



*safe, clean and affordable....*  
**Transport for development**

*An update of the World Bank's transport sector priorities for the period 2007-2015*



THE WORLD BANK  
WASHINGTON, DC

Scheduled for publication  
Autumn 2006



TRANSPORT  
SECTOR BOARD



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**TRANSPORT  
SECTOR  
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# *safe, clean and affordable...* Transport for development

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## 1 ORIGINS OF THE REPORT

The Transport Sector Board (TSB) leads the World Bank's work in transport in response to demand by its countries of operation ('partner countries'). In recent years TSB's views on specific transport topics have been set out in a number of specialist documents. They are listed for completeness in Annex A. However, the last policy report that addressed transport *as a whole* was in May 1996. That report, '*Sustainable Transport: Priorities for Policy Reform*' broke much new ground. '*Sustainable Transport*' (as it will be referred to in this report) continues to be a key reference document for the Bank's views on transport matters. It emphasizes the importance of sustainability in transport: economic, financial, environmental and social. These concepts remain central and critical.

Inevitably, the world and the World Bank have advanced in their thinking about wider development issues since 1996. The Millennium Development Goals (discussed in more detail in Section 2) were agreed by the international community four years after the publication of *Sustainable Transport*. Moreover, other emerging issues and trends are also influencing the Bank's approach to transport and development:

- The Bank has affirmed that to achieve the Millennium Development Goals will require renewed emphasis on the achievement of economic growth as well as social measures aimed at delivering benefits directly to the poor; it has therefore adopted a new Infrastructure Action Plan (World Bank 2004) to revitalize the Bank's role in infrastructure to support economic growth. Transport constitutes around half of the Bank's infrastructure business and is therefore central to the Plan.
- There is ever more evidence of the role in successful development of good public governance: the need for competent state institutions to make and implement policy; the complementary roles of public and private sectors; the roles of markets and of regulations; and the importance of fighting corruption. 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 operations.
- 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. For the transport sector this implies Bank support for partner countries in establishing institutions and capacity for public policy choice and implementation while sharing knowledge about international experience of the alternatives available; but perhaps being less prescriptive about the policy choices themselves.
- The Bank's lending programs to many middle income countries have declined since 1996, partly because the Bank's methods of engagement have not evolved in a way which the countries find to be most efficient and relevant to their needs and growing economic stature. While declining participation in middle income countries has been less pronounced in the Bank's 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 concrete results from development aid and investments, not just money transfers. The transport sector is one of the Bank's biggest areas of development finance, representing some 15 percent of its lending commitments since *Sustainable Transport* was written (Annex B). It is important that the TSB measures the impact of interventions in this sector and builds this experience into future projects. It is also important for both the Bank and its partner countries that better transport statistics and performance indicators are kept for making decisions and monitoring the results.

It was for all these reasons that in May 2005, ten years after the publication of *Sustainable Transport*, the TSB decided on this update. Its purposes are first, to articulate how these matters have affected its thinking about transport and development; second, to identify planned adjustments to its priorities and approach; and third, to explain these to development partners and other stakeholders in the Bank's work.

The title of this Report gives a clue to at least some of this thinking. The emphasis on **safe** and **clean** reflects the importance of health and environmental outcomes within the Millennium Development Goals. The emphasis on **affordable** recognizes that high transport costs discourage trade and economic growth, and contribute to economic and social exclusion. Finally, **transport for development** asserts that while transport can have many purposes, the Bank's focus must be on its potential to contribute to economic development.

The importance of economic efficiency to transport development is undiminished. Transport efficiency, passed on to users through well functioning markets, is critical to making it affordable. Transport will be more efficient if it avoids unnecessarily high costs in human health or environmental degradation.

The TSB has shaped this report to be strategic and succinct. It therefore deals with transport as a whole (a *sector* in the Bank's parlance) that, if managed well, can contribute to economic and social development. The Report does not burrow down into the many individual types of transport technologies, markets and institutions that make up this most diverse sector. That is the role of the publications cited in Annex A. The emphasis is not on what the Bank's specific transport projects (or *interventions*) should be, but on what they should try to do. Finally, while it cites empirical evidence to illustrate particular statements, it is a management review and not a research report.

The Report is divided into four further sections. Section 2 explains **why** the World Bank is so heavily involved in the transport sector and proposes adjustments to the balance of its activities to align with the Bank's evolving mandate. Section 3 explains **how** TSB views the governance issues that underpin improved performance of transport infrastructure and services as a whole, irrespective of specific lending interventions. Section 4 illustrates the diversity of transport challenges in different regions **where** specific local responses and regional partnerships are called for, while indicating those transport issues for which global relationships are also required. In Section 5 it concludes by drawing on the previous sections to summarize **what** are the main areas for re-aligning both activity and approach going forward. These priorities will generate specific Action Plans in the coming months.

## 2 TRANSPORT FOR DEVELOPMENT

### 2.1 Transport and the Millennium Development Goals

The Millennium Development Goals are now the main focus of the world's development effort.<sup>1</sup> These goals both contribute to, and are in themselves, desirable ends of economic development: freedom from hunger; universal primary education; gender equality; reduced child mortality; improved maternal health; control of disease; environmental sustainability and global partnership

By contrast, transport is largely a means to an end; rarely the end in itself. But it provides one of the necessary (though not sufficient) ingredients for accomplishing production, trade, education, health, social interaction, public administration, and social services, all of which are crucial to meeting the primary development goals. The contribution of transport cannot be taken for granted. Over nine hundred millions of the World's rural poor still do not have adequate access to an all-weather road. In a few years, half the developing world's population will live in cities that for the most part do not yet have the transport systems to cope. And many of the countries which have enjoyed strong trade growth in recent years are facing increasing constraints in transport logistics infrastructure.

This section provides the rationale for the Bank's involvement in the transport sector. It describes the main ways (though not all ways) in which transport contributes, and could contribute more, to the achievement of the Millennium Development Goals:

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<sup>1</sup> See the Bank's MDG website at [www.developmentgoals.org/index/html](http://www.developmentgoals.org/index/html).

- by facilitating economic growth 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 and education goals; and
- in all these functions, by becoming safer and cleaner for users and the community.

This five-part structure is used to aid explanation. Transport in the real world is a complex sector containing different types of institutions, assets and services that meet multiple economic and social purposes. In practice it is not always easy to isolate the specific impacts of individual components. The section concludes with the need to find better ways of measuring impact and performance so as to make the transport sector work better for development.

## **2.2 Serving International Trade**

International trade makes an important contribution to economic growth and poverty reduction (Bhagwati 2004, Bardhan 2004). While contributing widely to the Millennium Development Goals, the importance of trade is specifically highlighted in the eighth Millennium Development Goal (and associated targets) that seeks to 'develop a global partnership for development.'

International trade liberalization means that good freight transport services are increasingly important to integrate partner country economies into longer, more complex and more demanding supply chains. International supply chains 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 international trade. 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 shippers and producers.

Transport and logistics service providers include road haulage companies, train operating companies, barge and shipping companies, stevedores, airlines and air freight companies, freight forwarders and many others. They in turn depend on infrastructure: roads, railways, waterways, ports, airports and various kinds of inter-modal transfer, storage and terminal facilities. Transport costs depend partly on the quality and capacity of infrastructure which they use, and (as is addressed in Section 3) partly on the effectiveness of the governance structures in which they operate (policies, markets, regulations). Transport costs do not just include transport tariffs. They also include the costs of time in transit (which involves inventory holding costs), handling and intermediate storage, damage, deterioration, theft, and sometimes bribes paid to grease the wheels of officialdom. Poor transport can be very costly transport.

High transport costs magnify the impact of distance. For example, it can cost three times as much and take five times as long to move a container 500 km inland in China as in the United States. Not surprisingly then, inland transport costs in China can account for two-thirds of total transport costs of exports to final market and most of China's export-led growth is currently concentrated in coastal fringes (Carruthers et al, 2003).

Transport is particularly challenging to landlocked countries. Their trade relies on transit through neighboring countries which may be minded to tax or hinder transit traffic (often seen at best as a nuisance and at worst as a threat) rather than facilitate it. Significantly, sixteen out of thirty-one landlocked countries in the world are classed 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 a 1000 miles of inland road transport (Wilson 2003).

Aviation infrastructure and services (airlines, air freight services, airports, air traffic control, etc.) are also becoming increasingly important to development in all regions. Air freight services carry a significant proportion of trade by value, and are particularly important for perishable commodities (flowers, fresh produce, seafood, etc.) produced by many developing countries for international markets. Air passenger services also underpin the international tourism industry that has boosted development in many regions. Not surprisingly, reliable air transport links are also an influential factor in location decisions made by international investors. Strong international growth in aviation is putting strain on the physical and management capacities of many developing country airports. Moreover, safety is critical to industry development but varies widely; for example, West Africa has an aviation accident rate thirty times that of the USA.

The Bank has been active in recent years in analytical and advisory services associated with the contribution of transport to trade. It has also financed heavy investment in the construction, rehabilitation and maintenance of road systems, to the benefit of road freight haulage. However, the high proportion of lending activity focusing on road transport has been limiting Bank impact. Annex B indicates that nearly 80 percent of the Bank's transport lending in the last ten years has been for roads and highways. Less than 10 percent of lending has been for railways, ports, inland waterways, airports and other forms of freight and trade-related transport infrastructure. The TSB will therefore try to diversify its 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; and to give attention to policies that will support well functioning markets in the (mainly private) services that use them.

In addressing freight and logistics more broadly, TSB will, where possible, encourage the adoption of multi-modal and corridor approaches to infrastructure investment and transport service improvement (including multi-country corridors). This will lead both to more comprehensive solutions to overall logistics challenges and higher project impact. Measurement and monitoring of corridor performance, in terms such as speed of transit, cost and reliability of freight movements, can be an important contributor to successful outcome.

Better transport infrastructure and services will be most effective in concert with other trade facilitation measures: liberal trade regulations; the availability of trade finance; insurance services; efficient and honest customs and other border services; and others. This will require working not only with transport companies but customs services, border police, health inspection services and many other agencies involved in regulating international movements of goods and people. The TSB will continue to cooperate with experts in these complementary areas as well as encouraging and contributing to concerted actions taken with international bodies such as the Global Facilitation Partnership for Transportation and Trade (Section 4.8).

