modes. New urban rail and metro lines require very dense passenger flows to justify the costs relative to other options. But they can be effective and affordable in the larger and richer cities, in concert with land-use development policies that create high density of usage and where enhanced property value may be captured to help offset capital cost.

Another important task in cities is to provide appropriate infrastructure and basic services for pedestrians, cyclists, and other users of nonmotorized transport. The poorest travelers are found in this group, and their conditions of travel are often dire and dangerous because of poorly

Box 4-3. Colombia's Integrated Mass Transit Systems Project

This project is developing high-quality and sustainable bus rapid transit systems including six cities—Pereira, Medellín, Cartagena, Barranquilla, Bucaramanga, and Bogotá. Its aim is to improve mobility along main mass transit corridors and improve accessibility for the poor through feeder services and fare integration. A loan of US\$250 million is being used to build segregated transportation corridors in participating cities, including: creation of busways; repaving of mixed-traffic lanes; construction and installation of bus stations and terminals; and paving of feeder roads. A capacity-building component will provide technical assistance and policy advice to the national government and to participating municipal governments, to strengthen national urban transport policy and local programs. Policy consultations will focus on regulatory, institutional, environmental, social, and road safety issues. Appropriate mass transit solutions will be identified to improve transport and traffic management. An operational structure will be developed to monitor and administer public transportation services.

Project ID P082466, approved June 2004.

Implementing agency: National Planning Department and Ministry of Finance.

maintained footpaths, unsanitary conditions, lack of lighting, poor security, inadequate road safety, and little protection from motorized traffic. Bank Group interventions in urban transport will support policies and investments that address these problems.

The Bank Group will encourage cities to seek service and value-for-money benefits by separating service specification from delivery, so that a municipal government sets service and accessibility parameters for passenger services that are then supplied by private operators under competitively tendered contracts or concessions. The objective is to control costs and improve service through competition for operating rights, rather than open competition among operators on the street. Open market competition in developing country cities has often been associated with a proliferation of unsafe and low-quality vehicles and operations that make inefficient use of scarce road space, as well as environmental degradation resulting from increased emissions and congestion.

The proportion of Bank Group transport lending in urban areas, irrespective of mode, has been historically limited by the political, social, environmental, and institutional complexity of the large, diverse, and dense cities within which the Bank Group works. In recent years, there has been a renewed interest by the Bank's partner countries in financial and technical assistance and capacity building in the urban transport subsector. The transport business strategy aims to respond to this interest with a more substantial engagement.

4.5 Ports and maritime transport

Maritime transport moves more than 90 percent of world trade in volume. In 2005 the world's ports handled more than 7 billion tonnes of dry bulk, liquid bulk, and general cargo, and the share of that freight originating in developing countries has almost doubled from 16 percent in 1970 to just over 30 percent in 2005. The international maritime sector itself is one that has shown itself very adaptable to changing demands, is managed largely in the private sector, and is regulated by international conventions. Real shipping freight rates have been declining steadily over the past ten years. Thus, there is little need or scope for direct Bank intervention in the shipping industry itself, but there is a strong case for involvement in the ports that serve it and in the overall trade logistics issues of which it is part.

To handle increasing volumes of cargoes, and of containerized cargoes in particular, the Bank Group's partner countries need to ensure the availability of well-functioning ports. That challenging task depends as much on institutional and regulatory structures as on infrastructure. Ports face continued pressure to use new technology, handling techniques, and information/control systems to meet the increasingly demanding service standards of ever-larger ships. New international and bilateral regulations have also been imposed to improve the security of maritime transport and reduce its vulnerability to terrorist incursion.

Traditionally, the large majority of ports in developing countries were so-called public service ports that tended to be slow to adapt to the growing traffic and more demanding standards and that rarely had access to the capital investment funding necessary to respond fully to industry changes. Governments have therefore often looked to the private sector for both capital to meet growing demand and professional operating experience to be able to offer world-class service levels to facilitate international trade. As a result, developing economy ports have seen over 230 projects totaling more than US\$24.7 billion of investment that included private sector participation in the past 15 years.²²

²² See the World Bank's Private Participation in Infrastructure Database (<http://ppi.worldbank.org/>).

The most prevalent mode of private participation has been the “landlord” model, an approach that is frequently suggested or endorsed by the Bank Group in dialogue with partner countries. In landlord ports the public sector is the owner and developer of the basic port infrastructure and manager of the common areas and facilities. Cargo-handling operations (and other activities such as pilotage and towage) are then contracted or concessioned to the private sector. Partly as a result of this trend, the port industry is itself becoming global, with the emergence of specialist container terminal operators over the past five to seven years. The top 24 companies now operate two-thirds of the world’s container throughput.

Some countries remain reluctant to embrace the approach. Many reasons are involved, including industrial opposition by organized labor groups, but one easily addressable reason has been unfamiliarity with the instruments and processes required to efficiently transition from the public service port model to a landlord model. For that reason the Bank has published a comprehensive toolkit for port reform, which also includes a dedicated module on Labor Reform and Social Issues (World Bank 2006a). This has assisted many governments, port authorities, and private companies. Recent updates have deepened and strengthened advice on options for responsible and equitable handling of labor issues in reform process.

Given the high (and in some cases unmet) country demand for support in the ports subsector and the intention in this update to give more focus to transport for trade, the Bank Group will increase engagement. It is likely that lending operations for terminal infrastructure will remain relatively small, as the private sector has shown its willingness and ability to invest in the sector. However, the landlord model also depends on efficient public investment in the basic port substructure, including access and protection, internal circulation and storage areas, and ancillary facilities. Therefore, a modest increase is expected in the profile of port investment in the overall portfolio.

4.6 Inland waterways

Because of the natural endowments afforded by rivers and lakes or through historical investment in canals, inland waterways play an important role for particular market segments of freight and passenger transport in China, Brazil, Vietnam, Cambodia, India, Bangladesh, Russia, Bolivia, Tanzania, Uganda, and other countries. In specific areas this role can dominate (Box 4-5).

The fast-growing industrial sectors in many developing countries are creating new demands for the transport of raw materials, for which inland waterways are particularly well suited. In China, transport on the Yangtze River of raw materials for industrial use—mostly mineral ores and coal—more than tripled between 2000 and 2005. Transport of containers by inland waterway in China increased at an annual average rate of 35 percent between 2000 and 2005.

Box 4-4. Croatia’s Rijeka Port Gateway Project

The objective of the project is to increase Croatia’s trade competitiveness. It is planned to do so by improving the international transport chain through the Rijeka Gateway, by modernizing the port and road network connections, and privatizing port operations, with support of a US\$204 million loan. The project includes three components: port restructuring and modernization; port/city interface redevelopment; and international road improvements. To improve the efficiency and effectiveness of the port, the project will contribute to the cost of port infrastructure rehabilitation; construction of a new container terminal; advisory services to concession specific terminals in the port to the private sector; and support to prepare for the redevelopment of part of port area for urban use, with a waterfront area open to business and commercial activities and the construction of a passenger terminal.

Project ID P043195, approved July 2003.

Implementing agency: Port of Rijeka Authority, Hrvatske Ceste (Croatian Roads Company), Hrvatske Autoceste (Croatian Motorways Company).

Inland waterway traffic can include river-sea vessels, barges of various kinds, passenger ferries and smaller vessels. Inland waterway transport tends to be most efficient at carrying the same bulk commodities as railways, particularly when transit time is not critical. Efficient barging is, however, often cheaper than either road or rail transport where the navigation infrastructure permits use of large modern barges and/or barge combinations. Like railways, good inland waterway routes from ports can allow penetration of concentrated international container flows directly from seaports to inland centers.

Throughout the world, most waterways tend to be owned and administered as public goods. Cost recovery mechanisms typically include a range of vessel licensing fees, river port dues, navigation fees, and lock and other sundry charges. These revenues are rarely sufficient to cover all the costs of public resources, but these costs are usually very small compared with other modes in absolute terms and in proportion to traffic handled.

The effective utilization of inland waterway transport generally depends on investment in and upkeep of the navigation infrastructure (dredging, navigation aids, locks, etc.), together with an institutional regime that encourages an efficient and competitive private barging industry. But inland waterways are often given little strategic attention or investment. They may be afflicted by a multiplicity of administrations or constrained by the involvement of different governments where rivers form international boundaries or flow between countries.

The future of inland waterway transport must depend principally on its performance in serving transport markets. It is not in the interest of any country to overinvest where demand by suitable traffic is lacking or to force usage of inland waterways against customer preference. Nonetheless, even though waterways generally need much less capital investment and maintenance than other transport modes, they have been rather neglected in many countries, despite evident demand and utilization. This is a pity, not only because of the economic advantages of efficient barge services in appropriate markets, but also because of the lesser environmental impacts from inland water transport than from competing modes.

Apart from larger-scale commercial barging (and sometimes in conflict with it), inland waterways are often the first link in the transport chains faced by poor riparian communities. Large numbers of country boats in certain regions (1.5 million in Bangladesh alone) are crucial to the livelihoods of these

Box 4-5. Vietnam's Inland Waterways and Port Rehabilitation Project

Inland waterways in the Mekong Delta region carry around two-thirds of all freight in this region of around 20 million people. The project objective was to enhance the capacity, efficiency, and safety of inland waterway transport. This was approached in three ways. The first was by improving the two main inland waterway routes, including widening and deepening channels, replacing and or improving bridges, treating canal side slopes where needed with proper surfacing materials to afford stability and prevent erosion, rehabilitating existing and installing new navigation aids, constructing a landing stage and relocating markets located on the waterways, constructing a navigation lock with a pedestrian overpass to both limit salinity intrusion and permit the passage of barge convoys, and dredging. A second component improved port infrastructure and management at Can Tho, the main regional port for the Mekong region located on the Bassac River. This was achieved by replacing the existing fenders with an improved system along the berth; providing equipment for collecting vessel bilge water and chemical spills; installing cargo-handling equipment; and providing consultant services and staff training in marketing, financial management, business development, and port management. A third component was targeted at institution building by providing better equipment for management of waterway operations and maintenance generally and consulting services in inland waterway management.

*Project ID P004843, approved November 1997.
Implementing agency: Ministry of Transport.*

communities, both for personal and freight transport. It is therefore important to ensure that transport policies in the relevant countries, and the Bank Group's own interventions, consider both the commercial potential of waterways and the interests of the many communities that depend on them for their livelihood and their access to health, education, and social services.

The main scope for private sector involvement in port infrastructure is by contracting with governments to construct, dredge, or maintain navigation aids and by owning port facilities or cargo-handling concessions at inland ports. For private sector involvement in commercial barging itself, competition among private barge operators is likely to yield the most successful transport services for development.

The Bank Group intends to support specific partner countries endowed with inland waterway resources to consider ways to optimize their use when establishing multimodal transport strategies. It will also continue through its policy dialogue and technical cooperation to bring international experience to bear in matters of inland waterway policy, asset and financial management, private sector participation, and sector regulation. The Bank Group will respond positively to opportunities to support economically justified inland waterway improvement and navigation projects in corridors where there is viable demand.

4.7 Airports and aviation

Aviation is becoming increasingly important to development in all regions. Air freight services carry a significant proportion of trade by value, and they are vital for the export of perishable commodities (flowers, seafood, etc.) produced by many developing countries for international markets. Safe and secure air passenger services underpin the international tourism industry. Reliable air transport links also influence the investment location decisions made by international companies, particularly technology companies with high value-added products.

Strong international growth in aviation is straining the physical and management capacities of many developing country airports. Over the ten years to 2005, both passenger travel and air freight have increased by about 55 percent (ICAO 2006). In 2005 some 4,020 billion revenue passenger-kilometers were flown, with a projected annual average growth of 4.9 percent a year for the next 20 years. Cargo flights worldwide involved 178.1 billion revenue tonne-kilometers (29 million

Box 4-6. Egypt's Airport Development Project

To promote growth and employment, the government is focused on encouraging private sector development, attracting more foreign direct investment, and maximizing foreign exchange earnings from tourism and agriculture. The air transport sector has a key role to play, but its contribution is currently limited by bottlenecks in airport capacity, gaps in its aviation governance framework, a narrow airport revenue base, and a protected air transport market. The objectives of the project are to eliminate capacity constraints on the growth of traffic, particularly for tourism and associated foreign exchange earnings; raise the service quality of the Cairo International Airport and Sharm El Sheikh Airport to international best-practice standards; and promote efficient private participation in airport management and airport service delivery in a more competitive market. A US\$335 million loan will be used to build a third terminal at Cairo International Airport and a new terminal at Sharm El Sheikh Airport, both to be managed under contract by the private sector. Analytical and advisory services provided or funded by the Bank include support to prepare a national airport master plan, develop a plan to gradually liberalize air transport in Egypt, devise a national strategy for developing air cargo, establish environmental units within the administration, and strengthen airport management capacity.

Project ID P082914, approved March 2004.

Implementing agency: Egyptian Holding Company for Airports and Air Navigation.

tonnes), with a projected average annual growth of 6.1 percent a year.²³

The Bank Group's transport business strategy will give increasing support to the development of safe air transport services in client countries. The key issues being addressed by Bank operations and advice in the subsector are regulatory oversight, safety and security, air traffic infrastructure and facilities, provision of essential air services, the liberalization of air transport in regions and subregions, and environmental impact.

Fatalities are very low in air transport worldwide, compared with other modes of passenger transport and, unlike road accidents, cannot be classified as a major public health issue. But safety is critical to the development of aviation services and hence to the industries that depend on it. Safety varies widely: for example, West Africa has an aviation accident rate 30 times that of the United States. High accident rates have become the prime hurdle for development of air services in many developing countries because of the impact of blacklists (in Europe), certification requirements (in the United States), and related difficulties in raising finance and procuring insurance. Regular aircraft crashes in a region also inevitably affect the confidence of investors.

The fixed infrastructure for air transport includes airports and runways, navigation technology for flights en route or landing (installations on the ground or satellites in orbit), and air traffic control facilities. The Bank Group has financed airports, both with IBRD/IDA lending instruments and IFC financing. The Bank is currently supporting the preparation of a major air transport infrastructure project to provide the East African Community with a satellite-based air traffic control system, as well as several runway projects.

The liberalization of air transport services (in terms of rights of service and access to airport capacity) is particularly topical in Sub-Saharan Africa and East Asia. The Bank has provided research and been involved in the policy dialogue in both regions, generally in support of increased economic liberalization coupled with higher regulatory standards for safety and environment.

4.8 Multimodal transport

Multimodal freight refers to the carriage of goods by two or more modes of transport under one contract, using one consignment document, and with one party to the contract responsible for making the transport and security arrangements from origin to destination.²⁴ Multimodal transport has become increasingly important to the quality and efficiency of the transport service available to support trade. Interest in it has been driven mainly by the emergence of widespread transport of industrial components between one region of the world and another, as part of globalized manufacturing processes.

Multimodal transport and the logistics industry that normally arranges it sometimes suffer from a lack of policy attention, because often each of the modes involved is the responsibility of a different agency of government. All international multimodal transport also requires the involvement of customs, taxation, and security agencies and, if food products are involved, sanitary and phytosanitary agencies. Rarely do all these agencies have a common objective of facilitating easier international trade, and quite often achievement of their own departmental objectives is counterproductive to trade facilitation.

²³ See Boeing Company 2006a and 2006b and Airbus 2006. Both Boeing and Airbus arrive at nearly identical growth rates in their projections.

²⁴ Intermodal transport (in contrast) is simply the transport of goods by two or more modes of transport, usually in a container.

The World Bank has been at the forefront of making multimodal transport a key concern in developing countries. It sponsored and supports the Global Facilitation Partnership for Transportation and Trade (discussed in Chapter 5). The Bank has also implemented a series of trade and transport facilitation projects, starting in South Eastern Europe and now being replicated in Central Europe and other regions. It is also in a partnership with the Dutch government to sponsor a series of activities aimed at improving the trade and transport prospects of landlocked countries. The Bank has recently published a best-practices guide to the management of international trade corridors (Arnold 2006).

Attention to multimodal transport highlights the different roles that alternative transport modes play in different markets and leads logically to trying to implement a corridor approach to transport planning on major trade routes. The corridor approach may yield better solutions than a focus on individual modes of freight transport and may achieve better coordination between, say, port investments and surface access links. Similarly, balanced investment in different forms of corridor infrastructure (roads, railways, inland waterways) may enable customers to choose their most cost-effective modes for specific types of freight, which would lower average transport costs and raise environmental acceptability and energy efficiency overall. An illustration of a project in Pakistan being developed on these lines is given in Box 4-7.

Box 4-7. The Pakistan National Trade Corridor Program, 2005-2007: A trade corridor project with regional benefits

In 2005, the government of Pakistan launched major initiatives around the National Trade Corridor (NTC), the north-south backbone route from Karachi via Lahore to Rawalpindi with onward links to Afghanistan. The corridor contains two ports handling 95 percent of Pakistan's external trade; it is home to 80 percent of the Pakistani population; and it carries two-thirds of the country's surface freight. The objective is to reduce the cost of trade by improving transport logistics infrastructure and services. It is estimated that inadequate performance of the transport sector costs the economy 4 to 6 percent of GDP each year.