### **2.3 Making Cities Work Better**

Cities are the second area where transport and development objectives meet. It is a cliché, but in most countries true, that cities are engines of economic growth. Transport systems help to keep the engine running. Cities should be centers for economic and social interaction and opportunity. Yet in much of the developing world, urban population growth is outrunning the capacity of transport systems to provide the accessibility necessary fully to exploit opportunity, or the mobility for efficient interaction. Rapidly growing private vehicle ownership and use is overwhelming the roads infrastructure in many cities, leading to increasing congestion, low mobility, and poor safety and air quality. Sound transport policies and investments are central to confronting these problems and have been described in detail in a major Bank publication, *Cities on the Move* (World Bank 2002).

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 the developed countries. Practical plans that promote and facilitate urban growth patterns around efficient public transport networks can do much to help. Yet, other than in some of the biggest cities, much of the developing world is currently characterized by little integration of transport and land-use planning, and by inadequate public transport.

Developing countries can improve cities by building institutional and regulatory structures that will help create public transport systems affordable by taxpayers and users, and that give incentives for proper maintenance, investment and service expansion. At the same time, transport demand by private vehicles will need to be managed, by physical and pricing means, particularly in those cities where incomes and car ownership are growing most rapidly, and conversely those that have least money to invest.

Many modes of public transport can contribute (often more effectively when they are integrated) to making cities work better: metro rail systems, suburban railways, trams, buses, mini-buses and shared taxis. While existing urban rail systems can perform enhanced roles, high capital costs will limit the role that new heavy rail and metro lines can play to the larger and richer cities. 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. Promisingly, Bus Rapid Transit Systems have the potential to provide high quality cost-effective public transport systems in many cities.

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

An equally important task is to provide appropriate infrastructure and basic services for pedestrians and cyclists. They make up more than 60 percent of travelers in most Asian and African cities and include the poorest travelers. Their conditions of travel are often dire and dangerous because of poorly maintained footpaths, unsanitary conditions, lack of lighting, poor security and little attention to protection from conflicts with motorized vehicles. Bank interventions in urban transport can support policies and investments that address these problems.

By 2025, more than half of the developing world's people will be living in cities (United Nations 1996). However, in the last ten years, the Bank's engagement in urban transport projects has represented in the order of 5 to 8 percent of transport lending (it is part of the General category of lending shown in Annex B). The TSB will try to increase this engagement. There is a need to cooperate with many partners in this effort; TSB is seeking to create a Global Partnership for Urban Transport with other professional groups and donor bodies that have a special interest in solving the transport problems of cities. Success will partly depend on progress made by the Bank as a whole in developing modes of direct engagement with City authorities using sub-national lending instruments.

## 2.4 Increasing Economic Opportunity in Rural Areas

In poor rural areas transport is often the key facilitator of economic improvement. Poor transport raises the costs of production and marketing. It can cause some land to be unused and limit production yields of used lands to levels below their potential. It restricts the profit margin from sale of produce, which weakens incentives to farmers to maximize production. In short, it slows efforts to migrate from subsistence to commercial agriculture. When new road access is improved to remote rural areas, the impact can be dramatic (Box 2-1).

### Box 2-1. Impacts of Roads on Agricultural Production.

**Guinea:** In areas where rural roads had been provided, the area sown to crops doubled compared to 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 (Republique de Guinee 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 50 percent in one area to 200 percent for some products in others (Evans 1990).

The economic impacts of improved access can be far-reaching. Transport improvements assist agricultural modernization, including mechanization, the use of fertilizers and use of high yield varieties. This increases demand for inputs and corresponding demand for credit. The availability of banking itself accelerates the pace of private agricultural investment. The same road that provides market access also often provides the first right of way for electricity lines and water pipes. Such impacts may lead to the transformation of rural economies, step by step, from subsistence farming to market-oriented commercial agriculture. The first step is often taken on a new road.

Moreover, investment in rural roads can provide access to labor markets, and so to the opportunity to earn non-farm 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 non-farm GDP (Fan and Chan-Kang 2004). There is also some evidence from both Latin America and Bangladesh that through such opportunities, rural roads provide a disproportionately high share of benefits to the poor (Ahmed and Hossein 1990).

It is not surprising then that poor people in rural areas view isolation as a major reason for their poverty. The TSB has sponsored a program by the Bank to measure this problem; it is summarized in an index that measures the proportion of rural dwellers who live within 2km of an all-season road. The comparisons are stark. In the richer IBRD-supported countries 94 percent of rural people live within 2 km of a rural road. In the poorest group of fifteen Sub-Saharan African, IDA-supported, countries only 37 percent live within 2 km of an all-weather road (Roberts and Shyam 2005)

Inland waterways are also a crucial transport resource for people living in delta areas and by rivers, canals or lakes. In Bangladesh, for example, around 1.5 million country boats (mechanized and non-mechanized) are used on a network of over 8,000 km of inland waterways that carry around 25 percent of the country's total freight and around 13 percent of its passenger travel. In the Mekong delta area of Vietnam, over two-thirds of freight is carried by inland waterway. Other regions where inland waterways are especially important include China, India, and several African countries. Maintaining waterways, improving navigability, building jetties and loading points in such regions provides access to markets and economic opportunity to the poor. Yet the proportion of transport investment used to maintain and improve inland waterways in such regions is often extremely low relative to their transport role.

## **2.5 Accessing Health and Education**

Five of the eight Millennium Development Goals focus on health or education improvements. Most programs that directly target these goals (programs involving schools, health clinics, nutrition programs and social services) depend on road transport (motorized and non-motorized) to underpin their delivery.

This is especially true for programs in the poorest countries. In a study in Bangladesh, out of 129 villages surveyed, those with better access were found to be better off including in health and participation of women in the economy (Ahmed and Hossein 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 enrolment 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 trebled 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 clothes washing (Levy 1999). Recent surveys by the Bank in Pakistan tell a similar story (Box 2-2).

**Box 2-2. Social Indicators in Rural Pakistan: Ratio of Indicators in Villages Without All-Weather Motor Accessible Roads Relative to Those With.**

Indicator	Ratio
Girls Net Primary School Enrollment Rate (NER)	0.66
Boys Net Primary School Enrollment Rate (NER)	0.87
Females Literacy Rate (10 years and above)	0.57
Males Literacy Rate (10 years and above)	0.83
Immunization Coverage <sup>(1)</sup>	0.85
Contraception <sup>(2)</sup>	0.63
Pre-natal consultation	0.50
Births assisted by skilled attendant	0.67
Births at home	1.07
Post-natal consultation	0.71

<sup>(1)</sup> Fully immunized 12-23 months based on recall and record.

<sup>(2)</sup> Percentage of married women of age 15-49 who ever used contraception.

Source: Essakali 2005.

Rural accessibility will remain a key area for Bank engagement in transport, as it was set out in *Sustainable Transport*. More should be done to assess the impacts of rural transport projects so as to get greatest benefit from future operations. This is particularly so because while the Bank typically finances road infrastructure in rural areas, roads do not by themselves solve the transport needs of the rural poor. The poor do not own motor vehicles and the existence of a road does not necessarily lead to the provision of affordable public transport service (Box 2-3).

**Box 2-3. The Importance Of Non-Motorized Transport In Poor Areas.**

In five districts of Malawi the motorized mobility rate was found to be less about one tenth of a trip per person per year. Over 99 percent of 'out-of-village' trips (including virtually all to health or education facilities) were made by non-motorized modes of transport (walking, cycling, animal-drawn vehicles etc.) over an average round-trip distance of nearly 20 km. Indeed the average round trip distance just to reach a motorized form of transport in these districts was over 11 km. (Hine and Rutter 2000).

The Malawi results, which are mirrored in many poor rural areas, illustrate the need to give greater attention to the use of rural roads by transport *services*. Markets for transport services can be made to work more efficiently through policy measures that have an impact on the cost and availability of equipment: import and sales taxation, import controls, transport regulations, and anti-cartel measures. But it is not only a matter of government policies. The Bank supports NGOs which often are the conduit for service innovation at the local level. Better use of appropriate technologies, including bicycles, carts, animal traction, and pick-up trucks can also have a large impact on rural access.

The Bank increasingly recognizes the complexity of issues to be addressed and actions to be taken to improve basic rural access including those involving institutions, ownership, devolution of responsibilities to lower levels of government and to communities, and financing. If the transport needs of the poor are to be addressed, non-motorized transport services need to be catered for in project design and development; in many rural areas of the poorest countries more freight is carried by people than by vehicles. Measures to remove constraints and promote public transport service coverage in presently unserved rural areas will often be necessary to get full benefit from new infrastructure. In areas with low population density and high cost of providing the service targeted subsidies may be justified when necessary and affordable.

**Box 2-4. Specific Transport Needs.**

In both rural and urban areas, specific transport needs are often overlooked in the planning for general needs. The special needs of physically disabled people and older people are important to spreading the benefits of development. Exclusion increases the costs associated with disability and constrains disabled people from breaking out of poverty. Inclusive transport requires the removal of institutional and physical barriers, as well as enhancing incentives to increase the access of diverse individuals and groups to transport opportunities. Similarly, the achievement of gender equality and women's empowerment (a Millennium Development Goal) requires that women's transport needs, which often involve different travel patterns to men, are analyzed and addressed. The TSB will try to ensure that specific transport needs are increasingly addressed in relevant transport interventions.

**2.6 Making Transport Safer and Cleaner**

Improvements in transport are essential to meeting the Millennium Development Goals, including those that target health and environmental sustainability. But not all of transport's consequences are good for health and the environment. *Sustainable Transport* emphasized the importance of environmental and social dimensions of transport. The Millennium Development Goals reinforce this concern. The TSB is concerned in particular to help reduce transport's negative role in three major health and environmental problems: road traffic accidents, vehicle emissions (with impacts on both health and global warming), and the role of transport in transmission of disease. 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.

**Road Safety**

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. They will experience the greatest growth in casualty rates over this period (Box 2-5). Road crash deaths and injuries disproportionately impact on the poor and their consequences can plunge households into poverty (Aeron-Thomas et al). Pedestrians, cyclists, motorcyclists and public transport passengers are especially at risk (Peden et al 2004). Countries that wish to improve conditions face the challenge of how to actively manage the road system to reduce accidents.

Globally, regionally and nationally there are growing concerns about these trends. In the transport and health sectors, urgent measures are being called for to reduce the growing vulnerability of communities to road expansion and rapid motorization.<sup>2</sup> These measures build on the findings and recommendations made by the World Health Organization (WHO 2004) and the World Bank in their systematic review of the global situation (Peden et al 2004). The benefits of improvement would be huge. 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, 37.5 million hospital confinements, and 175 million incidents of minor injuries (McIntyre 2004).

<sup>2</sup> UN General Assembly Resolution 58/289 (*Improving global road safety*) 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.

**Box 2-5. Regional Disparities in Road Safety.**

The road safety performance gap between poor and rich countries is widening, and this trend will continue unless new global, regional and country initiatives are taken to close it. Bank projections indicate that between the years 2000 and 2020 road crash fatalities will increase by more than 80 percent in low and middle-income countries, but decrease by nearly 30 percent in high-income countries, unless new safety measures are taken (Kopits and Cropper 2003).

World Bank Regions	Change in Number of Deaths 2000-2020	Fatality Rate (Deaths/100,000 Persons)	
		2000	2020
South Asia	144%	10.9	16.8
East Asia & Pacific	80%	19.0	21.2
Sub-Saharan Africa	80%	26.1	31.0
Middle East & North Africa	68%	19.2	22.3
Latin America & Caribbean	48%	10.2	18.9
Europe & Central Asia	18%	12.3	14.9
<b>Sub-total</b>	<b>83%</b>	<b>13.3</b>	<b>19.0</b>
High-income countries	-28%	11.8	7.8
<b>Global total</b>	<b>66%</b>	<b>13.0</b>	<b>17.4</b>

Assuring the safety of users can be made integral to the successful management of the road transport system just as it is in the management of other transport modes. Demonstrating the high economic and human costs of road crashes to mobilize support for action, together with strengthening the safety management capacity of partner countries are the most pressing challenges (Box 2-6).

**Box 2-6. Strengthening Road Safety Capacity.**

**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.

**Safety Practices:** Standards and rules governing the safety of roads, vehicles and road users should be integrated and based on best practice. Effective compliance and enforcement mechanisms require an effective mix of targeted education, enforcement and incentives, rather than relying just on education or exhortation.

**Implementation:** Legislation and funding should match the importance of the task. Accountability for leadership, coordination, promotion, performance monitoring and evaluation should be vested in a responsible agency. Safety promotion should be continuous and address infrastructure, vehicle and user elements of the problem, not just road users themselves.

As part of its contribution to global efforts, the Bank is extending its support from smaller 'one-off' road safety components embedded in specific road infrastructure projects to include larger, stand-alone road safety projects which would underpin long-term national commitment to improved road safety results across the board. This is one of the priorities for transport specified in Section 5. Cross-sector approaches to extending the road safety agenda will also be pursued: for example, hospital/ambulance components in road programs or road safety components in health programs.

**Vehicle Emissions**

Vehicle emissions have a direct and deleterious impact on the health and environmental sustainability targets in the Millennium Development Goals and will be given greater priority by the TSB in Bank interventions in the years ahead (Section 5).

The most immediately damaging air pollutants to human health that commonly occur in urban areas are lead, small suspended particulate matter, and, in some cities, ozone. Local air pollution in developing countries contributes 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. Several Bank transport projects, in the urban sector in particular, are now leveraging resources from the Global Environment Facility<sup>3</sup> to pursue initiatives aimed at reducing harmful vehicle emissions.

More broadly, motorized transport also currently contributes about 30 percent of total emissions of the carbon-based gases which are believed to contribute to global warming. As signatories of the Kyoto Protocol, most countries have made commitments to reduce these greenhouse gas (GHG) emissions. In the first instance the focus has been mainly on the reductions possible through the technology of power generation and large industrial processes. Because of this, and the high growth in transport demand, transport is now the only sector from which emissions of greenhouse gases are still expected to increase across the world. Accordingly there is increasing focus on the opportunities for reducing GHG emissions from transport. (Box 2-7).

#### **Box 2-7. Vehicle Emissions, Greenhouse Gases and Energy Efficiency.**

The process of reducing GHG emissions is encouraged by the opportunity to trade incremental savings. If such savings are confirmed by measurement according to an agreed process, their trade value can be recovered from the Carbon Fund which has been established for this purpose.

The high concentrations of motor transportation in urban areas make these particularly attractive prospects for GHG savings. Relatively low cost interventions which manage transport demand to reduce congestion, replace private car use by public transport, or reduce motorized transport in favor of non-motorized modes are being targeted. Opportunities for capturing other savings, such as reductions in fuel consumption by maintaining the road network in better condition, are also being explored.

There has also been significant progress, particularly in Europe, Japan and Australia, in improving the efficiency of fuel use and hence reducing the consumption and the emission of pollutants in relation to the unit of travel. The strategies to improve fuel efficiency include: improvements in current engine efficiencies; alternative engine technologies; changes in the use of motor vehicles; switch to public transport use; more effective routing and operation.

Efficient use of motor fuels is encouraged by the high levels of taxation which are imposed in many countries. In addition an increasing number of countries are requiring higher standards of fuel and engine performance.

### **HIV/AIDS**

Since *Sustainable Transport* was written, research has highlighted how better transport increases the mobility of disease as well as of people. There is evidence linking new transport routes to the spread of communicable diseases, such as HIV/AIDS (World Bank 2003). This is due not only to a general increase in personal travel but also high-risk behavior of transport sector workers such as road construction workers, truck drivers and other transport suppliers in the informal sector. HIV/AIDS is creating an enormous human and economic burden: one small but significant part of that burden is to reduce productivity and increase the costs of transport itself.

Mitigation strategies are being adopted as an integral part of World Bank highway improvement projects, particularly in Africa: for example, anti-HIV/AIDS obligations of contractors are now included in standard bank bidding documents. One project, the HIV/AIDS Abidjan-Lagos Transport Corridor Project, active since 2004, has been entirely designed around the concept of using the corridor as means and focus for providing active awareness, prevention and treatment services to corridor users, truck drivers and border communities. Such approaches will be more widely applied over the next few

<sup>3</sup> <http://lnweb18.worldbank.org/ESSD/envext.nsf/45ByDocName/WorldBank-GlobalEnvironmentFacility>.

years as part of the contribution that the transport sector can make to fight this devastating disease of which it is both a conduit and victim.

## 2.7 Measuring Results and Sharing Knowledge

There are deficiencies in international statistics about the performance of transport infrastructure and services generally. The Bank as a whole has also accepted the need to put more effort into measuring the results of its own development intervention (OPCS 2004). Measuring the physical and economic performance of the transport sector is challenging but the Bank has made a start in the roads area. 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.

In its day to day transport work, the Bank can better use its existing project appraisal and monitoring systems to give more attention to specific intermediate development targets that can be cost-effectively measured. 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 that use them 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 (Box 2-8). Despite the difficulties, well-designed research can improve understanding of how various linkages to growth work and so how they might be strengthened.

### Box 2-8. The Impact Of Transport On National Economic Growth.

Why is it so difficult to measure impact? First, there are at least four steps between cause and effect: (i) transport infrastructure (that forms the majority of Bank-supported investment) facilitates (ii) further supply activity (freight and passenger transport services) which serves (iii) market demands (trade and travel) which are themselves at least one (and usually more) steps away from (iv) economic growth. Second, we do not fully understand all the conditions necessary to trigger these various steps, and the time involved in the leads and lags between them (or indeed if they are stable). Third, we would also expect reverse links from growth back into transport demand and investment.

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 satisfactorily met.

One of the most thorough reviews of evidence concerning the relationship between transport and economic growth concluded that any statement about the nature and significance of these relationships requires a caveat 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). The TSB shares this view.

Knowledge of how transport performs, the results it can achieve, what works (and what doesn't work) 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 TSB has played its part in generating and sharing knowledge products both at central and regional levels: Annex A indicates some of the many products of this effort.

A recent review of the Bank's knowledge sharing activity by its Independent Evaluation Group (OED 2003) confirmed the importance of this aspect of the Bank's work, but also stressed the need generally in the Bank for better alignment of knowledge activities with operational needs; and by extension, the need to better embed the outputs and innovations of knowledge into design and conduct of transport interventions. It also advocated better dissemination to empower partner countries to meet their development goals.

While transport knowledge sharing has been substantial, both improved results measurement and focused knowledge sharing have been selected in Section 5 as priorities for further attention in the sector.

### 3 TRANSPORT GOVERNANCE AND DELIVERY

#### 3.1 Governance: The Foundation for Good Transport

It was emphasized in *Sustainable Transport*, and in Section 1 above, that transport performance is not just a matter of physical investment. Transport that contributes positively to development and that is safe, clean and affordable also depends on sector governance. The government (and its agencies and sub-national governments) must make the crucial decisions and play the key roles in transport sector governance. The main roles are as policy maker, custodian of public assets, economic regulator, technical regulator (for example, of safety, security and the environment), and sometimes customer (Box 3-1).

##### **Box 3-1. Public Sector Governance in Transport: The Key Roles.**

**Policy maker:** discerning public interests in transport and translating these interests into the legal, institutional and regulatory frameworks governing transport administration;

**Custodian:** maintaining good stewardship of public assets including deciding how they should be financed, operated and maintained (either through state operators or private managers or concessionaires);

**Economic regulator:** administering conditions (if any) of market entry to the various parts of the transport industry; and if justified by public policy, influencing level of service, prices and other economic attributes (or deciding to leave these to competitive forces);

**Technical regulator:** in areas such as safety, security and environment - establishing standards, compliance mechanisms and investigatory process and responsibilities;

**Customer:** purchasing transport services on behalf of particular community groups (for example, through subsidizing transport for commuters, or for students, or for poor areas, or for poor people).