The Bank has played a catalytic role in identifying the significance of the corridor for trade and growth and in designing the development program that aims to bring the quality of transport services to international standards. This will reduce the cost of doing business in Pakistan and enhance export competitiveness, accelerate industrialization, and sustain the high economic growth achieved in recent years. The country has adopted a holistic and integrated approach, which encompasses the public and the private sectors, services and infrastructure, reforms and investments, and the various sectors that are responsible for the performance of the corridor (highways, road transport, ports and shipping, civil aviation, railways, and customs and trade logistics).

The key outcomes to be achieved under the program include:

- Reduction in the cost of domestic transport and nonfactor services in the total value of commodities
- Reduction in transport and transit costs and times for goods overall
- Increase in the rail share of long-distance transport of freight
- Reduction in the operating deficit of railways, with objectively determined and targeted subsidies
- Increase in the satisfaction of corridor users
- Increase in the safety and reliability of transport operations
- Improvement in the governance and accountability of entities participating in the program.

The Bank is planning a program of financial support for roads, railways, and ports and technical assistance to assist with the implementation, monitoring, and evaluation of the National Trade Corridor Program over the next five to six years.

Project ID P101683, to be approved in November 2007

Implementing Agencies: Planning Commission; Central Revenue Board; Ministry of Railways; Ministry of Communications/National Highways Authority; Ministry of Ports & Shipping; Ministry of Defense

The Bank has initiated a number of other transport corridor projects, such as those in East Africa and Latin America and being planned for South Asia, that involve several countries in facilitating multimodal transport in a specific region. Many client countries of the Bank Group are looking for similar projects in their own regions. In the transport business strategy, the Bank Group will increase its involvement in multimodal transport, corridor approaches, and associated trade and transport facilitation strategies.

4.9 Implications of the modal focus

Chapter 4 has emphasized the modal diversity of transport, and in particular the different roles that different modes of transport play in meeting the spectrum of freight and passenger demands. It has drawn attention to the strong growth in demand in many developing countries for all types of transport services and hence of the transport infrastructure on which services rely. It has made the case for balanced multimodal investment to create a system that exploits the comparative economic advantages of different modes to the benefit of the transport system as a whole. The modal focus confirms and extends the conclusion of Chapter 2, namely, the desirability of widening the focus of Bank Group transport interventions beyond single-mode solutions to look at transport needs as a whole. This more holistic view of transport is reflected in the business strategy described in Chapter 6.

5 FOCUS ON REGIONS

Regions and countries are the ground on which any transport strategy must be implemented, and to have a chance of success that strategy must respond to the day-to-day transport problems of developing countries and their demands for assistance. Although countries in the Bank's six regions differ in many ways—both within and across regions—their priorities for transport consistently show some common challenges, albeit in different guises. Examples include the need for better management of road infrastructure, the importance of improved transport and logistics to strengthen trade competitiveness, the challenge of urban road congestion and other urban transport problems, the widespread incidence of premature death and injury through road accidents, the need of isolated rural communities for basic connectivity to transport systems, and the pervasive implications of climate change on transport operations and infrastructure. These priorities all point to a strategy that will make transport cleaner, safer, and more affordable.

In addressing the following regional priorities, the Bank recognizes the need for support from regional and global partnerships with aid organizations, governments, private sector organizations, and community representatives:

- **Sub-Saharan Africa.** *A key focus will be the two-thirds of all rural people who lack reliable access to an all-weather road and the even larger number of urban people who now live in slums in worsening environmental conditions. For both groups, transport and logistics costs are excessive.*
- **East Asia and Pacific.** *Transport has performed well in many countries in facilitating impressive trade-driven economic growth and poverty reduction. The priority now is to enhance the capacity and quality of transport infrastructure and services to sustain that growth and to share its benefits more broadly in the region and with people in remoter areas, while addressing carbon emissions and climate change impact.*
- **Eastern Europe and Central Asia.** *Market forces now increasingly shape all facets of transport demand, but following an investment hiatus during the transition process, nearly all countries in the region face maintenance backlogs and quality deficiencies in their transport infrastructure. Infrastructure modernization and enterprise reform remain key goals.*
- **Latin America and the Caribbean.** *To mitigate a massive reduction in public and private investment in transport since the 1980s, which resulted in excessive transportation and logistics costs that penalize trade, the priority is to increase the sources, quality, and productivity of investment, factoring in the climate change agenda.*
- **Middle East and North Africa.** *The priority is for strategic infrastructure improvements and capacity building in transport to attract private sector participation, in particular in urban transport, and provide better access to job opportunities that can reduce the region's high unemployment.*
- **South Asia.** *Investment climate surveys have pinpointed transport as a constraint on regional and international trade. Furthermore, many rural households lack access to all-season roads and have not shared in the region's trade-led growth, and many megacities are hampered by the lack of reliable urban transport systems. Both challenges are high priorities, and the latter is also part of the broader emissions/climate change challenge.*

5.1 Regions, diversity, and partnership

The development aims that drive the Bank Group's interest in transport and the key policy issues that are likely to arise (as described in Chapters 2 and 3) apply across the Bank Group's regions of operation. There are differences, however, in the degree to which particular transport issues bear on particular countries and regions, and also differences in demand for and supply of particular modes of transport. These differences will influence the way the transport business strategy may bear on each region.

In the poorest, generally IDA-assisted countries, the main challenge remains how the Bank Group and other donors can together concentrate effort, advice, and financial resources to increase the contribution of transport to development, to meet the basic transport needs of the poor and to help create or improve access to markets for their products. With limited borrowing capacity, these countries need financial support that can blend loans and grants and technical assistance that can help to mobilize private finance alongside public resources.

By contrast, most middle-income countries have succeeded in raising their finances, trade, and development beyond basic thresholds. Many now have secure access to private capital markets. They aspire to the levels of personal mobility, urban transport, and freight logistics infrastructure of more developed countries. The aim for middle-income countries is to consolidate the progress they have made, while not neglecting the considerable pockets of poverty that remain, and to be ready to assist them in responding to global issues. They need broader programmatic forms of lending, integrating individual projects; more dependence on their own systems of project appraisal; more diversified financial arrangements for transport development; and more access to analytical and advisory services that are relevant to their more advanced level of integration into the world economy.

Every country has its own context and culture, which are the focus of the Bank's Country Assistance and Partnership Strategies and are not dealt with in this report. Instead, this chapter illustrates the diversity and commonality of transport issues across regions. It also identifies the cooperative regional relationships that the Bank is building in transport and the key global partnerships that support the regional programs.

5.2 Sub-Saharan Africa

Poor and costly transport jams economic development, slows poverty reduction, and hinders efforts to meet the Millennium Development Goals in Sub-Saharan Africa.²⁵ Two-thirds of Africa's rural population—about 300 million of the world's poorest people—do not have reliable access to an all-weather road. Most are locked into subsistence living and are disadvantaged in access to reliable health care and education. The region contributes only 2 percent of world trade and its share is falling, while its unit transport costs are typically three to five times higher than those of developed countries. Africa also contains half of the world's landlocked developing countries, whose special problems were described in Section 2.2.

Many factors push up Africa's transport costs, some of them mutually reinforcing. Small product markets and low flows of goods mean that most shipping services are feeders from larger ports, which often adds to shipping costs. Poor rail, port, and road infrastructure afflicts many African transport corridors, but thin markets also make it difficult to justify investments to overcome infrastructure deficiencies or to introduce new transport handling technology. Traffic flows are often unbalanced by direction, with lack of two-way loading adding to transport costs to and from ports.

²⁵ The Bank's regional structure treats Sub-Saharan Africa as one region, while North Africa is grouped with the Middle East as a separate region. See Annex D for listing of World Bank regions.

Poor road asset management is a particular problem. Since the 1960s, many African countries have lost around half of their road network (and especially their rural roads). Part of the answer is to help build the capacity for transport administration and management. A recent report by the Bank's Independent Evaluation Group (OED 2005) has indicated deficiencies in previous fragmented approaches to capacity building in Africa and has called for fostering and improving country-led capacity building within sector programs such as transport.

Road safety, too, is a major and growing problem. Road crash deaths are predicted to increase by 80 percent between 2000 and 2020 unless new approaches are adopted (Box 2-3). For each death, there are many more incidences of injury and disability, which have consequences beyond the affected individuals; the loss of the main breadwinner can also lead to extreme poverty for others in the family.

Africa's recent military conflicts have also disrupted transport, as they have disrupted communities and economies. Improved transport can help to rebuild economies in post-conflict countries and to lessen vulnerability to future conflict. Transport can play a key role in keeping a country together, in overcoming potential disputes over access to resources, and in defusing the seeds of conflict sometimes arising out of the feeling of isolation. The Bank Group (and other donors) have recognized this and are providing support to the transport systems of post-conflict countries such as the Democratic Republic of Congo, Angola, Rwanda, and more recently Sudan.

In recent years the nature, number, and size of the Bank Group's transport lending operations in Africa have increased and been increasingly aligned with the Millennium Development Goals and national poverty reduction programs. A principal aim has been improving access to and from rural areas, where poverty predominates. But there is also a need to help Africa's growth agenda, in order to share the benefits of domestic, regional, and international trade through better transport and logistics infrastructure. This will require greater investment and managerial capacity than is now available to the public sector. The Bank Group has therefore promoted private-public partnerships in African ports, railways, and airports. Research indicates that private participation in African railways is unlikely on its own to ensure adequate funding for long-term railway asset renewal, but private involvement has, in most cases, improved the efficiency and reliability of transport and alleviated to some extent the short-term budgetary burden of railways operations (Bullock 2005). Over the medium term, however, Government's financing of track renewal remains a necessity as existing rail networks lack the necessary scale to generate enough profits to entice private operators in financing both track and rolling stock renewal costs. Government's support, nevertheless, may enhance overall economic growth as mining activities that would need to rely primarily on rail transport and which were deemed financially non viable when most rail concessioning activities were undertaken, have now reached financial maturity status thanks to the sustained increase in worldwide raw material prices.

There is a continuing focus in Africa on how to lessen the impact of the transport industry (and particularly new transport links) on the transmission of HIV/AIDS, as discussed in Section 3.10. The Bank Group is also increasingly involved in the improvement of air transport safety and security in Africa, both of which are critical to the development of its air transport services, inward investment, and tourism. Enhancement of transport logistics, especially along multimodal corridors from African seaports to landlocked countries, is another increasing focus for the Bank Group's activities in Africa.

A key partnership in all this work is the Sub-Saharan Africa Transport Policy Program (SSATP),²⁶ financed through a multidonor trust-fund partnership that has, over the past 15 years, invested in the creation and sharing of knowledge and ideas. The SSATP sponsored the inclusion of local and regional

²⁶ The SSATP website is at <http://www.worldbank.org/afr/ssatp>.

transport into poverty reduction strategies and helped establish better road maintenance systems in many countries. It also encouraged measures by African transport ministers specifically to link transport improvements to the achievement of the Millennium Development Goals. The Bank Group has supported countries' efforts to achieve those goals in the implementation of regional infrastructure projects, especially in air and road transport. The Bank Group continues to work with the African Development Bank, the European Union, and others to support the Africa Action Plan (World Bank September 2005a) in policy and project coordination.

5.3 East Asia and Pacific

In the years since *Sustainable Transport* was published, this region has grown at an average annual rate of over 7 percent. Some countries, such as China, Thailand, Malaysia, and more recently Vietnam, are development success stories, experiencing dramatic reductions in poverty. For such countries, international trade has been an influential driver of growth; the region has the highest trade-to-GDP ratio in the developing world—almost 75 percent. The transport system has performed well in many countries in facilitating this rapid growth in trade. But economic growth and rising incomes are themselves creating demands for travel and transport that are outpacing transport capacity in many countries, threatening a constraint on future growth.

Other countries are lagging in development, and the overall performance also masks wide contrasts across the region. For example, more than 90 percent of Thailand's roads are paved, compared with less than 20 percent in Laos; the utilization of China's railway is the highest of any national network in the world, while Cambodia's is close to being the lowest. In addition, while much of East Asia enjoys high-density and low-cost international shipping with modern vessels, most Pacific Islands endure expensive and infrequent service by small feeder vessels. Diverse challenges must be met by tailored responses (Box 5-1).

At present, 1.1 billion people in East Asia (60 percent of the total) still live in rural areas. Rural access needs to be improved in low-income countries (Cambodia, Vietnam), in landlocked and island states (Laos, Mongolia, Pacific Islands), and in large poverty pockets in fast-growing countries (western China, eastern Indonesia, the central and northern highlands of Vietnam, northeast Thailand, and Mindanao in the Philippines). In these regions, a sustainable rural transport agenda will be promoted with strong emphasis on working with subnational levels of government on poverty targeting.

At the same time, urbanization is creating new transport demands. By 2025, East Asia will absorb almost 500 million new urban residents. Over half the people of the region will then live in cities. Without active management of demand, and investment in public transport, traffic congestion will reduce accessibility and mobility. Accidents and

Box 5-1. Tailoring responses to needs in the East Asia and Pacific Region

Poorest countries: In these countries (for example, Laos, Cambodia, Mongolia, and Pacific Islands) the Bank's focus will be on transport lending linked to specific poverty objectives and to emergency response (for instance, provincial and regional infrastructure, rural roads, and disaster mitigation in Pacific Islands and Indonesia).

Savings-rich, fast-growing countries: The Bank's transport focus in such countries (for example, China, Vietnam, and Thailand) will be on supporting government programs through a combination of lending, high value-added services, and knowledge transfer (for instance, in railway commercialization, performance-based contracting, programmatic rural road development, advice on private participation in urban mass transit and toll roads, and service regulation).

Fiscally constrained countries: In these countries (for example, Indonesia and the Philippines) the Bank will continue to focus on supporting strategic transport infrastructure for growth, sector management, and reforms, while leveraging private sector financing.

air pollution will add to health problems, adding to the urgent need to control vehicle emissions and mitigate climate change impact. Urban transport activities will often be focused at the city government level.

In many countries in the region reforms in sector governance are important to maintain progress. In those countries that are in transition from command to market economies (China, Vietnam, and Mongolia) reform of state-owned enterprises, commercialization of services, and tariff reform would reduce economic distortions and inefficiencies, help attract private capital, and enhance market responsiveness of services.

In terms of regional partnerships, the Bank Group will coordinate approaches with other donors, in particular the Asian Development Bank and the Japan Bank for International Cooperation in key policy areas, such as urban transport planning, capacity building for transport institutions, private sector participation, and sustainable financing of transport. The Bank Group will increase its support to the Greater Mekong Subregion, an initiative that should lead to better policies on transport and trade facilitation and more investments to promote trade between the countries of the region. It is also looking to support the recent ACMECS²⁷ initiative to bridge the economic gap between its member countries, which now include Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam.

5.4 Europe and Central Asia

This region consists of 28 countries stretching from the borders of Western Europe to the Pacific Ocean. They range from the largest by area in the world, Russian Federation, to some of the smallest, such as Moldova and Armenia. The region includes both low- and middle-income countries, some of which have experienced impressive economic growth, while poverty, inequality, and unemployment remain high in others. The common factor²⁸ is their recent history of transition from planned to market economies. This has had a profound impact on their transport industries.

The collapse of the Council for Mutual Economic Assistance (CMEA or COMECON) and the breakup of the former Soviet Union in 1991 led to momentous changes in the region's political and economic structures. Over the period since *Sustainable Transport* was published, the transition countries have largely completed the transformation from central economic planning in which the role, scale, and operating responses of various parts of the transport system were determined by the state. Market forces now increasingly shape all facets of transport demand: the types of freight and passenger transport needed; the volume of demand; its geographic distribution; and the proportions of traffic carried by each mode.

Many factors have influenced country responses. Ten of the countries are now members of the European Union, and several others aspire to membership; their transport policies follow European norms. In these countries the Bank is focused mainly on trying to support higher efficiency in state-owned transport enterprises and greater capacity in those enterprises to adopt EU transport directives and regulations and to productively absorb EU transport grant funds.

Elsewhere in the region, the former Soviet republics of Central Asia and the Caucasus (Azerbaijan, Georgia, and Armenia) are adapting transport systems to radically changed regional trading patterns. The former Yugoslav republics have had to rebuild both shattered transport infrastructure and institutions following the economic and military turmoil during the breakup of Yugoslavia. Russia,

²⁷ Ayeyawady-Chao Phraya-Mekong Economic Cooperation Strategy (November 2003).

²⁸ With the exception of Turkey.

Kazakhstan, and Ukraine have faced the bracing freight transport challenge of a boom in resources and metallurgical industries.

By comparison with other Bank Group regions of operation, many of the transition countries started in 1990 with a large stock of transport infrastructure. The reduction of investment in transport infrastructure that occurred in the 1990s was a predictable response to serious budgetary constraints and declining freight (and sometimes passenger) traffic levels, as their economies declined and then restructured. However, the investment hiatus has meant that capital assets to meet renewed growth in transport demand are often technologically outdated and of poor quality, with long backlogs in maintenance and renewal. With resurgent economic growth over a number of years, some countries now face serious transport capacity bottlenecks at key locations.