***The execution of some of the regulatory responsibilities can sometimes be beneficially delegated to or contracted to specialist agencies, such as independent regulators or professional or industry associations.***

Governance is not just about what governments do, but how they involve civil society in what they do. Good governance is transparent governance. Nearly all transport policies, plans and systems impinge upon a wide range of user and community groups. Consultative and/or participatory mechanisms are essential to gaining all the information and perspectives necessary for good decision-making.

Many Bank interventions in the transport sector try to contribute to improvement in specific areas of public governance, including policy dialogue and advice, capacity building, financial and information systems development and others. Some of those issues involving safety and air quality, and actions against transport induced spread of disease, have been highlighted in Section 2.6.

This section deals with a number of key governance issues faced by governments in the transport sector at the present time, and which will underpin much of the Bank's evolving work in transport over the next few years. These themes have, since *Sustainable Transport*, been central to the Bank's work in transport and will remain so. One of them, involving the fight against corruption, will be given increased attention. They are:

- determining public and private roles in transport delivery;
- improving the performance of state-owned enterprises;
- preserving public assets;
- attracting participation of the private sector;

- utilizing competition and economic regulation;
- fighting corruption.

### 3.2 Public and Private Sectors in Transport Delivery

While transport sector governance is a public sector responsibility, transport delivery is everywhere shared by both public and private sectors. Country differences in the balance by which public and private sectors contribute to transport delivery stem from history, culture, and circumstances. The TSB is mindful of the need to respect alternative policy approaches (Amos 2004).

International experience suggests that transport services have been a more straightforward area for policy choice. Transport service suppliers such as airlines, stevedores, shipping lines, barge companies, road haulage companies, bus and taxi companies, freight forwarding and logistics companies are primary users of transport infrastructure but often separable from it. Public sector delivery in these areas has usually been disappointing. Many publicly-owned transport services companies would not survive in competitive markets without Government protection or support. The TSB generally advocates private operation of transport services within competitive (or periodically contestable) markets; and if competitive pressures are limited, then within a regulatory framework that protects public interests from misuse of market power. Regulations to ensure that transport is safe and clean will be required whether assets are under public or private ownership. Overall affordability is more likely to be achieved through efficiencies brought about by competition between private suppliers, with government acting as customer when appropriate (for example, in public passenger transport) to contract for specific services for the poor.

Transport infrastructure is a more contentious area. As with transport services, an enduring challenge for state-owned infrastructure companies is how to maintain adequate efficiency incentives. On the other hand, there are attributes of transport infrastructure that have caused many countries to be uncomfortable with fully private ownership or free-market operation. These attributes have included the presence of natural monopoly (such as in rail and waterway networks); or the existence of market power due to exclusive location (some ports and airports); or the practical or economic difficulty of recovering costs from user charges (road networks, waterways, passenger railway networks, metro systems); or the long-term and risky nature of many forms of transport infrastructure that often has long payback periods and is not necessarily attractive to private investors. Moreover in some countries there is also a strong public perception that 'common user' transport infrastructure is part of the public estate (or patrimony), which is better run for the public good rather than for commercial gain.

Public ownership of transport infrastructure is a legitimate public policy choice; indeed it could be said to be the norm. The public sector internationally remains the owner and usually the manager of nearly all the world's roads, inland waterways, navigable airspace, shipping channels, most of the basic port and airport infrastructure, metro and tram networks, and most national railway infrastructure (including nearly all railways that have a strong passenger role). The TSB will remain engaged in how to help partner countries improve the management capacity and operating efficiency of publicly-owned transport enterprises (Section 3.3). But there are also ways for governments, as custodian of such assets, to benefit from greater private sector participation in their management and operation, and in investment and financing. When potentially beneficial to development goals such options will continue to be encouraged in the Bank's dialogue with partner countries on their transport policies (Section 3.4).

Transport infrastructure and transport services are sometimes provided in one vertically integrated operation. This can have the effect of extending a natural infrastructure monopoly into a potentially contestable transport services supply market. Partner countries may therefore find opportunities for performance improvement through separation of infrastructure and services: for example, the separation of stevedoring from port infrastructure, of ports from shipping companies, of national airlines from their host airports. In these cases both private participation *and* competition in transport services have been facilitated to the benefit of users, while leaving the basic infrastructure under public control.

Railways (and other fixed track systems such as metros and trams) are less straightforward. The technological, operational and economic interfaces between the track infrastructure and the transport

services that use it are not necessarily benign, and require active management (the higher the capacity utilization, the more challenging the management). Vertical separation between the institutions that manage railway infrastructure and those that manage train operations typically adds complexity, administrative and regulatory burden, and economic costs to manage the interfaces. On the other hand, in favorable market circumstances and with complementary policy measures, separation can provide a structure that will support more specialized train operating companies; or increased competition within rail transport markets (particularly freight); or private sector participation in the delivery of rail transport services (through use by private sector of access rights or private concessioning of state-owned train operations). Vertical separation in railways is therefore not desirable as an end in itself, but can be valuable as part of a wider package of structural reforms, for which a pragmatic case by case assessment of cost and benefit needs to be made.

### 3.3 Improving the Performance of State-Owned Transport Enterprises

Given the heavy public sector involvement in transport, particularly infrastructure, the majority of the 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.

As noted above, the efficiency incentives of state-owned transport businesses can be weak. They face many constraints on performing to their best. The many different and changeable pressures and interests that bear on governments can filter down to conflicting and changeable management objectives. This leads to lack of constancy in commitment to goals. Fluctuating national budgeting processes can also undermine business and investment planning. Public service norms and procedures can lead to commercial inflexibility. Senior management positions in State-owned enterprises are often the subject of political patronage rather than selection on merit.

#### **Box 3-2. Public Transport Subsidies.**

Reforming state-owned public transport enterprises will not always mean they will become independently profitable. There are very few countries in which some elements of passenger public transport are fully commercially viable. Fixed track passenger systems such as railways, metros and tram systems rarely cover their full costs if the cost of capital and right of way are fully accounted. This does not mean that they cannot be economically beneficial and perform a valuable transport role.

Budgetary support of passenger transport services is an issue of public policy choice, but public finance constraints in most developing countries mean that subsidies cannot be kept going; unstable funding then typically leads to poor service and inadequate investment. Budgetary support should not simply be a question of picking up the bill for whatever losses occur, but should be based on specific support aims and criteria, allied to efficiency incentives. Even then, without competition, subsidies can end up benefiting the companies who provide public transport and their 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 meant that costs have been high and the quality of services low. Controlled fares have sometimes resulted in increasing losses for the public transport provider and progressive deterioration through failure to invest.

New models of delivery can make public transport more affordable for a given or lower overall 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. A model in which municipal government sets policy and regulation, and services are supplied under competitively tendered passenger services contracts (or concessions) by private operators, will usually serve cities better. This may involve competitive bidding to supply a specified service in return for a contractually agreed subsidy (negative tendering), or other value for money approaches such as bidding to provide highest service level for a given subsidy.

Reform usually involves, amongst other things, creation of distance between the policy and regulatory functions of government and the commercial functions of business management. Corporate governance can then be improved by supportive measures which, depending on circumstances, might include creation of a board (rather than government department) to direct the enterprise, management selected on merit, and use of commercial rather than departmental accounting methods. Arm's length supervision also facilitates more transparent oversight of safety and environmental

performance, which can be more easily swept under the carpet when government departments are responsible both for regulatory and commercial functions. Management of separated enterprises can be strengthened by corporate structures that reflect individual business segments, with segmented accounts and business plans. Divestment of non-core activities can also improve results if followed by competitive outsourcing of the divested activities.

While it is easy to delineate the principles, restructuring of any large enterprise is very complex, and politically and industrially sensitive. Future interventions in transport that involve reform of state-owned enterprises will take account of lessons learned (Box 3-3). Bank financial support can sometimes realistically only be justified in the context of a parallel reform program. It is not in the long-term interests of partner countries and their citizens to provide funding that simply perpetuate non-performing institutions, without the structural reforms and capacity building that can create enduring improvement.

### Box 3-3. Reforming State-Owned Transport Enterprises: Lessons Of Experience.

1. To restructure 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 political process, industrial consultation and the need to overcome organizational inertia are likely to be frustrated.
2. 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 managements can deliver the goods. Close attention therefore needs to be given to investing in the actual process of business change management, attraction of the best skills and experience, creation of commercial culture and incentive structures, and so on.
3. 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.
4. Public enterprise reform **is not a 'fire and forget' process**. Good public custodianship requires explicit supervisory and monitoring mechanisms. It is often the processes of public governance that need to be reformed as much as, if not more than, the enterprises themselves.
5. 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 adaptable industry.

The Bank's mode of engagement in transport sector reform is being reconsidered and this is reflected in the priorities in Section 5. Traditionally, sector reform has often been sought by applying sector reform conditions to individual loans ('conditionality'). TSB's experience in this regard has been much the same as that for the Bank 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 World Bank 2004). Country ownership rather than conditionality is the key to change.

Well-designed project conditions that are within the power and capacity of the beneficiaries to implement can help them both 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 try to impose conditions that are outside the sphere of responsibility of the beneficiary organizations or that require policy changes that cut across the grain of national policy. Single investment loans should not normally carry these wider sector policy conditions unless these are truly essential to the success of the investment itself.

Sound policy and governance in transport nevertheless remain paramount and 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 (covering a series of investment loans) to sustain relationships with clients over longer periods. These relationships can be used to help build a stronger policy framework, scale up individual pilot initiatives, allow time to develop wider relationships involving safety and

environmental programs, and focus on longer-term outcomes. Program approaches will also permit a more effective use of Bank resources and expertise.

### 3.4 Preserving Asset Value

The developing world's transport infrastructure represents an enormous asset. The value of the road network alone in the Bank's regions of operation is of the order of USD 2 trillion.<sup>4</sup> Many transport infrastructure assets have extraordinarily long-lives if they are maintained. Transport infrastructure that is not maintained deteriorates; in some cases very slowly but in others (such as road systems in adverse climates) quite rapidly. In their role as custodian of public assets, governments will typically try to apply principles of good stewardship to managing and maintaining transport infrastructure that has been accumulated over the past and that usually has inter-generational value. Poor stewardship can create an increased capital liability in the future.

Assets that are managed by revenue earning enterprises (such as ports, airports, air traffic control systems, railways, etc.) generate internal funds which usually contribute at least some of the funds needed for asset maintenance. However, some forms of transport infrastructure are typically not provided within a commercial or quasi-commercial framework but rely almost wholly on budgetary subventions. In these cases the custodial role of the state translates into a direct funding role for its governments at national or sub-national levels.

One of the biggest development challenges in transport is to try to ensure that road maintenance is allocated the attention and resources it needs. The transport sector has no right to expect it will be first in the queue for public resources. But road maintenance appears to be particularly prone to budget vicissitudes as the pain of cuts may not be so immediately seen or felt as many other areas of public expenditure. Moreover, expenditure on building new roads often carries the attraction of greater political visibility than the more mundane task of maintaining what is already there. In the eighty-five countries that had received World Bank 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). One of the enduring priorities for the Bank, since *Sustainable Transport* and also in the future, is therefore to work with partner countries to improve the sustainability of road infrastructure assets. This can be pursued through use of asset management tools, more effective institutional approaches, such as output-based contracts (Box 3-4), and more stable financing mechanisms.

#### **Box 3-4. 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. As a specialist application of the concept of output-based aid such contracts are established on a multi-year basis and pay the 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 deliver improved asset management and better value for money than traditional approaches to road maintenance.

(See Website on Global Partnership on Output-based Aid: <http://www.gpoba.org/>)

Road Funds have been helpful in some countries in securing for road maintenance, more stable funding sources such as fuel and or vehicle taxes levied on road users. Road Funds should be seen as part of much wider framework for reform of roads administration, not simply a dedicated funding source (either within or outside the general revenue budget). As in other areas of public enterprise reform, the main objectives should be on better and more transparent governance, sound financial management, and efficient capital and maintenance operations. Dedication of direct and indirect road user charges in the form of vehicle registrations, fuel levies, road tolls and (with evolving technology) area road pricing, can form a crucial feature of such an approach. A more detailed evaluation of Road

<sup>4</sup> Extrapolating from estimates made for Latin America and Africa (Fay and Yepes, 2003; Heggie and Vickers, 1998).

Funds and their conditions for success has been made by the Bank's Independent Evaluation Group (OED 2005).

### 3.5 Increasing Participation of the Private Sector

When *Sustainable Transport* was being written in 1996, some people thought that private investment would in future 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 they were right.

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.<sup>5</sup> During the fifteen year period 1990 to 2004 it showed early growth but subsequent decline of private investments in transport. The peak was in 1997 with total 'expected' investment of USD 18.4 billion. This had steadily dropped to USD 2.9 billion in 2003 with a slight recovery to USD 4.4 billion in 2004.

These data, though the best available, tend to give an optimistic view of the extent of private investment.<sup>6</sup> In the fifteen years to 2004, only six countries accounted for nearly 80 percent of the total investment shown: they were China (18 percent), Brazil (16 percent), Malaysia (11 percent), Mexico (11 percent), Argentina (11 percent) and Chile (10 percent). In most of the other one hundred-fifty or so developing and transition countries, new private finance for transport infrastructure has varied from little to none.

The public sector will continue to be a major owner and operator of basic transport infrastructure throughout its regions of operation. Nevertheless, TSB supports the reinvigoration of efforts to attract increased private sector participation: to attract management skills, improve operating efficiency, and impose market discipline on project delivery and operations. Private participation can contribute new financing sources that can be vital for poor countries.

There are many models for increasing private sector participation in transport infrastructure and services. They can include management contracts (such as the example given in Box 3-4), lease contracts, franchises and concessions, or full privatization. They can include construction of infrastructure and/or its operation and/or its financing. They can relate to existing facilities or to new 'greenfield' facilities. Each case needs to be considered on its merits, and in the circumstances that obtain.

There is a substantial literature published by the Bank on private participation in transport.<sup>7</sup> It is sufficient here to note that, amongst other criteria, private or combined public-private transport projects that are supported by the Bank on development grounds should meet the standards of safety, environment and affordability to the poor that would be applied under any alternative structures.

### 3.6 Competition and Economic Regulation

The benefits of competition are as real in transport as elsewhere. Competition creates incentives to managers to meet market needs at least possible cost, and it encourages them to innovate to obtain market advantage. This is true both of competition between, and within, individual transport modes. Experience clearly favors competition 'in the market' in most kinds of transport services (such as shipping, airlines, stevedoring, road haulage, freight rail services, freight forwarding). There are also many types of transport infrastructure in which competition can often be beneficially sustained (such as between container ports or between different rail freight suppliers).

<sup>5</sup> The PPI database can be found at <http://rru.worldbank/org/ppi/>

<sup>6</sup> 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 IFI's and bilateral agencies: thus not all the finance recorded is private finance. The projects are heavily concentrated in very few countries.

<sup>7</sup> See Annex A for key resources.

Nevertheless, wholly free competition in the market is not always possible or beneficial. Some transport infrastructure displays features of natural or locational monopoly. Sometimes, transport markets are too thin or too small to sustain effective competition. Some transport concessions also actively create exclusivity, either to underpin long-term investments (particularly in infrastructure concessions) or to promote a particular pattern of service (such as in passenger public transport service contracts or franchises). Where some measure of market exclusivity can be reasonably justified, the TSB supports periodic competition 'for the market' through a transparent and competitive bidding process.

Public interests in competitive and exclusive situations can both sometimes be strengthened by regulatory process. *Sustainable Transport* stressed 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 operator, regulation may be required to oversee abuse of market power. Regulation may also be required to give the parties to concession agreement (both public and private sides) confidence in their contracted rights and obligations.

Therefore competition and economic regulation both play a part in establishing an efficient transport system that meets public needs. Box 3.5 summarizes approaches to key issues which the Bank will continue to support in this area. More detailed discussion of these issues, with examples, can be found elsewhere (Estache and de Rus 2000; Estache and Serebrisky 2004).

#### **Box 3-5. Issues in the Design of Economic Regulations in Transport.**

**Independence:** Economic regulation is a public sector role but experience suggests advantages in its delegation to an independent agency, rather than regulation by a government department. This is especially important in markets where government is conflicted by virtue of its ownership of one of the players (for example, by owning a shipping company or airline); or because it is a customer (for example, as 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 PPP agreement).

**Location:** The issue is whether transport economic regulators should be established in mode-specific organizations, or for the transport sector as a whole, or within economy-wide regulatory bodies. TSB 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 to 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, consultation processes, appeals procedures, and so on.

As in other areas of governance, economic regulation that suppresses the functions of markets needs to be well-considered and proportionate. It is important to avoid knee-jerk regulatory responses to each and every market imperfection that may arise. Economic regulators, like markets, will be imperfect: they may be costly, ineffective, or influenced by special interest groups. It is therefore important to justify regulation by reference to its expected benefits relative to its costs (both direct and indirect). Competition does not need to be perfect to be effective. And some customers, particularly in freight transport, have sufficient countervailing economic power to protect their own interests against infrastructure suppliers.

### **3.7 Fighting Corruption**

In many countries the transport industry is a victim of corruption. Transport companies in some countries have to pay a variety of bribes to vehicle inspectors, traffic police, customs agents and others to keep their businesses running. This can add significantly to transport cost for their users. At the same time, some of these bribes may facilitate defective vehicles or encourage overloading, which

have an adverse impact on safety and environment. Either way, corruption in the sector will tend to make transport less safe, less clean and for the community as a whole, less affordable.

In countries where such corruption is prevalent, there is no evidence to suggest that the transport sector is especially corrupt when compared to other sectors. But as the Bank 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.

Closer to home, the Bank's loans for transport projects often finance large infrastructure and/or equipment supply contracts. They can be targets for corrupt procurement practices. The TSB is contributing to wider Bank efforts in the infrastructure area to fight corrupt practices. It is contributing to the development of new good practice procurement guidelines; will help update and publish an Infrastructure Contracts and Licenses database that will make certain business relationships transparent; and evaluate and disseminate the corruption risk characteristics of alternative market and regulatory models. In the transport sector it will specifically assess construction costs and quality under various public contract types and award processes, and to explore options for making public private partnership arrangements in highway provision less prone to corruption.

## **4 REGIONAL AND GLOBAL PERSPECTIVES**

### **4.1 Regions, Diversity and Partnership**

The aims that drive the Bank's interest in transport (Section 2) and the policy and governance issues that confront it (Section 3) have relevance and application across the Bank's regions of operation. There are, of course, differences in the degree to which particular transport issues bear on specific countries and regions, reflected in different emphases in Bank response. These differences partly depend on stage of development and partly on a range of other local circumstances.

In the poorest, generally IDA-assisted countries, the main physical and policy challenges remain how to meet the basic needs of the poor, in both physical and policy terms, and how transport infrastructure can help create or improve markets for their products. By contrast, most Middle Income Countries have proven successful in raising their level of access, trade and development beyond these thresholds, and many 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. Bank advice and products should be structured accordingly to help reinforce the economic success they have achieved while not neglecting the considerable pockets of poverty that remain. This implies programmatic approaches to lending; more dependence on countries' own systems of project appraisal; use of more diversified financial products; and provision of analytical and advisory services relevant to their more advanced level of integration into the world economy.

But conditions differ in every country and region. This section provides a snapshot of some of the more pressing issues in transport in each of the Bank's regions of operation. The issues illustrate elements of both diversity and commonality within and between regions. The section also highlights the specific regional relationships that the Bank is building with development partners to co-ordinate donor responses to transport challenges. It also identifies those common issues for which global relationships between the Bank and other parties has been adopted in transport as necessary and complementary to regional initiatives. Key region-specific publications in transport in the last ten years are listed in Annex A.

### **4.2 Africa**

Poor transport infrastructure and services in Sub-Saharan Africa<sup>8</sup> are a serious obstacle to poverty reduction. Two thirds of Africa's rural population who are some 300 million of the world's poorest people, do not have reliable access to an all-weather road. They are locked into subsistence living cut

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<sup>8</sup> 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.

off from health care and education. This is one of the reasons why the region may have difficulties in meeting the Millennium Development Goals.