Despite their differences, countries across the region share many common priorities for transport, arising from the legacy of command economics. To be relevant to the fast-changing needs of this transition region, the Bank applies cutting-edge knowledge in many of the policy areas described in Chapter 3, including improving the performance of state-owned transport enterprises; managing public assets; structuring private sector participation; advising on competition and regulation policy; and implementing higher environmental and social standards in transport, including climate change implications for the sector.

Many of the countries in the region are small, and transport development will require transnational initiatives. The European Union provides a robust framework for its member states and other aspirants. But other regional trade and transport facilitation programs are necessary and are being supported by the Bank in both Southeastern Europe and Central Asia to complement national reforms.

The Bank Group will focus increasingly on promoting trade growth and regional integration through highway improvements, railway modernization, and multimodal transport corridor development. Furthermore, with car ownership increasing rapidly, traffic congestion is now a pressing problem in many cities. As in other World Bank regions, the demand for advice and financial products for urban transport development is also likely to increase.

The Bank Group is active in international regional integration forums, such as the Stability Pact for South East Europe. The Bank Group participates with the European Union and the European Investment Bank in forums intended to promote better links between the EU and countries bordering its new extended boundaries. It cooperates with the Asian Development Bank on transport and trade facilitation initiatives in Central Asia and the Caucasus. Transport projects have also been cofinanced with the European Bank for Reconstruction and Development in Poland, Romania, Bulgaria, and Croatia.

5.5 Latin America and the Caribbean

Although this region is made up predominantly of middle-income countries, it contains high levels of poverty and the greatest income inequality of any region. The key development challenges for the region are to boost and stabilize economic growth, while reducing poverty and inequality. Transport will play an important role. Key Bank Group sector priorities are to enhance trade competitiveness through transport and logistics strategies; to improve transport asset management and policies (particularly for roads); to promote safe, clean, and affordable urban public transport; and to improve access of the rural poor to services and opportunities.

Latin America needs to invest more in transport infrastructure and to ensure it gets good value from that investment (Box 5-2). Total investment in transport has halved over the past two decades (Fay and Yepes 2003). As a percentage of GDP it has diminished to about a third of its mid-1980s level (Calderon and

Serven 2003). The decline is mainly due to reduced public investment, following the fiscal adjustment measures that were taken in response to the region's many macroeconomic crises. This decline has been only marginally offset by the emergence of private investment in transport, even though this region contains four of the top six countries for private participation in transport infrastructure (Argentina, Brazil, Chile, and Mexico). Nearly all national railways and many ports in the region have been privatized.

Partly because of low investment, transportation and logistics costs in Latin America are significantly higher than in the developed world and in many competing developing regions. This disadvantage is also felt in small Caribbean islands, where infrastructure deficiencies may be magnified by the impact of infrequent service by small vessels. Across the region, countries need to reduce transport and logistics costs, so that they may take advantage of trade liberalization and facilitation measures. Better road asset management would boost transport efficiency and help to reduce costs, and in this regard the Bank is promoting decentralization, road-funding mechanisms, commercialization of delivery agencies, and improved governance of the roads subsector.

The region is one of the world's most urbanized, but nearly 40 percent of the urban dwellers live in poverty—the highest rate in the world—and as much as 25 percent live in crowded slums with limited basic services and few transport options. Expanding physical infrastructure (footpaths, bikeways, bus routes, and roads) into poor settlements and providing affordable mass transit are fundamental to improving their mobility and access to economic and social opportunity. The region's relatively high motorization rate results in congestion and pollution in many cities. Aggravated by topographic and meteorological conditions in cities such as Mexico City and Santiago, these problems are also severe and growing in many other cities, such as São Paulo, Bogotá, Belo Horizonte, Buenos Aires, and Rio de Janeiro.

The region is therefore keen to improve the organization and delivery of urban public transport services. Some large cities in the region have successfully developed efficient mass transit systems that can provide services at a moderate cost; however, much remains to be done. The Bank is supporting many of the initiatives: implementation of affordable bus rapid transit systems targeted to the poor (Colombia and Peru); modernization of urban and suburban rail systems (Argentina and Brazil); coordination of land-use and transport policies (Chile); introduction of sector reforms to reorganize the provision of urban transport services and reduce negative environmental impacts (Chile, Mexico); execution of important investments to promote the use of alternative transportation modes and improve pedestrian access and safety (Colombia, Peru, and Chile); and analytical work to support sector reforms (Dominican Republic). The Bank Group is also helping in the search for better air quality and lower greenhouse gas emissions throughout the region, using resources from the Global Environment Facility. This is part of the transport contribution to the global climate change agenda in Latin and Central America. The Bank Group will continue to target city transport improvements in this region.

Box 5-2. Getting the best value for transport investments in Latin America

In response to fiscal constraints in the region, the Bank is contributing to country efforts to get better value for money from transport assets through management programs (in Argentina, Uruguay, and Bolivia) that seek to increase expenditure in high-impact areas. Efficiency is being improved through innovative approaches to private sector participation, such as multiyear performance-based contracts and use of microenterprises for routine maintenance. The Bank has engaged more actively in analytical work to increase the efficiency of public expenditure in the transport sector (in Guatemala, Mexico, and Paraguay). It is assisting the region in bringing the private sector back by providing advice and technical assistance to strengthen concession frameworks (in Chile, Guatemala, and Peru). It is also using innovative products, such as partial risk guarantees, to promote private investment in transport infrastructure (in Peru).

Despite the increasing urbanization of poverty, there are still 65 million rural dwellers that are poor. Rural poverty rates exceed 70 percent in Bolivia, Guatemala, Honduras, Nicaragua, Paraguay, and Peru. Many other people live in fringe settlements that are far away from the neighboring cities. With low population densities, the unit cost of providing infrastructure and other services to these fringe communities is very high, resulting in a high incidence of poverty. They are often physically and economically embedded in a rural setting, sharing the socioeconomic characteristics and accessibility constraints of the rural population. Targeted investments to improve rural and fringe-urban transport links are critical for enhancing access to markets and services and increasing the productivity of small farmers beyond subsistence levels.

5.6 Middle East and North Africa

For most countries in the region, the top development priorities are to accelerate economic growth while reducing unemployment, vulnerability, and exclusion. Indeed, growth has been slower in the Middle East and North Africa than in the other regions of the world. World market share has been lost in many export sectors: nonoil exports from this region represent just 1 percent of world trade. Unemployment, at almost 14 percent, is the highest of any region. Although poverty is comparatively low (only 20 percent of the population live on less than US\$2 per day, compared with more than 70 percent in Sub-Saharan Africa and South Asia), female labor participation is the lowest in the world, and youth unemployment is very high. In the remote mountainous regions of countries such as Yemen and Morocco, rural poverty is also a serious issue. The Bank Group strategy is to address these challenges through private sector development and integration into global markets, better public sector governance, direct measures to reduce poverty, and better natural resource management.

In this context, there is much that is being done in the transport sector. While remaining open to the specific needs of the countries it serves, as well as the rapidly changing circumstances, the Bank Group is focusing on four main priorities: improving regional and international transport services and trade logistics, upgrading urban transport, increasing rural accessibility, and improving road safety.

Improving transport performance, together with other trade facilitation policies, is necessary to foster economic competitiveness and integration into the international marketplace. Countries of the region can draw benefits from their favorable location, comparably high level of education, and historical links to Europe. Emerging trading blocks, such as the Euro-Mediterranean Free Trade Area, hold promise for increasing trade, but their success will depend partly on the quality of transport infrastructure and services. The Bank Group is actively supporting transport and trade in the region, both in its advisory services and in its lending. A national transport facilitation strategy has recently been prepared for Morocco, as well as reviews of the port and logistics subsectors for Iran and Djibouti. This advisory work will be continued, in particular for Tunisia and Yemen in the very near future. Lending for improving transport services and logistics is also important. The Amman Development Corridor Project, for example, includes key investments to remove trade bottlenecks for Jordan. Other operations to develop key transport infrastructure for domestic and international trade are under implementation for railways in Tunisia and air transport in Egypt and in preparation for railways and roads in Egypt. Throughout these activities, and in order to meet the investment financing gap and foster efficiency, the Bank Group is also helping develop better frameworks to deliver successful private sector participation, which has so far contributed little to the region's transport needs.

Upgrading urban transport is also an essential component of the region's transport strategy. Almost 60 percent of the region's population lives in cities. Eight of those cities have more than 3 million citizens; Cairo and Tehran have more than 10 million. Because of resource constraints and serious institutional weaknesses, urban transport infrastructure and public transport services have not kept

pace with the expansion of cities. Excessive reliance on private vehicle travel has led to increasing road congestion, which in turn has caused higher transport costs for industry (most of which is based within the cities of the region). Bus services are often rudimentary and perform badly in many parts of the large urban agglomerations, often the poorest parts; residents there have less access to public services and employment opportunities and may have a greater sense of vulnerability and exclusion. Air quality is poor; in Cairo and Tehran ambient concentrations of sulfur dioxide, particulates, and nitrous oxides regularly exceed the World Health Organization's guidelines. The Bank Group is assisting countries and cities address these issues, first by preparing sound urban transport strategies. This has been done recently for Cairo, Egypt, and is under way for Morocco's main cities. There are plans to do so soon for Iran's two largest cities, Tehran and Mashad. More focused advisory assistance was provided to Algeria and is planned for Tunisia. Lending for urban transport is also a priority. An operation focused on traffic management and institutional development is under implementation in Beirut, Lebanon, and one focused on public transport is being identified for Tunis, Tunisia.

Yet, there also remains much to do in rural transport for those who make up 40 percent of the region's population. Poor road conditions and lack of basic transport services are prevalent in rural areas. In Morocco more than half of rural citizens live more than 2 kilometers from an all-weather road; in Yemen that share is three-quarters. Two projects are under implementation in Morocco and one in Yemen to improve rural accessibility. These projects combine road upgrading with major efforts to develop institutional capabilities and to ensure sustainability of investments.

Unsafe roads are a problem in both urban and rural areas. The ratio of road deaths to registered vehicles is 20 times higher in Iran and 8 times higher in Jordan than in OECD countries. A flagship multisectoral project was developed in Iran to demonstrate the potential for rapidly achieving sustained improvements in road safety. A dialogue on road safety is also being pursued in several other countries.

Demand for financing to develop transport infrastructure is reemerging in the region, with recent engagement in the transport sector in Egypt, Iran, and Iraq, in particular. The Bank Group is partnering with other donors to fulfill that demand. In Jordan, for example, the Bank, the European Investment Bank, and the Arab Fund for Economic and Social Development (AFESD) are cooperating to finance three sections of the Amman Development Corridor Project. In Morocco, the Bank joined forces with the European Investment Bank and others to finance the rehabilitation of a large program of rural roads. In Yemen, the Bank's Rural Accessibility Project provides the institutional framework as well as all preparatory studies and engineering for the subsector, thus leveraging much funding from the AFESD, the Saudi Fund, and other donors.

5.7 South Asia

Since the publication of *Sustainable Transport*, the region has experienced average annual growth of 5 to 6 percent, second only to East Asia. Yet, South Asia still contains 400 million people who live on less than a dollar a day; the largest concentration of the poor of any region. Transport has an important role to play in both sustaining growth and ensuring that the poor participate in its benefits.

Investment climate surveys in South Asia have pinpointed transport as a particular problem for regional and international trade. At the microeconomic level, many rural households lack access to all-season roads: only 39 percent have such access in Bangladesh and 30 percent in Nepal. About 40 percent of villages in India are cut off from market centers and the main road network in wet seasons. Yet, as in other regions, rapid urbanization is also increasing the profile of urban transport problems. The region has five cities with population of more than 10 million.

On-going priorities in the region include the expansion of the trunk highway system to facilitate regional and international trade; the facilitation of rural access; the improvement of road asset management and maintenance, including its financial and management aspects; and the mitigation of traffic accidents and the transport-related transmission of HIV/AIDS. But the program is being diversified. There is continued engagement in various megacities in the region (such as Mumbai, Chennai, and Dhaka), as well as in other medium-size cities in India and Pakistan, where controlling carbon emissions and factoring in the climate change agenda becomes critical. Engagement in ports and railways has been deepened in Pakistan, Bangladesh, and India. In Pakistan the corridor approach is being implemented in a National Trade Corridor Program that contains multimodal elements of port, road, and railway improvements (Box 4-7).

The road safety problem is alarming. India suffers over 85,000 road deaths each year. Bangladesh has a fatality rate per vehicle nearly 40 times that of the OECD. Road crash rates are predicted to increase by 144 percent between 2000 and 2020 unless new safety measures are undertaken (Box 2-3). The region is also prone to natural disasters and has suffered from military conflict. Both require substantial investment for reconstruction of transport infrastructure. Recent examples include the reconstruction of war-torn Afghanistan; the 2004 floods in Bangladesh; the 2004 tsunami in Sri Lanka, India, and the Maldives; and the 2005 earthquake in Pakistan.

The transport sector has been the core of the Bank's recent infrastructure engagement in the region. The transport portfolio has more than doubled over the past five years and it has also been diversified. There are transport operations in Afghanistan after an absence of 23 years, and in Pakistan and Sri Lanka, after an absence of Bank investment in the transport sector for over a decade.

Coordination with the Asian Development Bank (ADB) and the Japan Bank for International Cooperation (JBIC) is as important for the South Asia region as it is for the East Asia region. The Bank Group, ADB, and JBIC are supporting the formation of the South Asia Association for Regional Cooperation (SAARC), which is expected to play a larger role in the transport sector that is essential for regional trade. Two outcomes of this coordination are a joint road sector engagement strategy for Sri Lanka and a coordinated assistance strategy for the road sector in India.

5.8 Global partnerships supporting regional programs

While many regional relationships continue to be developed, wider international partnerships are better for addressing common problems across regions and complementing increasing regional and country cooperation with other donors. The Bank Group has helped establish such partnerships in the areas of transport and trade facilitation, traffic safety, aviation, and road management (Box 5-3). The Bank Group will continue to help strengthen these relationships. It will also endeavor to establish a global partnership to tackle urban transport projects and be an active participant in leading transport research forums, such as the U.S. Transportation Research Board. Although the transport sector has a long history of coordination and collaboration with external agencies, the emergence of more cross-sectoral and cofinanced projects has increased the imperative for cooperation with others.

5.9 Implications of the regional focus

For a strategy to have any chance of success it needs to respond to the day-to-day transport problems of developing countries and to those countries' demands for Bank Group services. While regions clearly differ in many ways, their priorities for transport consistently show some common challenges, albeit in different guises. Examples include the need for better management of road infrastructure, the importance of improved transport and logistics to strengthen trade competitiveness, the challenge of urban road congestion and other urban transport problems, the widespread incidence of premature

Box 5-3. Global initiatives that support regional programs

The Global Facilitation Partnership for Transportation and Trade (GFPTT), of which the World Bank was a founding member in 1999, includes public and private bodies whose aim is to help improve transport and trade facilitation in Bank member countries. The partners initiate programs to meet this objective.

<http://www.gfptt.org/>

The Global Road Safety Facility (GRSF) was established in 2005 by the World Bank in partnership with the FIA Foundation for the Automobile and Society, the government of the Netherlands, and the Swedish International Development Agency. It will support capacity strengthening, program preparation, knowledge transfer, and improved safety in low- and middle- income countries. The facility will complement and support other global partners, such as the Global Road Safety Partnership initiated by the Bank in 1999, the World Health Organization, the Global Road Safety Forum, and the Road Traffic Injuries Researchers Network.

<http://www.worldbank.org/grsf>

A Working Group on Development and Air Transport was established in 2005 by the World Bank, the International Civil Aviation Organization (ICAO), the Air Transport Action Group (consisting of the International Air Transport Association and members of the air transport industry), and leading civil aviation authorities, such as the U.S. Federal Aviation Administration (FAA). The objectives of the group are to promote air transport as a catalyst for growth and development; to address constraints in air transport systems and services; to identify good regulatory practices; and to promote close cooperation and public-private partnerships in air transport development.

The World Road Association (PIARC) is an important partner organization, with which the Bank signed a Memorandum of Understanding on cooperation in January 2007. PIARC is currently managing the International Study of Highway Development and Management Tools (HDM-4) that has been developing new knowledge and technology for planning investments in road infrastructure since 1993. The study was sponsored by a range of institutions, including the World Bank, the Asian Development Bank, the U.K. Department for International Development, and the Swedish Road Authority.

<http://www.piarc.org/en/>

death and injury through road accidents, and the need of isolated rural communities for basic connectivity to transport systems. These priorities have therefore been closely reflected in the transport business strategy described in Chapter 6.

6 TRANSPORT BUSINESS STRATEGY 2008–2012

The transport business strategy for 2008–2012 expands the World Bank Group's scope of engagement in the transport issues of its partner countries. While retaining a strong commitment to economic, financial, environmental, and social sustainability in all of the Bank's transport work, the approach recognizes the broad role that transport plays as an enabler of economic and social development and the urgent need to make transport cleaner, safer, and more affordable for all. This chapter:

- *Summarizes the comparative strengths of the World Bank Group and the basis of its contribution to the transport sector.*
- *Reiterates key objectives of the transport strategy, grounded in a wide concept of sustainability.*
- *Identifies adjustments in the strategic directions of Bank engagement in the sector.*
- *Highlights adjustments in the processes through which the Bank engages in the sector.*
- *Lists the key Bank Group instruments that will be used and how they can be combined to deliver a range of public and private approaches.*
- *Draws up a plan and targets for implementation.*

The priorities of partner countries will continue to determine specific transport sector interventions in country programs. Nonetheless, the approach delineated in the transport business strategy resonates with the evolving interests expressed by partner countries for World Bank engagement. Given the vast size and diversity of the sector, as well as the relatively small size of the Bank's professional transport staff of 130, the business strategy's guidance on strategic directions and specific process adjustments will focus transport activities in every region on the key goals, including the Millennium Development Goals, and take advantage of the Bank's comparative strengths.

6.1 Comparative strengths

The Bank Group's strengths in the transport sector stem from four sources: global reach and experience; the multimodal scope of Bank transport skills; the synergies among the Bank Group disciplines; and the synergies among Bank Group entities (IBRD/IDA, IFC, and MIGA).

Global reach and experience

Each region and country has specific challenges, but all face similar policy and institutional challenges, and all are afflicted by many of the same physical transport problems, such as urban road congestion, road traffic accidents, and capacity bottlenecks. The World Bank Group is the only international financial institution that has a long-established global reach in the transport sector. It can draw lessons from a variety of circumstances, adapt these lessons to other countries and regions, and share and deploy its knowledge globally.

Modal synergies

The solutions to transport needs are increasingly multimodal in nature, particularly in transport for trade and in urban public transport. The synergies between Bank Group professionals with different modal experience and between those with technical skills and policy skills provide a powerful basis for successful interventions.

Staffing, skill-mix and skills synergies

Overall sector staffing in the World Bank Group was distributed as shown in Table 6-1 on December 31st, 2007.

As to the transport sector, Table 6-2 provides a breakdown of sector staff between regions and anchor, headquarters and field, and gives an overview of the skills and age distribution on December 31st, 2007. Overall number of transport sector staff has decreased from 141 in 2000 to 123 in 2007, but new hires are now being planned to cope with the increasing level of lending.

Table 6-1. IBRD net staff by network and sector mapping	
Sector Mapping	Net Staff
Financial and Private Sector Development	239
Financial Sector	125
Private Sector Development	114
Human Development	479
Education	161
Human Development	26
Health, Nutrition & Population	169
Social Protection	123
Poverty Reduction & Economic Management	627
Economic Policy	325
Economic Policy & Public Sector	63
Economic Policy & Poverty Reduction	21
Gender & Development	10
Poverty Reduction	63
Poverty Reduction & Economic Management	48
Public Sector	97
Sustainable Development Network	1,112
Agricultural & Rural Development	236
Energy & Mining	126
Environment	163
Infrastructure	85
Social Development	126
Transport	123
Urban	102
Water	151
Operational Policy & Country Services	678
<i>Source:</i> IBRD Quarterly Staffing Report, FY08 Q2	
<i>Note:</i> Data as of December 31, 2007. IBRD Regular, Open, Fixed-term and Term Staff. All levels. HQ and field appointments. Data do not include staff mapped to the following networks: Administrative & Client Support, Communications and Publications, Information Solutions, Resource Management.	

Table 6-2. Transport staff overview by appointment type and location

Unit	Staff (no)			Field (%)			ETCs (no)		
	IRS	LRS	Total	IRS	LRS	Total	HQ	Field	Total
Transport Anchor	10	4	14	0%	0%	0%	3	0	3
AFR	29	9	38	41%	89%	53%	1	1	2
EAP	11	3	14	20%	100%	38%	1	2	3
ECA	12	1	13	8%	100%	15%	4	2	6
LAC	13	1	14	8%	100%	15%	0	0	0
MNA	3	1	4	0%	100%	25%	4	4	8
SAR	8	18	26	13%	94%	69%	1	1	2
TOTAL	86	37	123	20%	84%	40%	14	10	24

Source: Human Resources.

Note: IRS – Internationally Recruited Staff; LRS – Locally Recruited Staff; ETC – Extended Term Consultant

Skills synergies

Within IBRD/IDA, the skills of the Infrastructure Network have recently been associated with those of the Environmentally and Socially Sustainable Development network to form an integrated Sustainable Development Network with a wide range of economic, environmental, social, and policy skills that can underpin a deeper policy agenda throughout the transport sector. In December 2007 World Bank Transport staff comprised 63 Transport Specialists, 16 Transport Economists, 5 Infrastructure Specialists, 5 Transport Planners, 1 Municipal Engineer, 19 modal specialists (including 9 Highway Engineers, 5 Urban Transport Specialists, and 1 specialist in each other mode and topic, ports, railways, air transport, rural transport, road safety), and 14 staff covering a variety of project skills (program manager, financial analyst, public/private partnerships, operations officer). In view of the strategic directions spelled out in this paper, some skill-mix rebalancing will take place within transport sector staff to adjust the Bank Group capacity to meet agreed objectives and make the most of the institution's comparative advantage, in particular seeking staff with experience in transport and energy linkages, transport safety and security, railways, waterborne transport and ports, aviation, multimodal transport logistics, and with strong operational background in passengers and freight transport services.

Bank Group synergies

The Bank's experience covers the full range of public, private, and public-private partnership solutions to transport problems. The IFC's activity in the private sector complements the IBRD/IDA public infrastructure focus by financing private transport services (such as port and stevedoring operations, freight railways, airlines, shipping companies, and transport support services). It also supports transport infrastructure concessions (Box 6-1).

MIGA guarantees are well suited to reduce transport sector investment risks. They are designed to help companies overcome risk aversion, particularly for highly capital-intensive investments that are typical of transport infrastructure in countries where there is a perception of high risk. Guarantees can also be used to attract both equity investment and debt financing. And once a deal is in place, MIGA guarantees bring companies additional comfort, through MIGA's mediation efforts, providing that added measure of security that can help keep a project stable and reinforce positive relations with host governments. MIGA has provided guarantees for a number of privately financed transport projects, three of which are highlighted in Box 6-2.

Many partner institutions and industry organizations also make very strong contributions to transport and development in particular regions or particular subsectors (modes) of transport. However, no other organization has a global responsibility or mandate for the transport sector as a whole. The four sources of the Bank Group's strength—namely, its global reach, multimodal coverage, multidisciplinary analysis, and the complementary public and private roles of its member entities—suggest strongly that the Bank Group has not only the ability, but also a responsibility to adopt a wide rather than narrow view in the range of its interventions and to assume a role of global leadership in transport and development.

Box 6-1. IFC support of private sector participation in transport infrastructure: Illustrative projects

Panama: Corredor Sur Toll Road

The project included the construction, maintenance, and operation of a new four-lane, 19.5-kilometer toll highway connecting Panama City with its international airport, under a 30-year concession awarded based on competitive bidding. Project cost was estimated at about US\$209 million and was supported by an IFC senior loan of US\$20 million, a syndicated loan of US\$35 million and quasi-equity of US\$15 million. The project was completed on schedule. The project reduced substantially the travel time in the corridor and provided incentives for housing developments along its route.

Kenya and Uganda: The Kenya and Uganda Railway Concessions

The project involved the rehabilitation, maintenance, and operation of 2,351 kilometers of rail track (1,920 kilometers in Kenya and 431 kilometers in Uganda), under two substantially identical 25-year concessions awarded in October 2005 after an international competitive tender process. Project costs for the first five years of the concession were estimated to be about US\$111 million and are supported by an IFC senior loan of up to US\$22 million and a quasi-equity loan of US\$10 million. KfW provided a parallel senior loan of US\$32 million. IDA provided a partial risk guarantee for the benefit of the concessionaire, and also assisted with resettlements and retrenchments costs. And IFC's Advisory Services advised the Kenyan Government on privatization and bidding processes. The project is expected to generate substantial benefits for the overall transportation infrastructure of Kenya and Uganda, as well as for the adjacent landlocked countries of Rwanda, Burundi, and Eastern Democratic Republic of Congo and is also expected to help ease the pressure on the regional road system.

Dominican Republic: Airports

The IFC investment supports a US\$300 million capital expenditure program carried out under a 30-year concession. The capital expenditures included remodeling of existing terminal buildings; extension of runways and aircraft parking areas; installation of security, baggage handling, and other equipment at five airports operated by the company (including the capital city's domestic and international airports); and construction of a new airport in Samaná. IFC supported the project with loans totaling US\$60 million, a US\$15 million syndicated loan, and a parallel lender provided a US\$55 million loan. The project is aimed at improving the level of service and increasing the capacity at five airports and opening up the Samaná area to tourism developments.

MIGA has issued guarantees totalling \$427 million in support of the Doraleh Container Terminal project in Djibouti. MIGA is covering DP World's equity investment and financing from Dubai Islamic Bank, Standard Chartered Bank, and WestLB'. MIGA also provided guarantee capacity to cover swap agreements included in the lender's financial package. The project involves a 30-year concession for the reclamation of land and the development, financing, design, construction, management, operation and maintenance of a new container port terminal in the Republic of Djibouti. MIGA's guarantees are for 10 years. Key development impacts include: (i) Regional integration, trade facilitation and infrastructure development; (ii) improvements in competitiveness and development of a full-fledged trans-shipment and transit cargo hub in East Africa; and (iii) employment, training and skills transfer. This is a South-South infrastructure project located in a frontier market and new host country in the MENA region. The project also represents MIGA's first guarantee issued in support of a Shariah-compliant financing structure.

6.2 Strategic objective

The objective of the Bank's transport strategy, consistent with *Sustainable Transport* and aligned with the principle of country ownership is:

to help partner countries to establish the governance, strategies, policies and services that will deliver transport for development in a way that is economically, financially, environmentally and socially sustainable.

Sustainable Transport established this underlying objective. The strategic directions planned by the Bank Group over the next five years will widen the scope of the Bank Group's interventions and deepen its treatment of the issues of environmental and social sustainability.

6.3 Strategic directions

The Bank Group will pursue five strategic directions in the next five years:

Strategic direction 1. Create the conditions for increased support for transport investment and governance. During 2008-2012, the Bank Group will work with all development partners, including the private sector, to channel and catalyze more resources towards investments in transport assets, infrastructure and services. The expected increase in resource mobilization will be matched by the necessary attention to governance; that is, the strategies and policies presented in Chapter 3, which are important to achieving the objective of sustainable transport. Given the scale and importance of the transport sector, the Bank Group will seek to incorporate more transport governance goals in country strategies. This will be informed by enhancing analytic and advisory activities and promoted through country dialogue, under the Bank Group Governance and Anti-Corruption action plan.

Strategic direction 2. Deepen engagement in the roads and highways subsector. The construction, management, and maintenance of roads and highways will continue to be the dominant subsector for Bank Group engagement, because of the importance of road transport in most countries for a wide range of development needs, the scale of the investment and maintenance challenge in the subsector, and the need to be responsive to the demands by partner countries.

Sustainable Transport identified the importance of access for the rural poor to the road transport system, and the Rural Access Indicator developed by the Bank in the intervening years confirms this critical component of poverty reduction (Section 2.4). Rural access and the construction, rehabilitation, and maintenance of rural roads will therefore remain a major priority of the Bank in both physical and policy terms.

The Bank Group will pursue a broader agenda in the roads subsector to meet principles of environmental and social sustainability in an inclusive manner and in four main ways:

- The performance, affordability, and inclusiveness of road transport services will be given more attention. The effectiveness of road transport services markets is instrumental in reaping the benefits of transport infrastructure. Where distortions and constraints are apparent, analyses will be required of the policies, institutions, and regulations that govern road freight and passenger services markets, benchmarking these against successful international practice and pinpointing policy options that help to ensure that good service follows good infrastructure.

- The Bank Group will also scale up its work to make roads safer for all their users and for those affected by them. This work includes supporting governments in developing and implementing strategies, policies, institutions, infrastructure design, vehicle and driver regulations, and enforcement mechanisms.
- The Bank Group will begin to address the transport policy implications that may arise in developing countries from the substantial proportion of greenhouse gas emissions due to of road-based private and commercial transport (as part of a wider scrutiny of transport, energy efficiency, and climate change).
- The pilot approaches that the Bank Group and its development partners have identified to reduce the transport-related transmission of HIV/AIDS through major road construction sites and new road corridors in previously isolated areas will be applied to new projects.

Strategic direction 3. Increase engagement in the urban transport subsector. This direction reflects global demographic trends and the escalating development challenge of urban transport in all regions. A range of Bank Group instruments, including subnational financing instruments, will be used to support an increase of investment in and efficiency of urban transport in general and urban public transport in particular. Analytic and advisory services and country dialogue will address the need for building capacity in urban transport governance; enhancing the role and quality of affordable public transport; increasing financing mechanisms; mobilizing the private sector in the delivery of public services; managing demand for private car travel; reducing vehicle emissions; and recognizing the needs of pedestrians and nonmotorized transport forms.

Strategic and operational coordination with the urban development agenda will be enhanced. Success will partly depend on progress made by the Bank Group as a whole in developing modes of direct engagement with city authorities, by using subnational lending instruments. It will also depend on support from national governments for the Bank Group's assistance to municipal authorities.

Strategic direction 4. Diversify engagement in transport for trade. This will be implemented by increasing support for public and private infrastructure investment to overcome physical or quality bottlenecks in transport that supports the regional and international trade in goods and services. Although much of the Bank's road transport lending is for major trade routes, more diversified support will be given for investment in nonroad transport infrastructure (railways, ports, inland waterways, and airports) and attention to the transport services that use them (including multimodal transport services). The Bank will help countries develop the institutional capacity to implement transport and logistics strategies that address nonphysical barriers, as well as infrastructure deficiencies; improve the management of public infrastructure assets; and encourage successful private sector participation in competitive markets for transport and logistics services.

Where appropriate, regional transport projects will be identified and supported, particularly when these can help improve service and reduce cost to landlocked countries. Corridor approaches will be adopted in diagnosing the need and designing the strategies for major trade routes. The Bank Group will also support countries to meet the emerging challenges of stricter international safety and security standards, particularly in ports and in aviation.

Strategic direction 5. Transport and climate change: control emissions and mitigate impact. Bank Group activities in the transport sector in the years ahead will cover the issue of greenhouse gas emissions from transport as a priority for action, with attention paid to both mitigation in terms of operational services and adaptation in terms of infrastructure sustainability to climate change effects.

6.4 Process adjustments

To achieve its objective and the five strategic directions, the Bank Group intends to adjust the way it does business in four main ways.

Process adjustment 1. Increase the proportion of Bank Group transport lending made through program approaches. This will strengthen long-term client relationships and reduce the costs and time of project preparation. There are a number of instruments available, including both specific investment-lending instruments (Table 6-4) and programmatic loans, which are scheduled over a long-term period with corresponding development targets.

As part of this evolution, there will be increasing separation of policy dialogue on wider transport governance and reform issues from the narrower focus and specific timetables of project-specific investment loans. The former will be increasingly addressed through country dialogue, analytical and advisory activities, and policy-based lending. Fewer sectorwide conditions will be attached to specific project loans, unless the conditions are essential to the success of the specific investment project itself.

Process adjustment 2. Enhance the quality of policy dialogue and sharing of transport knowledge. The Bank Group's analytic and advisory activity in transport includes the economic and sector work (ESW) that is important to properly inform policy dialogue. It also includes technical assistance (TA) to help develop and implement policy, institutional, regulatory, and other changes arising from that dialogue. These activities are essential to maximize the development effectiveness of Bank Group engagement in transport.

ESW/TA products in the transport sector over the past five years have been around 5 percent of the Bank's total ESW/TA products. Although low in proportion to the contribution of transport to Bank lending, a substantial amount of additional activity of this type is funded by loan budgets themselves, and some of the ESW supporting Bank work is effectively carried out by Bank-sponsored initiatives, such as the Sub-Saharan African Transport Policy Program. The Bank also produces a number of technical notes and papers each year, some supported with trust funds.²⁹

The Bank intends to seek donor grants for some of the analytic and advisory activity required by the transport business strategy. It is also anticipated that, with increased lending activity, technical assistance funded by loans will be increased proportionately. Regional analytic and advisory activity will continue to reflect regional programs and priorities, while the Bank's central or "anchor" transport unit intends to put a higher proportion of the resources into the relevant policy issues described in Chapter 3. This will result in major flagship products that deal more comprehensively with the governance and operational issues that underlie the strategic directions that were described in Section 6.3. For example, it is anticipated that early papers in the series will support strategic direction 3 and deal with the policy and implementation issues relevant to urban transport systems and strategic direction 4 on transport for trade in a way that covers policy issues for the main freight modes and multimodal transport. While aiming for the highest intellectual standards in each topic, the reports will be designed to provide policy and practical guidance, while maintaining operational application for development effectiveness. These reports will continue to be supported by shorter specialist transport notes and papers that support the business strategy at an operational level.