Transport imposes a high burden on Africa's economic development. The region contributes to 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.

There are many reasons for high 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. Thin markets also make it difficult financially to justify investment to overcome railway and port infrastructure deficiencies or in new transport handling technology. Surface traffic flows in many transport corridors in Africa also tend to be unbalanced by direction, with lack of back-loading adding to transport cycle costs to/from ports. These disadvantages have often been exacerbated by weak governance and management.

Poor road asset management is a particular problem. Since the 1960's, many African countries have lost around half of their road network (and especially their rural roads). Part of the answer is to help strengthen transport administrative and management capacity. 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 a need for fostering and improving country-led capacity building within sector programs such as transport. This is necessary too in road safety, 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 2.5).

Poor transport is not the cause of military conflict, from which Africa has suffered severely. But it can help to lessen vulnerability to future conflict by reducing isolation and improving regional integration and it can help re-build economies in post-conflict countries. Transport can play a key role in social, economic and political integration, 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 (and other donors) have recognized this and are providing support to the transport systems of post-conflict countries such as Democratic Republic of Congo, Angola, Rwanda, and more recently Sudan.

In recent years the nature, number and size of the Bank's transport lending operations in Africa has been increasingly aligned with poverty reduction programs. This means improving access to rural areas where poverty is predominant. But there is also a need to help Africa share the benefits of regional and international trade through better transport and logistics infrastructure. This will require greater investment and managerial capacity than available to the public sector. The Bank has therefore promoted private-public partnerships in ports, railways and airports. While many problems remain in securing adequate funding for long-term railway asset renewal, railway concessioning has, in most cases, improved the efficiency, reliability and security of transport and reduced budgetary burden (Bullock 2005).

There is a continuing focus in Africa on how to lessen the impact of transport (and particularly transport improvements) on HIV/AIDS. The Bank is also increasingly involved in air transport safety in Africa, which is critical to the development of air freight transport, tourism and inward investment. And it is working on projects that enhance transport logistics along multi-modal corridors, especially from African seaports to landlocked countries.

A key partnership in all this work is the Sub Saharan Africa Transport Program (SSATP),<sup>9</sup> a trust-funded partnership that has invested over the last fifteen years in the creation and sharing of knowledge and ideas. SSATP sponsored the inclusion of local and regional 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

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<sup>9</sup> SSATP Website at

<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/AFRICAEXT/EXTAFRREGTOPTRA/EXTAFRSUBSAHTRA/0,,menuPK:1513942~pagePK:64168427~piPK:64168435~theSitePK:1513930,00.html>.

achievement of the Millennium Development Goals. Another key relationship is with the New Economic Partnership for African Development (NEPAD) which the Bank has supported in the implementation of regional infrastructure projects including in air and road transport. The Bank works too with the African Development Bank, the European Union and others, and supports the Africa Action Plan (World Bank September 2005) in policy and project coordination.

### **4.3 East Asia and Pacific**

This region has grown at an average annual rate of over 7 percent for the past 15 years: countries such as China, Thailand, Malaysia, and more lately Vietnam are development success stories, experiencing dramatic reductions in poverty. International trade is the main driver of growth; the region has the highest trade to GDP ratio in the developing world – almost 75 percent. The transport industry has clearly performed well in many countries in facilitating such a rapid growth in trade. But economic growth and rising incomes are creating demands for travel and transport that are outpacing transport capacity in many countries, threatening a constraint on future growth.

Aggregate performance also masks wide variations across the region. For example, in Thailand and China, more than 90 percent of roads are paved, compared with less than 20 percent in Laos and less than 5 percent in Cambodia. China has built-up the most heavily utilized national railway network in the world while Cambodia's is now barely used at all.

At present 1.1 billion people in East Asia (60 percent of the total) still live in rural areas. Rural access still needs to be improved in low income countries (Cambodia, Vietnam), land locked 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, north east Thailand and Mindanao in Philippines).

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 air pollution will add to health problems.

In many countries in the region reforms in sector governance are important to maintain progress. In those particular 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 will increase its support to the Greater Mekong Sub-region, an initiative that it is hoped will lead to better transport and trade facilitation policies and investments to promote trade between the countries of the region. It is also looking to support the recent ACMECS<sup>10</sup> initiative that now includes Cambodia, Lao PDR, Myanmar, Thailand and Vietnam and that seeks to bridge the economic gap between the member countries.

National level lending and analytical work will be supported by urban and provincial transport activities focused at the sub-sovereign level. At the community level sustainable rural transport agenda will be promoted with strong emphasis on poverty targeting. Even within this broad pattern, and as in other regions, diverse country experiences will call for tailored responses (Box 4-1).

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<sup>10</sup> Ayeyawady-Chao Phraya-Mekong Economic Co-operation Strategy (November 2003).

**Box 4-1. Tailoring Responses To Needs: East Asia And Pacific Region.**

**IDA (poorest) countries:** in these countries (for example, Laos, Cambodia, Vietnam, 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, 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 roads development, advice on private participation in urban mass transit and toll roads, service regulation).

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

**4.4 Europe and Central Asia**

This region of operations is fragmented and 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, Russia, to some of the smallest, such as Moldova and Armenia. The common thread that runs between them<sup>11</sup> 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 written in 1996 these economies have continued to evolve from ones in which central economic planning heavily influenced (and in some cases almost entirely determined) the role, scale and resources devoted to various parts of the transport system. 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.

Most countries in the region have therefore embarked on or achieved far-reaching structural reforms in their transport sectors, but the drivers of change have differed across the region. Eight of the countries are now members of the European Union and several others aspire to membership. Transport policies in Central European countries and Turkey have adopted or are adopting European Union approaches. The former Soviet Republics of Central Asia and of the Caucasus (Azerbaijan, Georgia and Armenia) are adapting 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 attending the break-up of Yugoslavia. Russia and Kazakhstan have faced the bracing transport challenge of a resources boom. The region includes both middle and low income nations. Some countries have experienced impressive economic growth, while poverty, inequality and unemployment remain high in others.

By comparison with other Bank regions of operation, many of the transition countries already had a substantial base of transport infrastructure. Reduced investment in transport infrastructure was an inevitable response to declining traffic levels during the 1990's, as economies declined and then restructured. But the investment hiatus has led to assets that are often technologically outdated and deteriorating in quality. All countries in the region now face quality and technology deficiencies, and big maintenance backlogs in their transport infrastructure. Some face serious capacity bottlenecks at key locations.

There are also many common priorities in sector governance which include encouragement of more competition in the sector, reform of state transport agencies and enterprises, disposal of obsolete

<sup>11</sup> With the exception of Turkey.

assets, better targeting of subsidies, decentralization of network management, encouragement of private sector participation, regulatory reform and higher environmental and social standards.

Because many of the countries in the region are small, transport development will require transnational initiatives. Robust trade and transport facilitation measures are necessary, for example, in both South-Eastern Europe and in Central Asia to complement national reforms. Cooperation between the different border agencies, the transport authorities, and transport service providers along international transport corridors is urgently needed to reduce border delays, streamline transport operations and facilitate trade. The Bank is active in international regional integration forums such as the Stability Pact for South East Europe. The Bank 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. Transport projects have also been co-financed with the European Bank for Reconstruction and Development in Poland, Romania, Bulgaria and Croatia.

The Bank expects to focus increasingly on promoting trade growth and regional integration through highway improvements, railway modernization and multimodal corridor transport development. But with car ownership increasing rapidly, traffic congestion is also a pressing problem in many cities such as Moscow, Istanbul, Warsaw, Bucharest, Kiev, Belgrade, Baku and Tbilisi. Demand for advice and products for urban transport development is also likely to increase.

#### **4.5 Latin America and Caribbean**

Latin America is already one of the most urbanized regions in the world. Nearly 40 percent of urban dwellers live in poverty - the highest rate in the world. Up to a quarter of them live in crowded slums with limited basic services and few transportation options. Expanding physical infrastructure (footpaths, bikeways, bus routes, and roads) into poor settlements, and providing affordable mass transit, is fundamental to improving their access to jobs and everyday lives.

At the same time, the region has a relatively high motorization rate, with a high concentration in the cities, that results in congestion and pollution. This is aggravated by topographic and meteorological conditions in cities such as Mexico City and Santiago, but the 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 crucially interested in how 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. But much remains to be done.

The Bank is supporting many of the initiatives: the implementation of affordable Bus Rapid Transit systems targeted to the poor (Colombia and Peru); the modernization of urban and suburban rail systems (Argentina and Brazil); the coordination of land-use and transport policies (Chile); the introduction of sector reforms to reorganize the provision of urban transport services and reduce negative environmental impacts (Chile, Mexico); the 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 is also helping in the search for better air quality and reductions in greenhouse gases throughout the region, using resources from the Global Environment Facility. The Bank will continue to target city transport improvements in this region.

Despite the increasing urbanization of poverty, sixty-five million rural people are still poor. Rural poverty rates exceed 70 percent in Bolivia, Guatemala, Honduras, Nicaragua, Paraguay and Peru. Many other semi-urban dwellers live in fringe settlements that are located at very long distances 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 socio-economic 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.

More broadly, the region needs to invest more in transport infrastructure and to ensure it gets good value from that investment. Total investment in transport has halved over the last two decades (Fay and Yepes 2003). As a percentage of GDP it has diminished to about a third of its mid-eighties' level (Calderon and Serven 2003). This is mainly due to reduced public investment following the fiscal adjustment measures that have followed 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 the region are significantly higher than in the industrialized world and many competing developing regions. Reducing transport and logistics costs is fundamental for Latin America to take advantage of trade liberalization and facilitation measures. The Bank is supporting partnerships such as the South American Regional Infrastructure Integration Initiative and the Central American Plan Puebla–Panama through increased attention to the contribution of transport and logistics to competitiveness.