²⁹ Over the past five years 30 small knowledge-sharing products (on average costing \$30,000) have been produced using funds donated by the U.K. Department for International Development under its Transport and Rural Infrastructure Services Partnership with the Bank. More than 40 products are expected by the termination of the partnership.

Process adjustment 3. Improve monitoring and evaluation. Progress and accountability in transport and development requires more effort to improve measurement of the performance of transport systems, of the results of Bank Group-financed transport projects, and of the impact of alternative transport policies.

At the broadest level, the Bank Group will continue to work with participating countries to establish baseline indicators of transport infrastructure provision. The achievement of the Rural Access Index discussed in Section 2.4 will be followed by work on an equivalent Urban Mobility Index.

At an operational level, the Bank Group will give priority to the recommendations made by the Independent Evaluation Group in 2007 and, depending upon the quantum and timing of available resources, will establish mechanisms to:

- Develop intermediate indicators applicable to a broad range of projects.
- Carry out an enhanced program of impact evaluations for selected programs.
- Evaluate experience with transport sectorwide approaches to lending.
- Support the establishment of an independent evaluation of the Sub-Saharan Africa Transport Policy Program.

Process adjustment 4. Capture more synergies across sectors and Bank Group instruments.

Within IBRD/IDA, the skills of the Infrastructure Network have recently been consolidated with those of the Environmentally and Socially Sustainable Development network to form an integrated Sustainable Development Network. This will help strengthen the already productive links among the Bank's transport professionals and those working on social and environmental areas of the transport sector. Taking account of the Bank Group's objective in transport and its five priority directions, Table 6-3 summarizes the main potential areas of synergy within the Bank Group to implement the strategic directions.

The synergies also include the potential to combine World Bank Group skills and instruments. Table 6-4 summarizes the main instruments available through IBRD/IDA, IFC, and MIGA and gives examples of how these can be combined to deliver from an indicative menu of public, private and combined public-private solutions to transport development needs.

6.5 Results framework

The 1996 transport strategy highlighted the key importance of improved rural access and reduced transport costs in combating poverty and stimulating growth. The results framework of the 2008 business strategy has been concentrating on these aspects and will continue to do so. The mobility of the urban poor will receive increasing attention over the next few years, both in sector interventions and in the development of the results framework.

It was recognized that the adoption of the MDGs would require giving more attention to measuring impact and the performance of bank activity in the sector as a whole. This challenge is sharpened by the fact that the MDGs themselves do not contain specific goals or targets for the transport sector. As is widely acknowledged, transport is an essential ingredient in production, trade, education, health, civil administration, social interaction, and social services, all of which are crucial to meeting the MDGs. Equally, transport is not sufficient to achieve these results, rendering development-outcome targets for transport alone invalid.

Table 6-3. Intersector synergies and cooperation			
Transport issues	<i>Interaction of TSB with other Sector Boards</i>	Transport issues	<i>Interaction of TSB with other Sector Boards</i>
Transport for trade	<i>Economic Policy Private Sector Development</i>	Inclusive transport	<i>Gender and Development Social Development</i>
Urban transport	<i>Urban Development Environment Private Sector Development</i>	Results measurement	<i>Social Development</i>
Rural transport	<i>Rural Sector Social Development Education</i>	Public governance	<i>Public Sector Governance Financial Management</i>
Road safety	<i>Health, Nutrition, and Population Education</i>	Performance of state-owned enterprises	<i>Public Sector Governance Financial Management</i>
Transport and HIV/AIDS	<i>Health, Nutrition, and Population</i>	Private sector participation	<i>Private Sector Development Project Finance and Guarantees</i>
Vehicle emissions and health	<i>Health, Nutrition, and Population Environment</i>	Competition and regulation	<i>Public Sector Governance Economic Policy</i>
Vehicle emissions and global warming	<i>Energy and Mining Environment</i>	Corruption	<i>Public Sector Governance Procurement</i>

Nevertheless, some (albeit slow) progress is being made in developing frameworks that trace the paths by which Bank transport work affects development and in designing associated indicators of transport performance. Examples of the high-level outcomes and goals to which transport interventions contribute are shown in the matrices in Table 6-5, which illustrate the impacts of rural access improvements and of reductions in freight transport cost. The matrices also show that these key outcomes can often be achieved through a number of different outputs, such as better infrastructure management, direct improvements in transport services, or aspects of sector reform such as encouragement of competition in supply. Such different interventions need to be considered as a package and to be set in the context of the sector as a whole. However, since this context varies a great deal from one region to another and even among countries within a region, the form of the matrix will be specific to each country.

Table 6-4. Indicative applications of World Bank Group instruments in the transport sector			
	PUBLIC INFRASTRUCTURE OR SERVICES	PRIVATE INFRASTRUCTURE OR SERVICES	PUBLIC-PRIVATE PARTNERSHIPS IN INFRASTRUCTURE OR SERVICES
Policy dialogue	Advice on governance, strategy, and policy alternatives for sector and/or on alternative project structures (public, private and PPP), and conveyance of international experience with lessons learned.		
Analytic and advisory activity	Can be used to help develop national sector and/or subsector or sub-national strategies, identify and/or implement institutional, organizational, regulatory or business process reforms in government enterprises; or to move them towards greater private participation.	AAA is not provided to private companies, but benchmarking studies of the private sector, and post-privatization or concession performance can be useful to provide models for other governments considering such policies.	Public-private partnerships typically impose heavy requirements for professional services that technical assistance as part of AAA can help to fund.
IFC loans	IFC financial support can be given for a publicly owned entity in the context of pre-privatization equity. IFC can alternatively help provide financing needs (including acquisition costs) of a private purchase of a state-owned entity.	IFC loans can be made to any private company in the transport sector (whether infrastructure or transport operators).	IFC loans can be made to the successful private bidder in a PPP transport scheme.
IBRD/IDA investment loans	IBRD/IDA loans can be made for public sector transport enterprises, either for investment, structural reforms or transition costs such as labor force restructuring.	Loans can be made to government, or guaranteed by government, for on-lending to small and medium private transport operators, for example, as part of a rural development project.	IBRD/IDA loans can be made to the public sector to meet a capital financial commitment to a PPP scheme. May complement an IFC loan as above.
IBRD/IDA policy/program loans	Can be used by partner country subject to a program of sector governance or policy reform measures that would be inappropriate to associate with a specific investment loan.		Part of a program loan can be used to support the public sector financial commitment to a PPP.
MIGA guarantees		MIGA can provide noncommercial risk guarantees (covering transfer and inconvertibility, expropriation, war and civil disturbance, and breach of contract) to investors, including contractors and operations & maintenance providers, as well as commercial banks. Breach of contract coverage is of particular interest for PPPs as it guarantees the investor/lender against the nonhonoring of sovereign or subsovereign obligations regarding the PPP project, including payment obligations (Annex C contains more details).	
IBRD/IDA guarantees		Partial risk and partial credit guarantees can cover debt or cash flow to private investors for specified project risks related to areas of government responsibility or payment obligation or specified political risks. Subject to counterguarantee from government.	

Table 6-5A. Results Framework—Transport Sector: Rural Access							
<i>Rural Access linked to MDGs (Goals 1, 2, 3, 4 and 5)</i>							
<i>What results on the ground are important?</i>					<i>How do we know if implementation is on track?</i>		
<i>Country Outcomes</i>					<i>Process Indicators</i>		
<i>Goal</i>	<i>Final Outcomes</i>	<i>How do we measure Final Indicators?</i>	<i>Intermediate Outcomes</i>	<i>How do we measure Intermediate Indicators?</i>	<i>Bank Strategy or Contribution</i>	<i>Country</i>	<i>Bank</i>
MDG 1 Eradicate extreme poverty and hunger	<ul style="list-style-type: none"> Increased access to assets, services and markets More effective food marketing and distribution 	<ul style="list-style-type: none"> Rural Access Index (proportion of rural population with adequate access) IDA-14 Result Framework 	<ul style="list-style-type: none"> Target communities have improved, affordable transport services to markets 	<ul style="list-style-type: none"> Survey transport services and fares to target communities Record pedestrian and nonmotorized activity 	<ul style="list-style-type: none"> Transport interventions contribute to National priorities in food security, education, health and rural development Encourage sector data coordination with National Statistics Office 	<ul style="list-style-type: none"> Priorities reflected in National Plan, PRSP, etc. Regular conduct and analysis of national living standards survey with rural access index 	<ul style="list-style-type: none"> Rural Access Indices and other key access data updated at least every three years Inter-sectoral awareness of rural access indicators at country level
MDG 2 Achieve universal primary education	<ul style="list-style-type: none"> Improved school attendance and completion More reliable staffing and equipping of rural schools 	<ul style="list-style-type: none"> School attendance and performance records Reports of staff attendance and equipment availability 	<ul style="list-style-type: none"> Improved access leaves children more time to attend school Children have quicker, safer routes to school Better staff access and equipment supply for rural schools 	<ul style="list-style-type: none"> Household surveys and other reports on pupils' access to school Accident records Cost of rural transport services 	<ul style="list-style-type: none"> Rural transport or infrastructure interventions are based on locally owned plans Local pedestrian and nonmotorized activity must not be constrained by motor traffic 	<ul style="list-style-type: none"> Transport sector policy/ program integrating rural mobility/access improvement Local Government sets priority for rural access Local coordination between Education and Transport Agencies 	<ul style="list-style-type: none"> Output Based Aid provides incentives for new rural transport services Loans agreed for sustainable road improvement programs
MDG 3 Promote gender equity and empower woman	<ul style="list-style-type: none"> Access needs of women and men are met effectively and equitably 	<ul style="list-style-type: none"> Gender analysis of access in household and other surveys 	<ul style="list-style-type: none"> Transport services designed for the needs of women and girls 	<ul style="list-style-type: none"> Disaggregated measurement of gender needs in household and other surveys 	<ul style="list-style-type: none"> Promote interventions in line with national strategies for gender equity 	<ul style="list-style-type: none"> Transport sector plans consistent with national commitments/strategy for gender equity 	<ul style="list-style-type: none"> Disaggregated travel needs assessments are in common use

<p>MDG 4 Reduce child mortality</p>	<ul style="list-style-type: none"> Improved access for mothers and children to primary health care and emergency services Reduced incidence of RAI in children under 5 due to improved access to cleaner fuels 	<ul style="list-style-type: none"> Records of formal health service uptake Records of emergency services response DHS data on RAI incidence 	<ul style="list-style-type: none"> Rural families can have better transport to healthcare for babies and infants Rural families have better access to cleaner fuels and improved stoves 	<ul style="list-style-type: none"> DHS and other reports on mother and infant access to health services Household surveys on fuel choice, use of improved stoves 	<ul style="list-style-type: none"> Promote transport services to support improved preventive and curative health outcomes 	<ul style="list-style-type: none"> Local coordination between Health Sector and Transport Agencies 	<p>Integrated Rural Accessibility Planning principles applied to local investment decisions</p>
<p>MDG 5 Improve maternal health</p>	<ul style="list-style-type: none"> More reliable staffing and equipping of rural health facilities Better access for women to primary health care and emergency services 	<ul style="list-style-type: none"> Reports of medical staffing and resources Reports of emergency response times for maternal and infant health crises 	<ul style="list-style-type: none"> More effective support of rural health facilities Effective transport for women in perinatal crisis 	<ul style="list-style-type: none"> Lower cost of rural transport services Community reports of emergency transport availability and cost 	<ul style="list-style-type: none"> Promote effective transport and communication for emergencies 	<ul style="list-style-type: none"> Establish clear policy on public responsibility for emergency transport Strengthened capacity for baseline and monitoring surveys 	<p>Promote coordination between communities and transport providers for emergency services</p> <p>Support baseline and monitoring surveys</p>

Table 6-5B. Results Framework—Transport Sector: Freight Transport							
<i>Freight Transport Cost linked to MDGs (Goals 1, 6, 7 and 8)</i>							
<i>What results on the ground are important?</i>						<i>How do we know if implementation is on track?</i>	
<i>Country Outcomes</i>						<i>Process Indicators</i>	
<i>Goal</i>	<i>Final Outcomes</i>	<i>How do we measure Final Indicators?</i>	<i>Intermediate Outcomes</i>	<i>How do we measure Intermediate Indicators?</i>	<i>Bank Strategy or Contribution</i>	<i>Country</i>	<i>Bank</i>
MDG 1 Eradicate extreme poverty and hunger	<ul style="list-style-type: none"> National and local economy more active More employment opportunities more widely available Wider access to affordable basic goods and services More reliable access to essential food supplies 	<ul style="list-style-type: none"> Growth in national and local GDP Statistics of formal employment and income levels Consumer prices Basic food prices 	<ul style="list-style-type: none"> Domestic transport more reliable and affordable International transport more competitive Production, marketing and distribution of food more effective 	<ul style="list-style-type: none"> Surveys of domestic transport haulage rates and service levels by key modes (road, rail, water) Surveys of international transit costs 	<ul style="list-style-type: none"> Sector governance promotes effective competition between freight services Promote effective use of transport capacity through charging Facilitate international transit Increase equity 	<ul style="list-style-type: none"> Haulage services are operated on commercial terms and marketed by transport agents Incentives are explicit and set to reflect poverty reduction and other objectives Statistics of haulage by mode share 	<ul style="list-style-type: none"> Freight haulage contributes more positively to the investment climate Assist development and application of toolkits for management of transport services and reduction of accidents
MDG 6 Reverse the spread of HIV/AIDS and other diseases	<ul style="list-style-type: none"> Reduced spread of disease along main transport corridors Reduced risk of disease from construction sites 	<ul style="list-style-type: none"> Medical records Surveys of disease prevalence 	<ul style="list-style-type: none"> Workplace policies Greater awareness and less risky behavior by vulnerable transport employees and those associated with them Reduced delays at borders 	<ul style="list-style-type: none"> Surveys of employee awareness and behavior 	<ul style="list-style-type: none"> Liaise with ILO and other UN agencies in-country Support integrated national strategies for combating diseases 	<ul style="list-style-type: none"> Transport integrated in national strategies for AIDS and other diseases Employer and employee associations cooperate on effective workplace policies 	<ul style="list-style-type: none"> Transport sector capacity and institutions strengthened to engage with AIDS strategies

<p>MDG 7 Ensure environmental sustainability</p>	<ul style="list-style-type: none"> Land use and transport patterns evolve in line with long-term strategic considerations including environmental sustainability 	<ul style="list-style-type: none"> Transport energy use per unit GDP (energy balances, IEA) Samples of greenhouse gases and other pollution Surveys of land use, transport demand and freight traffic 	<ul style="list-style-type: none"> Transport investments reflect full environmental costs Transport strategy incorporates environmental and other long-term considerations 	<ul style="list-style-type: none"> Fuel consumption for freight haulage Global and local emissions of air pollutants Strategic Environmental Assessment at planning stage 	<ul style="list-style-type: none"> Promote instruments which encourage strategic environmental assessments Overall impacts equitable in short, medium and long term Long-term environmental sustainability included in sector dialogue with clients. 	<ul style="list-style-type: none"> Strategic environmental plan reflects international and national commitments Transport investment program consistent with strategic plan 	<ul style="list-style-type: none"> Strategic environmental assessment process is in active use Distributional analysis including 'external' impacts
<p>MDG 8 Build global partnership for a development (open trading; landlocked countries)</p>	<ul style="list-style-type: none"> Open, predictable, non-discriminatory trading system established Needs of landlocked countries and small island developing States met 	<ul style="list-style-type: none"> Transit constraints on international trade Domestic transport constraints on trade Competitive transport arrangements for landlocked countries 	<ul style="list-style-type: none"> Practical, equitable systems established for security of and from transit shipments Administrative costs of import / export minimized Transport contribution to trade is optimized 	<ul style="list-style-type: none"> Finance and time costs imposed by security systems and by import / export formalities Insurance and other costs for cargo safety Freight cost as a proportion of annual retail expenditure 	<ul style="list-style-type: none"> Promote practical, equitable systems for security of and from transit cargoes Expedite import / export procedures, particularly for landlocked countries Optimize transport component of trade 	<ul style="list-style-type: none"> Engagement with security processes and other procedures for international transport Bilateral agreements for landlocked countries Encourage competitive transport services through transport agents, etc. 	<ul style="list-style-type: none"> Extension of globally accepted systems for checking and sealing cargoes Transport enterprise awareness of shipping procedures

6.6 Implementation Action Plan

The main actions and broad indicators for assessing achievements in implementing the strategic directions are summarized in Tables 6-6 and 6-7.