Because of the tight fiscal constraints, the main challenge for the Bank in this region in the next few years will be how to encourage higher quality and more productive investment in the maintenance, rehabilitation and enhancement of roads and other transport infrastructure. Some ways in which this is currently being approached and will be further developed are summarized in Box 4-2. In the Caribbean particular attention will be given to the international market access afforded by maritime and aviation links and the logistics, port and airport infrastructure needs to support these links.

**Box 4-2. Latin America: Helping to Get Best Value for Transport Investment.**

In response to fiscal constraints, the Bank is contributing to country efforts to get better value for money from transport assets through management programs (Argentina, Uruguay, Bolivia) that seek to increase expenditure in high-impact areas. Efficiency is being improved through innovative approaches to private sector participation such as multi-year performance based contracts and use of micro enterprises for routine maintenance. The Bank has engaged more actively in analytical work aimed at increasing efficiency in public expenditure in the transport sector (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 (Chile, Guatemala, and Peru). It is also using innovative products such as Partial Risk Guarantees for promoting private investment in transport infrastructure (Peru).

#### 4.6 Middle East and North Africa

In the years following *Sustainable Transport*, the Bank's transport portfolio in this, the smallest of the Bank's regions of operation, remained relatively stable. However, there is a re-emerging demand for financing to develop transport infrastructure, with recent engagement in the transport sector in Egypt, Iran and Iraq, and new demand for support of efficient logistics services in Morocco, Tunisia and Jordan.

For most countries in the region, accelerating economic growth and creating jobs are the top development priorities. World market share has been lost in many export sectors: non-oil exports represent just one percent of world trade. Better transport services and trade logistics will, with other trade facilitation policies, improve economic competitiveness and integration with the international marketplace. Emerging trading blocks, such as the Euro-Mediterranean Free Trade Area, hold promise for increasing trade but their success will depend at least partly on the quality of transport infrastructure and services.

Upgrading city transport is also urgent. Almost 60 percent of the region's population lives in cities. Eight of the region's cities have more than three million citizens; Cairo and Tehran more than ten million. Transport infrastructure and public transport services have not kept pace. Excessive reliance on private vehicle travel has led to increasing road congestion, which in turn has caused reduced labor mobility and higher transport costs for industry (most of which is based in the cities). Bus services are often rudimentary. Poor air quality is prevalent; in Cairo and Tehran ambient concentrations of sulphur

dioxide, particulates and nitrous oxides regularly exceed the World Health Organization's guidelines. Unsafe roads are a further problem in both urban and rural areas. The ratio of road deaths to registered vehicles is twenty times higher in Iran and eight times higher in Jordan than in OECD countries.

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 Morocco more than half of citizens live more than 2 km from an all-weather road; in Yemen more than 75 percent.

Partnership initiatives have seen the Bank, the European Investment Bank and the Arab Fund for Economic and Social Development cooperate 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.

The Bank will continue to try to assist countries in the region to develop sound transport strategies, policies and regulations, while financing critical public investments in transport infrastructure. Investments will be targeted at expanding the capacity of high use roads, equipping ports and airports with up-to-date facilities and technologies, and providing much needed resources for public transport systems. Building institutional capacity and establishing appropriate systems to better maintain existing assets and sustain the benefits of new investment is also essential, especially in the road sector. Finally, the Bank will try to help develop better frameworks to deliver successful private sector participation, which has so far contributed little to the region's transport needs.

#### 4.7 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 the South Asia region still contains nearly half of the world's poorest people who live on less than a dollar a day. 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 micro 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 millions.

The road safety problem is alarming. India suffers over 85,000 road deaths each year. Bangladesh has a fatality rate per vehicle nearly forty times that of the OECD. Road accident rates are predicted to increase by 144 percent between 2000 and 2020 unless new safety measures are undertaken (Box 2.5). The region is also prone to natural disaster 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 therefore been the core of the Bank's recent infrastructure engagement in the region. The transport portfolio has more than doubled over the last five years and it has also been diversified. There are transport operations in Afghanistan after an absence of twenty-three years, and in Pakistan, after an absence of Bank investment in the transport sector for over a decade. There has been deeper engagement in urban transport (Mumbai, Dhaka, Bangalore, Chennai, Delhi); and in ports and railways. The Bank is also engaged in a regional economic sector work on transport and trade facilitation for the region.

Coordination with Asian Development Bank (ADB) and the Japan Bank for International Cooperation (JBIC) are especially important in South Asia and East Asia regions. The Bank, ADB and JBIC are supporting the formation of the South Asia Association for Regional Cooperation (SAARC) as it is expected to gradually play a larger role in the future, particularly in the transport sector that is essential for regional trade. A joint road sector engagement strategy was agreed in Sri Lanka in November 2004, and a coordinated assistance strategy for the road sector in India.

## 4.8 Global Partnerships and Other Affiliations

While many regional relationships are being and will continue actively to be developed, wider international partnerships address common problems across regions and complement increasing regional and country cooperation with other donors. The Bank has helped establish, and contributed to, such partnerships in the areas of transport and trade facilitation, traffic safety, aviation and road management (Box 4-4). TSB 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 US Transportation Research Board (TRB).

### Box 4-3. Global Partnerships and Other Affiliations in the Transport Sector.

**The Global Facilitation Partnership for Transportation and Trade (GFPTT)**, of which the World Bank was a founder 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 towards meeting this objective.

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

**The Global Road Safety Facility (GRSF)** was established in 2005 by the World Bank in partnership with FIA, Foundation for Society and the Automobile and the Government of the Netherlands. 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.grsproadsafety.org/>

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 International Air Transport Association and air transport industry) and leading civil aviation authorities such as the US Federal aviation Authority (FAA). The objectives of the group are to promote air transport as a catalyst for growth and development; address constraints in air transport systems and services; identify good regulatory practices and promote close cooperation and public private partnerships in air transport development.

**The World Roads Association (PIARC)** in Paris is an important partner organization. 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 UK Department for International Development, the Swedish National Road Authority.

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

## 5 STRATEGY UPDATES

### 5.1 Re-aligning our Development Support

The priorities of partner countries will remain the main influence on what the Bank does in the transport sector. As has been highlighted by the Bank's Independent Evaluation Group on a number of occasions, country 'ownership' is the key to successful project interventions. TSB will therefore be flexible, adaptable and opportunistic to country demand. However, transport is an enormously diverse sector with wide-ranging impacts: the Bank's transport professionals cannot work on them all without danger of overreach, and dilution of effectiveness. Transport interventions should therefore be guided towards those activities which are most important to development impact and towards ways of working in which the Bank can be most effective.

The key positions that were set out ten years ago in '*Sustainable Transport*' remain central to the Bank's work. The importance that it gave to a whole range of economic, financial, environmental and social sustainability issues that underpin the successful long-term development of transport are strengthened rather than diminished by this update.

However, there are five priority areas in which the TSB wishes, in cooperation with other donors and the wider development community, to adjust the profile of its future transport activities. These adjustments provide a better alignment with the development roles of transport and with the full

range of Millennium Development Goals. They reflect the importance and complementarity of investment in public assets, sector governance and encouragement of private and competitive transport service markets. In some cases these adjustments are already happening; in others management action will be needed to develop the processes, tools, expertise and resources to make them happen.

The first priority is aimed at increasing the level of transport investment in line with the Bank's Infrastructure Action Plan. The other four intend to give greater weight to specific transport development challenges and issues that are currently under-represented in the Bank's transport work and portfolio, and in which the TSB believes the Bank can and should play a more effective role. The five priorities are:

1. **Increase financial support for transport:** this will be achieved by maintaining the contribution of transport sector development lending to the targets set for infrastructure as a whole during implementation of the Bank's Infrastructure Action Plan. It is anticipated that this will be consistent with achieving, on average, an annual transport lending program of approximately USD [ ] billion by 2015 compared with an average of [ ] in the period 2001-2005. Within this higher total, roads and highways will continue to be the dominant sector, reflecting both scale of need and country demand, but with an absolute and proportionate increase in lending for urban projects and trade-based freight transport infrastructure.
2. **Increase engagement in urban transport:** this will reflect global demographic trends and the escalating development challenge of urban transport in all regions. Use will be made of a range of Bank instruments including sub-national financing instruments. Policy attention will be given to capacity building in urban transport administration; enhancing the role and quality of affordable public transport; financing mechanisms; mobilizing the private sector in the delivery of public services; managing demand for private car travel; and recognizing the needs of pedestrians and non-motorized transport forms.
3. **Increase engagement in transport for trade:** this will be implemented by increasing support for trade-based public infrastructure investment to overcome physical or quality bottlenecks to trade-driven growth. Attention will be diversified from roads to railway links, inland waterways, ports and airports. Where appropriate, corridor and regional approaches will be adopted. Policy attention will be given to building the institutional capacity of partner countries to meet new transport logistics challenges; improve the management of public infrastructure assets; and encourage successful private sector participation in competitive markets for freight transport and logistics services in land, air, maritime and multi-modal transport.
4. **Increase attention given to road transport services markets:** while continuing to stress the importance of good road networks and their management and maintenance, the performance and affordability of road transport services will also be given more attention. The effectiveness of user markets are instrumental in reaping the benefits of transport infrastructure. This will require analysis of the policies and regulations that govern road freight and passenger services markets in specific jurisdictions to identify frameworks and measures that will ensure best use of such assets by road transport services that are safe, clean and affordable.
5. **Widen the application of key social and environmental issues:** in all transport sector work an awareness of the social role and environmental consequences of transport will be encouraged, and account taken of both general needs and needs of transport-disadvantaged groups. In terms of specific interventions particular attention will be given through both stand-alone projects, and components of wider projects, to the issues of (a) road safety; (b) vehicle emissions that are harmful to health or contribute to global warming; and (c) to reducing the contribution of new roads to the transmission of HIV/AIDS.

## 5.2 Re-aligning our Approach

In setting out to achieve these priorities the TSB will also encourage five main changes in ways of doing business. These changes arise from experience of the TSB and other Bank assessments in recent years.