Table 6-6. Strategic directions: Implementation Action Plan			
Table 6-6A. Strategic direction 1: Create the conditions for increased support for transport investment and governance			
Key actions	Action/indicator	By whom	Target
D1.1 Enhance country dialogue on transport sector policy.	Complete and disseminated comprehensive Transport Sector Policy Reviews covering relevant areas listed in Chapter 3 with recommendations for sector improvement.	Anchor/Regions	One review for each of the Bank's major countries (or for subregional groupings of smaller countries) during next five years. Reviews to address the 11 policy areas listed in Chapter 3. Hold seminars to discuss.

Table 6-6B. Strategic direction 2: Deepen engagement in the roads and highways subsector			
Key actions	Action/indicator	By whom	Target
D2.1 Increase attention given to road transport services.	Produce guidance note on road transport markets and regulatory models.	Anchor	To be published FY2009.
	Selected roads projects to include AAA product on transport services.	Regions	Four projects a year.
D2.2 Scale up contributions to road safety improvement.	Second-generation road safety projects, either stand alone or part of broader transport operations.	Regions	At least one project per region over 2008–2012.
D2.3 Apply lessons learned on HIV/AIDS pilot projects to new projects.	Annual review of progress.	Anchor	N/A.

Table 6-6C. Strategic direction 3: Increase engagement in urban transport subsector			
Key actions	Action/indicator	By whom	Target
D3.1 Increase profile of urban public transport in Country Assistance Strategy.	All new CAS to be reviewed by regions to assess suitability of including an urban public transport program.	Region	At least 50 percent of new CAS to profile urban transport.
D3.2 Increase financial support for urban transport with emphasis on public transport and/or traffic management to support public transport.	New lending commitments for urban public transport and associated measures, including vehicle emissions management.	Region	Average of at least US\$0.5 billion a year of new commitments over 2008–2012.

Table 6-6D. Strategic direction 4: Diversify engagement in transport for trade			
Key actions	Action/indicator	By whom	Target
D4.1 Increase number of countries in which there is a transport for trade or similar subsector AAA project.	All new CAS to be reviewed by regions to assess suitability of including a transport for trade program.	Regions	At least 50 percent of new CAS to profile transport for trade including all import transit countries plus landlocked countries.
D4.2 Increase financial support for non-road-based transport infrastructure.	New lending commitments for non-road-based transport modes (railways, ports, waterways, airports, multimodal).	Regions	Average of at least US\$0.8 billion a year of new commitments over 2009–2012.
D4.3 Increase support for regional transport projects that support regional economic integration.	Annual review of progress by TSB.	Anchor	N/A.

Table 6-6E. Strategic direction 5: Transport and climate change – Control emissions and mitigate impact			
Key actions	Action/indicator	By whom	Target
D5.1 Incorporate the transport contribution to climate change into Bank policy agenda.	Guidance note. Transport and climate change policies paper.	Anchor Anchor	To be published by December 2008. To be published FY2009.
D5.2 Mainstream assessing the carbon footprint of transport operations.	Methodology developed in coordination with other IFIs.	Anchor	50% of Bank transport projects include carbon footprint assessments by FY2010. 100% by FY2012.
D5.3 Establish a specific measure of the cleanliness of the urban transport portfolio.	Estimation of modal shift impact on urban emissions.	Anchor/Regions	50% of Bank urban transport projects include measurement of modal shift impact by FY2010. 100% by FY2012.

Table 6-7. Process adjustments: Implementation Action Plan			
Table 6-7A. Process adjustment 1: Increase the proportion of transport lending made through program approaches			
Key actions	Action/indicator	By whom	Target
P1.1 Review pipeline and potential programs in each region for scope for increasing program approach.	Proportion of lending made through program approaches, including serial programs.	Regions	Average of 25 percent of new commitments over 2008–2012 to be by program approaches.
P1.2 Separate complex sectorwide reform conditions and policy dialogue from individual project loans.	Annual review by TSB.	Anchor/Regions	Systematize separation starting in FY09.

Table 6-7B. Process adjustment 2: Enhance the quality of policy dialogue and sharing of transport knowledge			
Key actions	Action/indicator	By whom	Target
P2.1 Secure additional funding for AAA work in transport.	Donor and other stakeholder consultations.	Anchor/Regions	Minimum of US\$10 million over 2008–2012.
P2.2 Preparation of flagship products geared to meeting strategic objective and directions of this update.	Product delivery.	Anchor	Minimum of 4 such products over 2008–2012 (topics to be decided).

Table 6-7C. Process adjustment 3: Improve monitoring and evaluation			
Key actions	Action/indicator	By whom	Target
P3.1 Further develop transport results framework geared to transport business strategy.	With change in Results Staff, take stock of current frameworks (as set out in SSIU).	Anchor	TSB to affirm directions of next steps in results agenda by December 2008.
P3.2 Develop intermediate indicators applicable to a broad range of projects.	Classification of transport projects into a typology and establishment of a menu of relevant indicators for each with advisory notes on selection and use.	Anchor	Guidance note on transport intermediate indicators for main types to be published FY2009.
P3.3 Carry out an enhanced program of impact evaluations for selected programs.	Program to be determined by end FY2008.	Anchor/Regions	Subject to funding, program to commence in FY2009.
P3.4 Evaluate experience with transport sectorwide approaches to lending.	Evaluate overall success of program (including sectorwide) approaches half-way through strategy period.	Anchor/Regions	Completion by FY2010.
P3.5 Support the establishment of an independent evaluation of the Sub-Saharan Africa Transport Policy Program.	Terms of reference, modalities, and funding of review to be determined.	Regions	Subject to funding, independent review to be completed by FY2010.

Table 6-7D. Process adjustment 4: Capture synergies between transport and other sectors			
Key actions	Action/indicator	By whom	Target
P4.1 Actions to be defined and executed by individual regional and anchor units.	Annual review by TSB in consultation with IFC and MIGA.	Anchor/Regions	Implement systematic cross-sector project reviews, starting within SDN, to identify opportunities.

6.7 Resource implications

As the modal diversification of the transport sector continues, the transport staff network itself will continue to be strengthened in the number of staff with policy and operational skills in urban public transport, railways, waterborne transport and ports, aviation, and multimodal transport logistics, as well as in transport safety and security, and transport and energy linkages. The staff that do have these skills are in great demand by regions and partner countries, and they complement the already very strong team of roads and highways specialists. Although many staff very competently move between modes and have broader transport policy and planning skills, there remains a need, particularly in dealings with the middle-income countries, for key specialists with cutting-edge subsector and policy skills, both to support more sophisticated operations that are demanded by country programs and to lead high-level policy dialogue.

The five directions of the strategy will also tend to increase the time and resources that are on average committed to program delivery. It is therefore important to increase the proportion of transport lending made through program approaches (process adjustment 1) which may help to offset this tendency. Bank transport staff have achieved substantial labor productivity gains: an increase of more than 100 percent in IBRD/IDA lending per transport employee since the low point in FY2000 (in FY2007 average lending per transport employee reached around \$40 million, one of the highest levels in the Bank). This productivity gain has partly been accomplished by reducing project preparation time. The World Bank Group will periodically review staff resources to ensure that the transport network has the resource levels and skills mix to implement the transport business strategy.

To pursue a stronger agenda in policy and governance will require a reallocation of funding for analytic and advisory activities that support policy dialogue and implementation. The Bank intends to seek donor grants for some of the analytic and advisory activity required by the transport business strategy. It is also anticipated that, with increased lending activity, analytic and advisory activities funded by loans will be increased proportionately.

Finally, the Bank Group's approach to transport must continually remain a process of learning and evolving. It will therefore be flexible and adaptable to country demand for financial support and policy advisory activities. The Bank Group will strive to be opportunistic and adaptable when good ideas for promoting development in the transport sector need its support.

ANNEX A

TRANSPORT LENDING TRENDS 1996–2007

Figures A-1 to A-14 summarize trends in IBRD and IDA lending for transport over the past twelve fiscal years. Over that period, average annual transport lending amounts to 15 percent of the Bank's total lending (Figure A-1), though from year to year it has varied from 11 percent to 20 percent of the total (Figure A-2). Total transport lending declined between FY1999 and FY2001, recovering to a high point of US\$5 billion in FY2007 (Figure A-3). The average annual transport sector commitment is US\$3.3 billion. With fluctuations, the average number of dedicated and non-dedicated transport projects is about 78 a year (Figure A-4). The average size of dedicated transport projects increased from US\$90 million in FY1996 to US\$120 million in FY2005, and is around US\$60 million in FY 2007 (Figure A-5). At the end of FY2007, the Bank's active transport portfolio stands at US\$22.5 billion, of which 75 percent is for roads and highway projects (Figure A-6).

Transport commitment by region fluctuates greatly from year to year (Figure A-7). But compared with the first six years of the period, the second six-year period shows a marked increase in lending to South Asia and Sub-Saharan Africa (Figure A-8). In terms of commitment by mode of transport, roads and highways remain the dominant uses of funds throughout the period (Figure A-9) at around three-quarters of all transport lending. However, between the first half of the period and the second half, roads and highways commitments have decreased by 12%, while general transport has increased by 11% (Figure A-10). In addition to lending, the Bank mobilizes resources from many trust funds for technical advisory services (TA) in transport to partner countries (Figures A-11 and A-12). It also undertakes or commissions its own policy and technical reviews, which are designated as economic and sector work (ESW), (Figures A-13 and A-14).

For an activity to qualify as an economic and sector work by IBRD/IDA, it must meet all of the following criteria: (a) involve original analytic effort; (b) be undertaken with the intent of influencing policies and programs of an external client; and (c) be "owned" by a specific Bank unit and represent the views of the Bank (rather than attribution to individual authors, be they Bank staff or consultants). For an activity to qualify as technical assistance, it must meet three criteria: (a) have the primary intent of enabling an external client to implement reforms and/or strengthen institutions; (b) be free-standing (i.e., not compose an essential part of a lending project or economic and sector work); and (c) be linked to a Bank unit, with clear accountability for the service provided.

Figure A-1. Annual average Bank lending by sector FY1996–FY2007

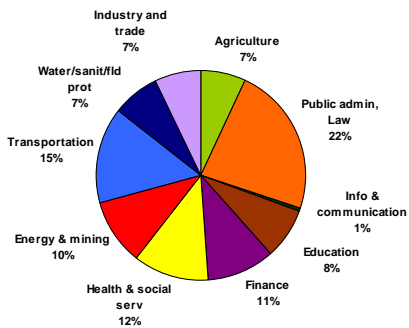
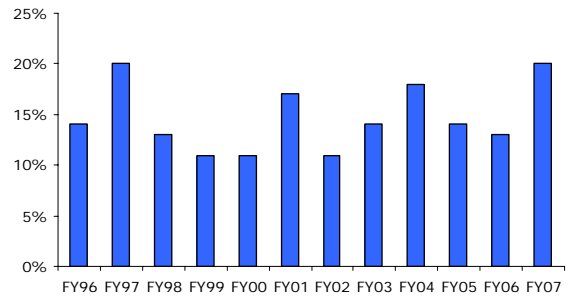
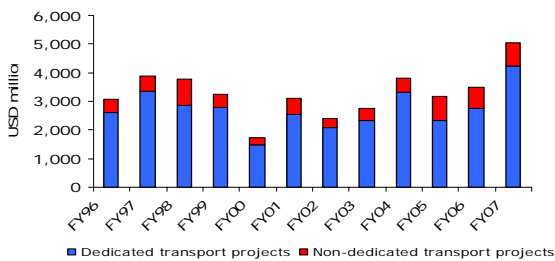


Figure A-2. Transport as a proportion of Bank lending FY1996–FY2007



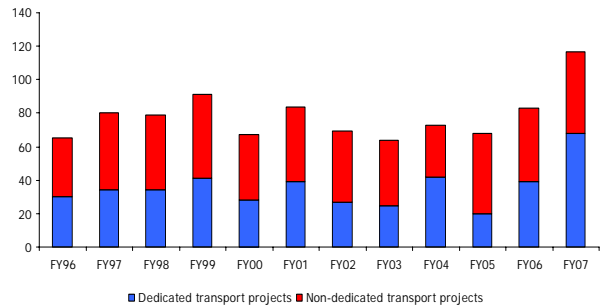
Transport Total Lending = 39.5 USD billion

Figure A-3. Annual value of transport commitments FY1996–FY2007



Transport Average Lending/Year = USD 3.3 billion

Figure A-4. Annual number of transport projects FY1996–FY2007



Average Projects/Year = 78 projects

Figure A-5. Annual average size of a transport project FY1996–FY2007

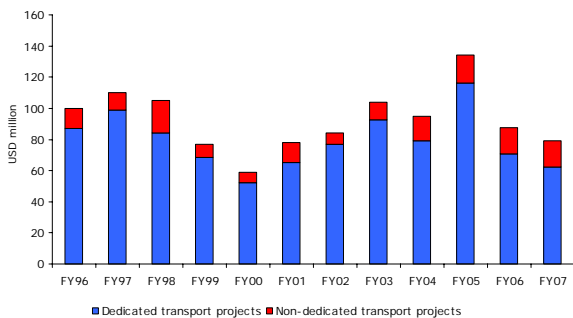
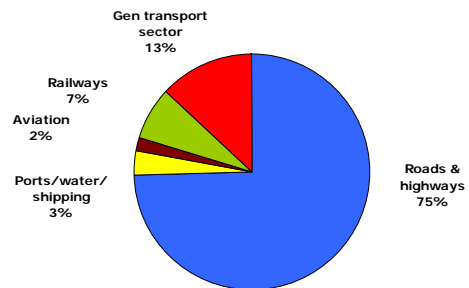


Figure A-6. Transport portfolio of active projects at end of FY2007



Transport Portfolio = 22.5 USD billion

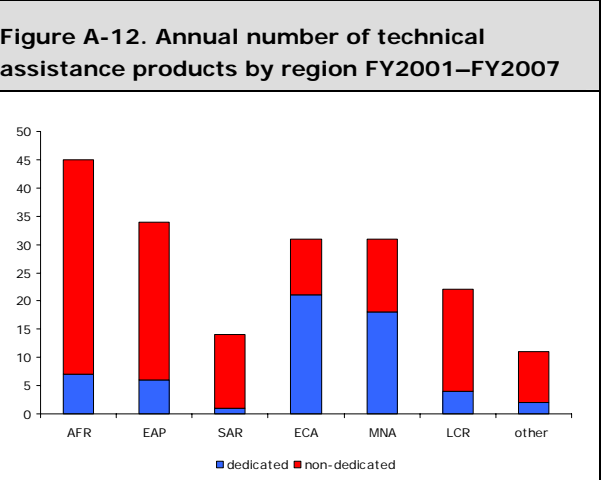
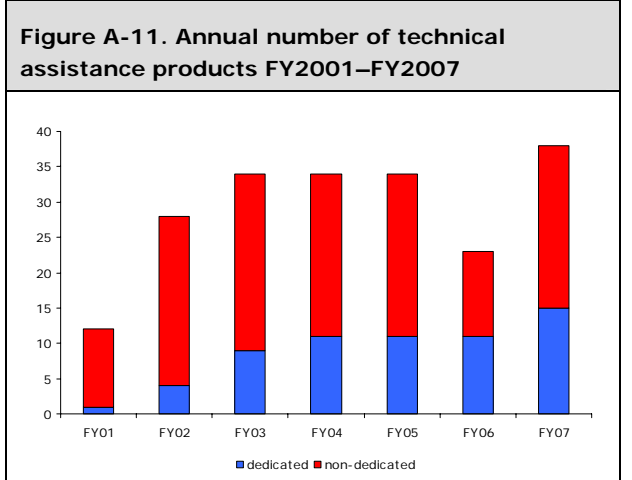
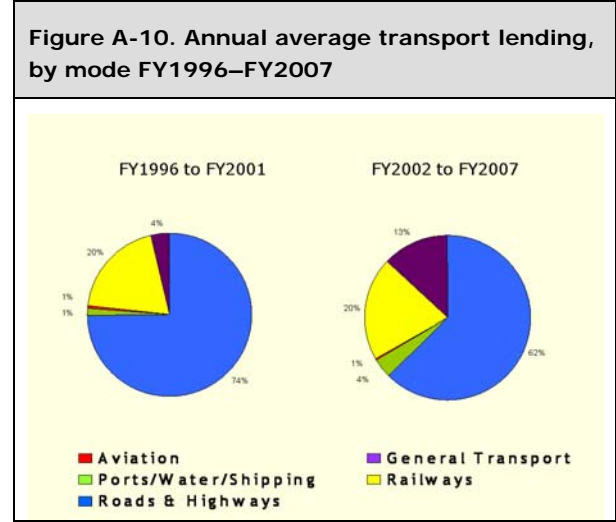
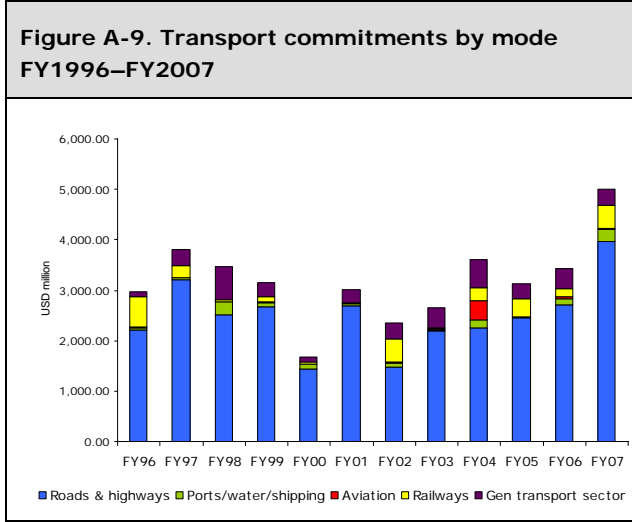
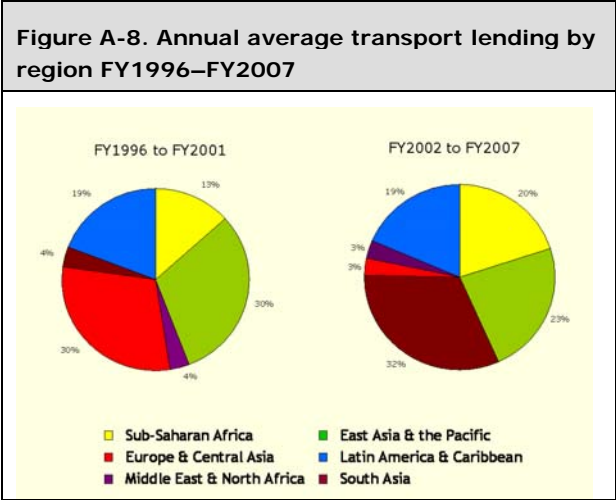
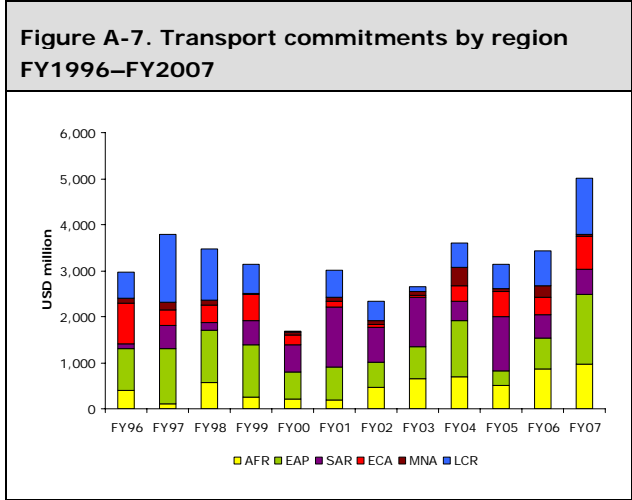


Figure A-13. Annual number of economic and sector work products FY2001–FY2007

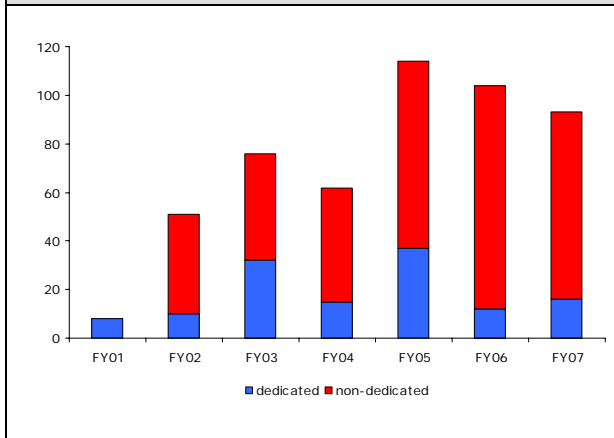


Figure A-14. Annual number of economic and sector work products by region FY2001–FY2007

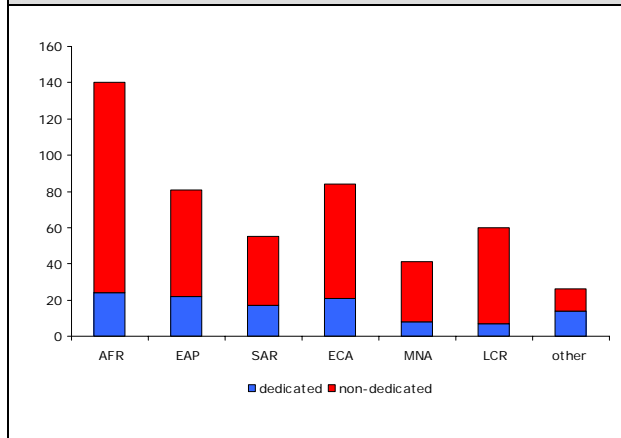


Figure A-15. IFC transport sector commitments FY1999–FY2007

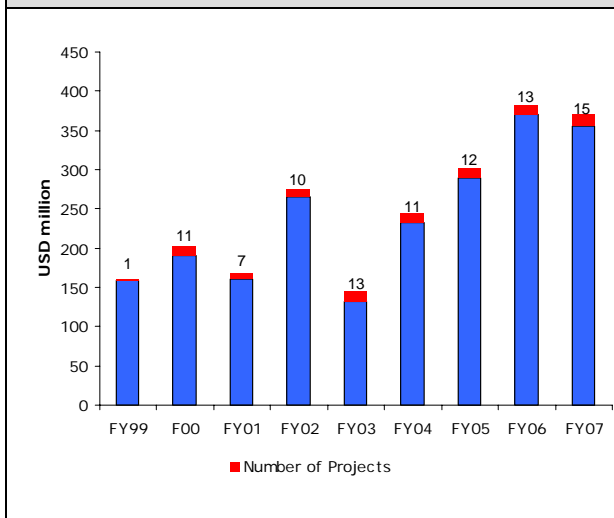
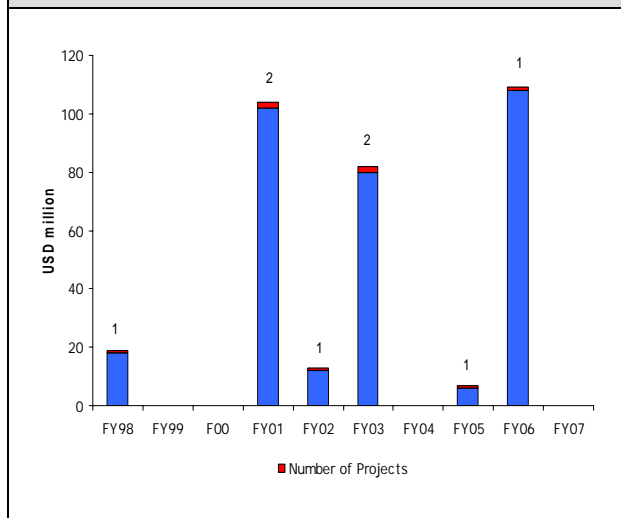


Figure A-16. MIGA Transport sector engagements FY1999–FY2007



ANNEX B

MAIN OPPORTUNITIES FOR INCREASED PRIVATE SECTOR PARTICIPATION IN TRANSPORT ACTIVITIES

ROADS		
Infrastructure	Services	Ancillary
Toll road concessions" "Shadow' toll road concessions Public toll-road management and toll-collection contracts Maintenance contracts Performance-based maintenance contracts	Road freight haulage services Bus services (under competition or a contestable concession) Tram services (under concession) Taxi services Paratransit services of various kinds	Car parking, service areas, truck stops, etc. Vehicle inspection and compliance services Intelligent Highway Systems technology services

RAILWAYS		
Infrastructure	Services	Ancillary
Privatization or concessioning of public rail networks Sale of low density lines to low cost private operators Sale of mineral lines to prime users Construction concessions for building new lines or for major upgrades Integrated construction/train operating concessions	Privatization or concessioning of public train operating companies Participation of private train operating companies through track access rights <i>(All options are available in principle for passenger and freight operations though in practice are easier to attain in freight operations.)</i>	Infrastructure maintenance Rolling stock heavy maintenance and overhaul Rolling stock availability contracts including supply and maintenance (power by the hour) Rolling stock leasing contracts Sale or lease of right of way for telecommunications, etc. Concessions for major passenger station upgradings Train catering, revenue collection, land sales/rental, etc.

URBAN TRANSPORT		
Infrastructure	Services	Ancillary
Privatization or concessioning of existing fixed track public transport networks	All new country assistance strategies to be reviewed by regions to assess suitability of including an urban public transport program	Infrastructure construction and major rehabilitation contracts
Construction concessions for building new lines or for major upgrades	Concessions for fixed track transport services	Vehicle manufacturing and overhaul
Integrated construction, service operating concessions	Bus services (under competition or a contestable concession)	Vehicle availability contracts including supply and maintenance (power by the hour)
	Taxi services	Vehicle leasing contracts
	Paratransit services	Concessions for major passenger facilities (bus stations, interchanges, stations, etc.)
	Courier services	Development of airspace rights, advertising, etc.

PORTS AND MARITIME TRANSPORT		
Infrastructure	Services	Ancillary
Concessioning of seaports	Shipping services	Pilotage and lighterage
Private ownership of dedicated ports/terminals (e.g., oil, bulk materials, etc.)	Concessioning or leasing of seaport container or other terminals under a landlord model	Dredging
Concessions for provision of new port facilities		Maintenance of navigation aides
Infrastructure management contracts		Security
		Container storage, repairs, etc.
		Warehousing and cold storage, etc.

INLAND WATERWAYS		
Infrastructure	Services	Ancillary
<p>Concessioning of whole inland waterway ports</p> <p>Concessioning or leasing of port terminals under a landlord model</p> <p>Private ownership of dedicated riverports/terminals (e.g., oil, bulk materials, etc.)</p> <p>Concessions for provision of new riverport facilities</p> <p>Port management contract</p>	<p>Barging and river shipping services</p> <p>Concessioning or leasing of riverport container or other terminals under a landlord model</p> <p>Concessions or management contracts for road ferries</p> <p>Private ferries and other passenger vessels</p>	<p>Pilotage and lighterage</p> <p>Dredging</p> <p>Maintenance of navigation aides</p> <p>Security</p> <p>Container storage, repairs, etc.</p> <p>Warehousing and cold storage, etc.</p>

AIRPORTS AND AVIATION		
Infrastructure	Services	Ancillary
<p>Privatization or concessioning of existing airports</p> <p>Construction concessions for building new airports or for major upgrades</p> <p>Integrated construction/airport operating concessions</p> <p>Airport management contracts</p> <p>Airfreight infrastructure</p>	<p>Airlines</p> <p>Privatization, concessioning or leasing of existing or new airport passenger terminals</p> <p>Facilities management contracts for passenger terminals, etc.</p> <p>Airfreight services</p>	<p>Air navigation infrastructure concessions or contracts</p> <p>Aircraft catering, baggage handling, fire services, security, parking, etc.</p> <p>Aircraft maintenance, etc.</p> <p>Aircraft leasing</p>

MULTIMODAL TRANSPORT		
Infrastructure	Services	Ancillary
<p>Transport interchanges</p> <p>Inland container depots and other specialist terminals</p> <p>Warehousing/storage facilities</p>	<p>Freight logistics planning including supplying or arranging freight pick-up and delivery, storage, load consolidation/deconsolidation, freight forwarding by one or more modes, customs clearance, transport insurance, information services</p> <p>Courier services (full service mix)</p>	<p>Product inventory management</p> <p>Packaging</p> <p>Product testing and quality control</p> <p>Assembly and installation of goods on delivery</p> <p>Container hire, leasing, cleaning repair, insurance, etc.</p>

ANNEX C

MIGA PRODUCTS

MIGA guarantees are designed to help companies overcome risk aversion, particularly for highly capital-intensive investments that are typical of the transport sector, in countries where there is a perception of high risk. The types of coverage include:

1. Transfer Restriction

Transfer Restriction Coverage protects against (i) the inability to convert, from local currency into guarantee currency, loan payments, dividends, profits, and proceeds from the disposal of the guaranteed investment, and (ii) host government actions that prevent the transfer of the guarantee currency outside the host country, including the failure of the government to grant an authorization for the conversion or the transfer of such currency. Compensation is based on the guaranteed percentage of any payments that cannot be converted or transferred.

2. Expropriation

Expropriation Coverage protects against losses attributable to measures taken or approved by the host government that deprive the guarantee holder of its ownership or control over its investment, or in the case of debt, results in the project enterprise being unable to meet its obligations to the lender. Both direct and indirect (creeping) expropriation are covered. Compensation for equity is based on the guaranteed percentage of the net book value of the guaranteed investment in the project enterprise. For debt, compensation is based on the guaranteed percentage of the principal and interest that is in default as a result of expropriation.

3. War and Civil Disturbance

War and Civil Disturbance Coverage protects against losses arising as a result of military action or civil disturbance in the host country, including sabotage and terrorism, that destroys or damages tangible assets of the project enterprise or interferes with its operations (business interruption), or, in the case of debt, results in the project enterprise being unable to meet its obligations to the lender. Compensation is based on the guaranteed percentage of the value of the assets destroyed or damaged or, in the case of business interruption, the net book value of the guaranteed equity investment. For debt, compensation is based on the guaranteed percentage of the principal and interest that is in default as a result of war and civil disturbance.

4. Breach of Contract

Breach of Contract Coverage protects against losses arising from a repudiation or breach by the host government of a contract entered into with the guarantee holder, provided that a final and binding arbitration award or judicial decision has been rendered in favor of the guarantee holder and cannot be enforced against the host government. Compensation is based on the amount that the guarantee holder is entitled to recover from the host government in accordance with the terms of the arbitration award or judicial decision.³⁰

³⁰ MIGA's Convention provides for coverage under Breach of Contract in three different scenarios: (i) when the Guarantee Holder does not have recourse to a judicial or arbitral forum to determine the claim; (ii) a decision by such forum is not rendered within a reasonable period of time; or (iii) such a decision cannot be enforced.

ANNEX D

WORLD BANK REGIONS

The country composition of “regions” as used in this publication is based on the World Bank’s analytical regions and may differ from common geographic usage.

The World Bank’s regions and their acronyms:

AFR	Africa (Sub-Saharan)
EAP	East Asia and Pacific
ECA	Europe and Central Asia
LAC	Latin America and the Caribbean
MNA	Middle East and North Africa
SAR	South Asia

Countries eligible for World Bank borrowing (by region):

Africa (AFR)

Angola
Benin
Botswana
Burkina Faso
Burundi
Cameroon
Cape Verde
Central African Republic
Chad
Comoros
Congo, Democratic Republic of
Congo, Republic of
Côte d’Ivoire
Equatorial Guinea
Eritrea
Ethiopia
Gabon
The Gambia
Ghana
Guinea
Guinea-Bissau
Kenya
Lesotho
Liberia
Madagascar
Malawi

Mali
Mauritania
Mauritius
Mozambique
Namibia
Niger
Nigeria
Rwanda
São Tomé and Príncipe
Senegal
Seychelles
Sierra Leone
Somalia
South Africa
Sudan
Swaziland
Tanzania
Togo
Uganda
Zambia
Zimbabwe

East Asia and Pacific (EAP)

Cambodia
China
Fiji
Indonesia
Kiribati
Korea, Republic of
Lao People’s Democratic Republic
Malaysia
Marshall Islands
Micronesia, Federated States of
Mongolia
Myanmar
Palau
Papua New Guinea
Philippines
Samoa
Solomon Islands
Thailand
Timor-Leste
Tonga
Vanuatu
Vietnam

**Europe and Central Asia
(ECA)**

Albania
 Armenia
 Azerbaijan
 Belarus
 Bosnia and Herzegovina
 Bulgaria
 Croatia
 Georgia
 Hungary
 Kazakhstan
 Kyrgyz Republic
 Latvia
 Lithuania
 Macedonia, former Yugoslav
 Republic of
 Moldova
 Poland
 Romania
 Russian Federation
 Serbia and Montenegro
 Slovak Republic
 Tajikistan
 Turkey
 Turkmenistan
 Ukraine
 Uzbekistan

**Latin America and
the Caribbean (LAC)**

Antigua and Barbuda
 Argentina
 Belize
 Bolivia
 Brazil
 Chile
 Colombia
 Costa Rica
 Dominica
 Dominican Republic
 Ecuador
 El Salvador
 Grenada
 Guatemala
 Guyana
 Haiti
 Honduras
 Jamaica
 Mexico
 Nicaragua
 Panama
 Paraguay
 Peru
 St. Kitts and Nevis
 St. Lucia
 St. Vincent and the Grenadines
 Suriname

Trinidad and Tobago
 Uruguay
 Venezuela,
 República Bolivariana de

**Middle East and
North Africa (MNA)**

Algeria
 Djibouti
 Egypt, Arab Republic of
 Iran, Islamic Republic of
 Iraq
 Jordan
 Lebanon
 Morocco
 Syrian Arab Republic
 Tunisia
 Yemen, Republic of

South Asia (SAR)

Afghanistan
 Bangladesh
 Bhutan
 India
 Maldives
 Nepal
 Pakistan
 Sri Lanka

Since 1996 the following countries graduated from the World Bank and are no longer eligible for lending:
 Slovenia (2004), Czech Republic (2005), Estonia, Lithuania (2006), Hungary, Latvia (2007)

The following countries graduated from the World Bank and later returned to borrower status:

Country	Last year borrowed (before relapse)	Year of reinitiated borrowing
Costa Rica	1994	2000
Malaysia	1994	1998
Korea, Republic of	1995	1998
Chile	1996	1999

REFERENCES

- Aeron-Thomas, A., G.D. Jacobs, B. Sexton, G. Gururaj, and F. Rahman. 2004. *The Involvement and Impact of Road Crashes on the Poor: Bangladesh and India Case Studies*. TRL Limited, Wokingham, Berkshire.
- Ahmed, R., and M. Hossain. 1990. *Developmental Impact of Rural Infrastructure in Bangladesh*. Research Report 83. International Food Policy Research Institute and the Bangladesh Institute of Policy Studies.
- Airbus. 2006. *Airbus Global Market Forecast 2006-2007*. Toulouse, France.
- Amos, P. 2004. *Public and Private Sector Roles in the Supply of Transport Infrastructure and Services*. Transport Paper TP-1. World Bank Transport Sector Board, Washington, DC.
- _____. 2005. *Reform, Commercialization and Private Sector Participation in Railways in Eastern Europe and Central Asia*. World Bank Transport Paper TP-4. World Bank Transport Sector Board, Washington, DC.
- Amos, P., and R. Bullock. 2006. *Managing Economic Interfaces in Multi-operator Railway Environments*. Report to the Ministry of Railways, China. World Bank, Beijing.
- Andreski A., S. Seth, and W. Walker. 2006. *How a Road Agency Can Transform Force Account Road Maintenance to Contracting*. World Bank Transport Paper TP-11. World Bank Transport Sector Board, Washington, DC.
- Arnold, John. 2006. *Best Practices in Management of International Trade Corridors*. World Bank Transport Paper TP-13. World Bank Transport Sector Board, Washington, DC.
- Arvis, Jean-François. 2005. "Transit and the Special Case of Landlocked Countries." In Luc De Wulf and Sokol José, eds. *Customs Modernization Handbook*. World Bank, Washington, DC.
- Arvis, Jean-François, Monica Alina Mustra, John Panzer, Lauri Ojala, and Tapia Naula. 2007. *Connecting to Compete: Trade Logistics in the Global Economy*. World Bank. Washington, DC. <http://www.worldbank.org/lpi>
- Barwell, I. 1996. *Transport and the Village: Findings from African Village-level Travel and Transport Surveys and Related Studies*. World Bank, Washington, DC.
- Benmaamar M. 2006. *Financing of Road Maintenance in Sub-Saharan Africa: Reforms and progress towards second generation road funds*. SSATP Discussion Paper No. 6. World Bank, Washington, DC.
- Bliss, A. 2004. *Implementing the Recommendations of the World Report on Road Traffic Injury Prevention*. Transport Note TRN-1. World Bank, Washington, DC.
- Boeing Company. 2006a. *Boeing Current Market Outlook 2006*. Seattle, Washington. Boeing Company. 2006b. *Boeing World Air Cargo Forecast 2006-2007*. Seattle, Washington.

- Bullock, R. 2005. *Results of Railway Privatization in Africa*. World Bank Transport Paper 8. World Bank Transport Sector Board, Washington, DC.
- Calderon, C., and L. Serven. 2003. "The Output Cost of Latin America's Infrastructure Gap." In W. Easterly and L. Serven, eds. *The Limits of Stabilization: Infrastructure, Public Deficits and Growth in Latin America*, pp. 95–118. Stanford University Press, Palo Alto, California and World Bank, Washington, DC.
- Carruthers, R., J. N. Bajpai, and D. Hummels. 2003. *Trade and Logistics in East Asia: A Development Agenda*. EASTR Working Paper No. 3. World Bank, Washington, DC.
- Carruthers, R., M. Dick, and A. Saurkar. 2005. *Affordability of Public Transport in Developing Countries*. World Bank Transport Paper 3. World Bank Transport Sector Board, Washington, DC.
- Castalia, 2006. *The Pacific Infrastructure Challenge: A Review of Obstacles and Opportunities for Improving Performance in the Pacific Islands*. Report to the World Bank, Washington D. C.
- Essakali, Mohammed Dalil. 2005. *Rural Access and Mobility in Pakistan: A Policy Note*. Transport Note TRN-28. World Bank, Washington, DC.
- Estache, A., and G. de Rus, eds. 2000. *Privatization and Regulation of Transport Infrastructure: Guidelines for Policymakers and Regulators*. WBI Development Studies. World Bank, Washington, DC.
- Estache, A., and T. Serebrisky. 2004. *Where Do We Stand on Transport Infrastructure Deregulation and Public-Private Partnerships?* Infrastructure Vice Presidency, World Bank, Washington, DC.
- Evans, Hugh E. 1990. *Rural-Urban Linkages and Structural Transformation*. INU-71. Infrastructure and Urban Development, World Bank, Washington, DC.
- Fan, S., and Connie Chan-Kang. 2004. "Returns to investment in less-favored areas in developing countries: a synthesis of evidence and implications for Africa." *Food Policy* 29 (4): 432-444.
- Fay, M., and T. Yepes. 2003. *Investing in Infrastructure. What Is Needed from 2000 to 2010?* World Bank Policy Research Working Paper 3102. World Bank, Washington, DC.
- Global Environment Facility. 2002. *Proceedings on Non-Technology Options for Stimulating Modal Shifts in City Transport Systems*. STAP/GEF, Washington, DC.
- Global Facilitation Partnership for Transportation and Trade
<http://gfptt.org>
- Global Partnership on Output-based Aid Website
<http://www.gpoba.org>
- Gwilliam, Kenneth M., and Zmarak Shalizi. 1997. *Road Funds, User Charges and Taxes*. DP TWU-26. Transportation, Water, and Urban Development Department, World Bank, Washington, DC.
- Gwilliam, Kenneth M., and Ajay Kumar. 2002. *Road Funds Revisited*. DP TWU-47. Transportation, Water, and Urban Development Department, World Bank, Washington, DC.

- Gwilliam, Kenneth M., Kojima, and T. Johnson. 2004. *Reducing Air Pollution from Urban Transport*. World Bank, Washington, DC.
- Heggie, I., and P. Vickers. 1998. *Commercial Management and Financing of Roads*. Technical Paper 409. World Bank, Washington, DC.
- Hine, J., and J. Rutter. 2000. *Roads, Personal Mobility and Poverty: The Challenge*. Transport and Poverty Workshop, World Bank, Washington, DC.
- Heumann, J., and G. Willing. Forthcoming. *Including Accessibility Features/Universal Design in Infrastructure and Human Development Projects*. World Bank, Washington, DC.
- ICAO (International Civil Aviation Organization). 2006. *Annual Review of Civil Aviation 2005*. Quebec.
- IDA (International Development Association). 2007. *IDA at Work. Transport: Linking People to Markets and Services*. Washington, DC.
- IEG (Independent Evaluation Group). 2007. *A Decade of Action in Transport. An Evaluation of World Bank Assistance to the Transport Sector, 1995–2005*. World Bank, Washington, DC.
- IFEU (Institut für Energie und Umweltforschung Heidelberg GmbH). 2006. *TREMODO: Transport Emission Model - Energy Consumption and Emissions of Transport in Germany 1960-2030*. Final Report. Heidelberg, Germany.
- IFRTD (International Forum for Rural Transport and Development). 1999. "Balancing the Load." *International Forum for Rural Transport and Development Proceedings*. ILO ASIST, Geneva.
- ILO (International Labour Organisation ASIST). 2000. *Integrated Rural Accessibility Planning Tool (IRAP)*. Geneva.
<http://www.ilo.org/public/english/employment/recon/eiip/asist/irap.htm>
- IPCC (Intergovernmental Panel on Climate Change). 2007. *Climate Change 2007: IPCC 4th Assessment Report*. Geneva.
- IRF (International Road Federation). 2005. *World Road Statistics*. Brussels.
<http://www.irfnet.org/cms/pages/en/Viewpage.asp?id=21>.
- Kessides, I. N. 2004. *Reforming Infrastructure: Privatization, Regulation and Competition*. Policy Research Report. World Bank, Washington, DC.
- Klein, M., and Hadjimichael, B. 2003. *The Private Sector in Development*. World Bank, Washington, DC.
- Kopits, E., and M. Cropper. 2003. *Traffic Fatalities and Economic Growth*. Policy Research Working Paper 3035. World Bank, Washington, DC.
- Levy, H. 1999. *Rural Transport: Planning and Setting Priorities*. World Bank Transport Expo '99, April 12–16, Washington, DC.
- Malmberg Calvo, C. 1994. *Case Study on the Role of Women in Rural Transport: Access of Women to Domestic Facilities*. SSATP Working Paper No. 11. World Bank, Washington, DC.

- _____. 1998. *Options for Managing and Financing Rural Transport Infrastructure*. World Bank Technical Paper No. 411. World Bank, Washington, DC.
- McIntyre, M., M. Rosenberg, and L. Hayes, eds. 2004. *The Global Road Safety Crisis: We should do much more*. Taskforce for Child Survival and Development, Decatur, Georgia.
- Murray, C. J. L., and A. D. Lopez, eds. 1996. *The Global Burden of Disease: A Comprehensive Assessment of Mortality and Disability from Diseases, Injuries and Risk Factors in 1990 and Projected to 2020*. Boston: Harvard University Press.
- OED (Operations Evaluation Department). 1996. *Kingdom of Morocco-Impact Evaluation Report: Socioeconomic Influence of Rural Roads*. World Bank, Washington, DC.
- _____. 2003. *Sharing Knowledge: Innovations and Remaining Challenges*. World Bank, Washington, DC.
- _____. 2005. *World Bank Support for Capacity Building in Africa*. World Bank, Washington, DC.
- OPCS (Operations Policy and Country Services). 2004. *Supporting Development Programs Effectively: A Staff Guide*. World Bank, Washington, DC.
- Peden, M., R. Scurfield, D. Sleet, D. Mohan, A. A. Hyder, E. Jarawan, and C. Mathers, eds. 2004. *World Report on Road Traffic Injury Prevention*. World Health Organization, Geneva.
- Republique de Guinee Ministere des Transports. 2005. *Role des Transports dans le realisation des ODM*. Etude de CCAS Guinee. Conakry.
- Roberts, P., and K. C. Shyam. 2004. *Rural Access Index: A Key Development Indicator*. Seminar on Sustainable Access and Local Resource Solutions. World Road Association, Paris.
- SACTRA (Standing Advisory Committee on Trunk Road Appraisal). 1996. U.K. Department for Transport, London.
- Stankevich, N., N. Qureshi, and C. Queiroz. 2006. *Performance-based Contracting for Preservation and Improvement of Road Assets: Resource Guide*. CD-ROM version. World Bank Transport Sector Board, Washington, DC. and U. K. Department for International Development, London.
- _____. 2006. *Performance-based Contracting for Preservation and Improvement of Road Assets*. TRN-27. World Bank Transport Sector Board, Washington, DC. and U. K. Department for International Development, London.
- Starkey, P., S. Ellis, J. Hine, and A. Ternell. 2002. *Improving Rural Mobility: Options for Developing Motorized and Non-Motorized Transport in Rural Areas*. World Bank Technical Paper 525. World Bank, Washington, DC.
- Stern, N. 2006. *The Economics of Climate Change*. U. K. Treasury, London.
- UIC (International Union of Railways). 2006. On-line statistical summary. UIC, Paris.
http://www.uic.asso.fr/apropos/article.php3?id_article=233

- United Kingdom Office of Rail Regulation. August 2005. *Final Report*. London.
<http://www.rail-reg.gov.uk>
- United Nations. 1996. *World Urbanization Prospects*. New York.
- _____. 2003. *World Urbanization Prospects*. New York.
- United Nations Framework Convention on Climate Change, Kyoto Protocol. 1997. *Clean Development Mechanism*. Bonn, Germany.
http://unfccc.int/kyoto_protocol/mechanisms/clean_development_mechanism/items/2718.php
- UNAIDS. 2004. *AIDS Epidemic Update*. UNAIDS/World Health Organization, Geneva.
- Venter, C., J. Sentinella, T. Rickert, D. Maunder, and A. Venkatesh. 2004. *Enhancing the Mobility of Disabled People: Guidelines for Practitioners*. TRL Limited, Wokingham, Berkshire.
- WHO (World Health Organization). 2004. *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Attributable to Selected Major Risk Factors*. Volume 1. M. Ezzati, A. Lopez, A. Rodgers, and C. Murray, eds. Geneva.
- _____. 2005. *Updated Projections of Global Mortality and Burden of Disease, 2002-2030: Data Sources, Methods and Results*. C. Mathers and D. Loncar. Geneva.
- Wilson, J. 2003. *Trade Facilitation: New Issues in a Development Context*. Trade Note No. 12. World Bank, Washington, DC.
- World Bank. 1996. *Sustainable Transport: Priorities for Policy Reform*. Washington, DC.
- _____. 2002. *Cities on the Move. A World Bank Urban Transport Strategy Review*. Washington, DC.
- _____. 2003a. *Aids and Transport in Africa: A Framework for Meeting the Challenge*. World Bank, Africa Technical Transport Sector Unit, Washington, DC.
- _____. 2003b. *Infrastructure Action Plan*. Washington, DC.
- _____. 2003c. *Toolkit for Public-Private Partnership in Highways*. World Bank and PPIAF, Washington, DC.
<http://rru.worldbank.org/Documents/Toolkits/Highways/start.htm>
- _____. 2004a. *Financial Modeling of Regulatory Policy: Introduction to Theory and Practice*. World Bank Institute and PPIAF, Washington, DC.
- _____. 2004b. *Labor Issues in Infrastructure Reform: A Toolkit*. World Bank and PPIAF, Washington, DC.
<http://www.ppiaf.org/LaborToolkit/toolkit.html>
- _____. 2005a. *Meeting the Challenge of Africa's Development: A World Bank Group Action Plan*. World Bank, Africa Region, Washington, DC.
<http://go.worldbank.org/1AWD265Q20>
- _____. 2005b. Unpublished data from nine cities and World Bank analysis. Washington, DC.

- _____. 2006a. *Port Reform Toolkit: Second Edition*. World Bank and PPIAF, Washington, DC.
http://www.worldbank.org/transport/ports/toolkit_update/toolkit.html
- _____. 2006b. *Rural Infrastructure in Peru: Effectively Underpinning Local Development and Fostering Complementarities*. World Bank, Finance, Private Sector and Infrastructure Unit, Latin America and the Caribbean, Washington, DC.
- _____. 2006c. *The Urban Bus Toolkit*. World Bank and PPIAF, Washington, DC.
<http://www.ppiaf.org/UrbanBusToolkit/>
- _____. 2007a. Railways Performance Database. Washington, D.C.
<http://go.worldbank.org/PJ2QWO6P10>
- _____. 2007b. UN Convention on the Rights of Persons with Disabilities. Washington, D.C.
- _____. Anticorruption Website. Washington, DC.
<http://www.worldbank.org/anticorruption>
- _____. Environment Website. Washington, DC.
<http://www.worldbank.org/environment/>
- _____. Gender and Rural Transport Initiative Website. Washington, DC.
<http://go.worldbank.org/ASIFHW3ED0>
- _____. Millennium Development Goals Website. Washington, DC.
<http://ddp-ext.worldbank.org/ext/GMIS/gdmis.do?siteId=2&menuId=LNAV01>
- _____. Private Participation in Infrastructure Database Website. Washington, DC.
<http://ppi.worldbank.org/>
- _____. Road Cost Knowledge System (ROCKS) Website. Washington, DC.
<http://go.worldbank.org/ZF114CJNX0>
- _____. Transport and Social Responsibility Website. Washington, DC.
<http://www.worldbank.org/responsibletransport/>
- _____. World Bank Institute Website. Washington, DC.
<http://www.worldbank.org/wbi>
- WBCSD (World Business Council for Sustainable Development). 2004. *IEA/SMP Global Transport Model, Mobility 2030: Meeting Challenges to Sustainability*, Sustainable Mobility Project. Geneva.

ADDITIONAL RESOURCES

A full list of all recent and forthcoming World Bank transport sector studies, toolkits, guidance notes, and related information can be found at:

Transport Anchor Website

<http://www.worldbank.org/transport/>

Africa Region Transport Website

<http://www.worldbank.org/afr/transport/>

Sub-Saharan Africa Transport Policy Program (SSATP)

<http://www.worldbank.org/afr/ssatp/>

East Asia and Pacific Transport Website

<http://www.worldbank.org/eaptransport>

Europe and Central Asia Transport Website

<http://www.worldbank.org/eca/transport/>

Latin America and Caribbean Transport Website

<http://www.worldbank.org/lactransport/>

Middle East and North Africa Transport Website

<http://www.worldbank.org/mena/> (click on Development Topics and select Transport)

South Asia Transport Website

<http://www.worldbank.org/sartransport/>