- A. Increase the proportion of Bank transport engagement 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 program lending instruments such as sector-wide approaches, and the approach of scheduling single investment loans in series against a long-term program of industry development. As part of this evolution, there will be increasing separation of the important process of long-term policy dialogue on wider transport governance and reform issues, from the narrower focus and specific timetables of single investment project loans.
- B. Strengthen partnerships within and outside the Bank:** as transport is largely a derived demand, partnership with others is essential for transport professionals to maximize the contribution of transport to development. Actions will continue to be taken (a) to improve the effectiveness of coordination between transport professionals and other units in the Bank in all relevant areas such as trade and transport facilitation, urban planning, rural development, health and education delivery, road safety and vehicle emissions; all of which depend for their success on a multi-disciplinary approaches; and (b) in all regions and globally, to continue to support efforts to achieve the maximum benefits from inter-donor collaboration.
- C. Step-up the fight against corruption:** all aspects of public governance remain central to transport work, but special attention will be given (a) to working with colleagues across infrastructure sectors to reduce corruption risk in Bank-financed projects while (b) supporting wider country initiatives to reduce corruption in the transport sector as a whole where it can act as a 'tax' on production and trade, while often undermining safety and emissions regulation.
- D. Improve measurement:** of the existing performance of transport systems in developing countries; of the impact of alternative models of transport policy and governance models; and of the specific impacts of Bank-financed transport projects.
- E. Consolidate and improve the sharing of transport knowledge:** this will concentrate resources to obtain maximum impact by the sponsoring each year by the TSB of one authoritative and operationally-oriented publication on a core issue of transport in development. These 'flagship' reports will aim to cover the intellectual high ground of the topic while also containing the case-studies and application guidance that can give them greatest operational relevance within the Bank and to partner countries. These will continue to be supported by smaller specialist transport notes and papers building on the current series. Dissemination of all knowledge will be strengthened.

### 5.3 Transport Sector Targets 2007-2015

Box 5-1 sets out the TSB's targets for each of the priorities established in Section 5.1. Action Plans will be produced in the next few months to guide their detailed implementation. The strategic targets will be reviewed annually and will be modified from time to time, to reflect country needs and demands, experience of their application, as well as wider development trends.

**Targets to be established.**

## **5.4 Next Steps**

Over the next few months action plans will be developed and agreed by the TSB to implement the priorities set out. Progress towards meeting the targets will be assessed on an annual basis in the final quarter of each year.

There will inevitably be set-backs and revisions over time, but by setting out and sharing its strategic goals in this way and formally reviewing progress towards them, the Transport Sector Board believes that the Bank's transport interventions will make the most effective contribution to the international development challenge.



## **ANNEX A: TEN YEARS ON: KEY WORLD BANK TRANSPORT POLICY PAPERS SINCE SUSTAINABLE TRANSPORT**

(to be completed)

May 1996. Gwilliam, Kenneth M. and Zmarak Shalizi. World Bank Development in Practice. Sustainable Transport: Sector Review and Lessons of Experience.

October, 1996. Gwilliam, Kenneth M. DP TWU-23. Transport in the City of Tomorrow: The Transport Dialogue at Habitat II.

October 1996. Gwilliam, Kenneth M. and Richard Scurfield. DP TWU-24. Constructing a Competitive Environment in Public Road Passenger Transport.

November 1996. Shaw, Nicola L., Kenneth M. Gwilliam and Louis S. Thompson. DP TWU-27. Concessions in Transport.

March 1997. Mitric, Slobodan. DP TWU-28. Approaching Metros as Potential Development Projects.

August 1997. Gwilliam, Kenneth and Zmarak Shalizi. DP TWU-26. Road Funds, User Charges and Taxes.

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WBTP World Bank Technical Paper

WBDP World Bank Discussion Paper

TP Transport Paper Series published from April 2004

TRN Transport Notes Series published from April 2004

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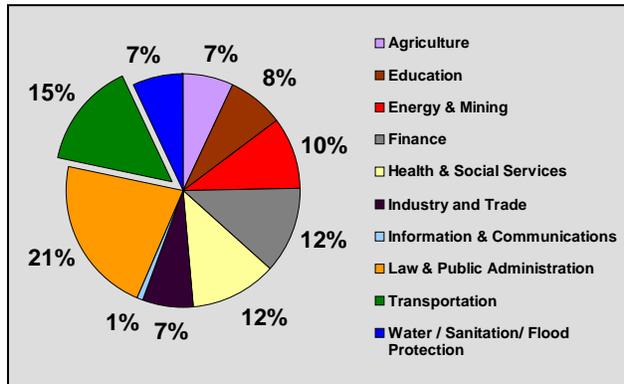
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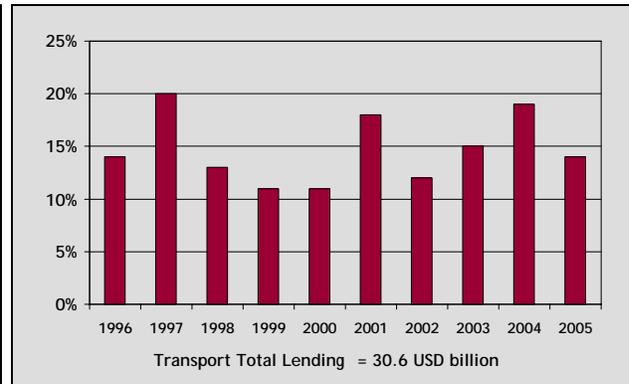
## ANNEX B: TRANSPORT LENDING TRENDS 1996-2005

Figures B1 to B10 summarize transport lending trends over the last ten years, based on Financial Years. Over that period, average annual transport lending has been about 15 percent of the Bank's total lending (Figure B-1), though from year to year it has varied from 11 percent to 19 percent of the total (Figure B-2). Total transport lending declined between 1999 and 2001, recovering to a high point of about US 3.3 billion in 2004 (Figure B-3). The average annual transport sector commitment was just over USD 3 billion/year. With fluctuations, the average number of transport projects was about 26/year (Figure B-4) while the average size of transport project increased from around just under USD 120 million in 1996 to nearly USD 140 million in 2005 (Figure B-5). As at the end of 2005, the Bank's active transport portfolio stood at USD 20.4 billion of which nearly 80 percent was for roads and highway projects. (Figure B-6). Transport commitment by region fluctuates greatly from year to year (Figure B-7). But compared to the first five years of the period, the second five year period shows a marked increase in lending to South Asia and Sub-Saharan Africa (Figure B-8). In terms of commitment by mode of transport, roads and highways remains the dominant use of funds throughout the period (Figure B-9) at around three-quarters of all transport lending. There was little difference in this regard between the first half of the period and the second half (Figure B-10). In addition to lending, the TSB mobilizes resources from many trust funds for technical advisory services in transport to partner countries. It also undertakes or commissions its own policy and technical reviews; the publications listed in Annex A form a small part of the total output of such activity.

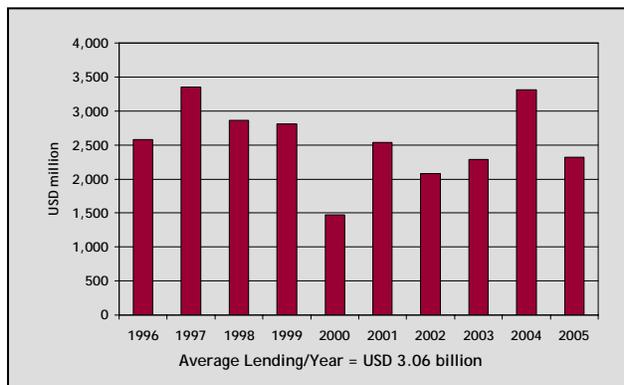
**Figure B-1. Annual Average Bank Lending by Major Sector, 1996 to 2005.**



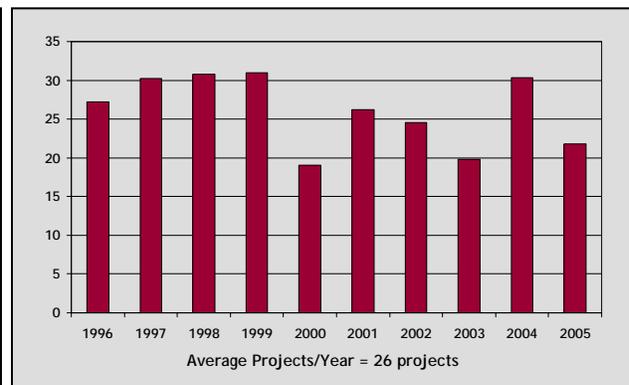
**Figure B-2. Transport as a Proportion of Bank Total Lending, 1996 to 2005.**



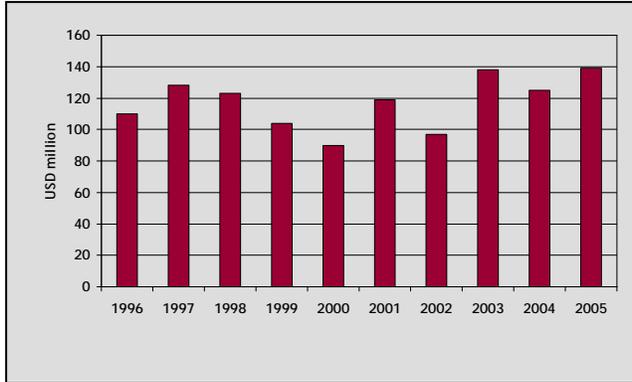
**Figure B-3. Transport Commitments/Year, 1996 to 2005.**



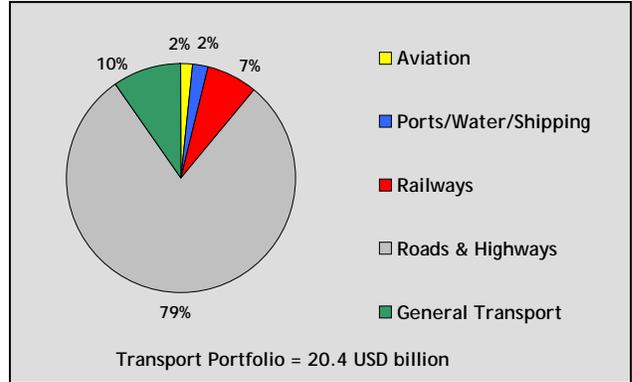
**Figure B-4. Number of Transport Projects/Year, 1996 to 2005.**



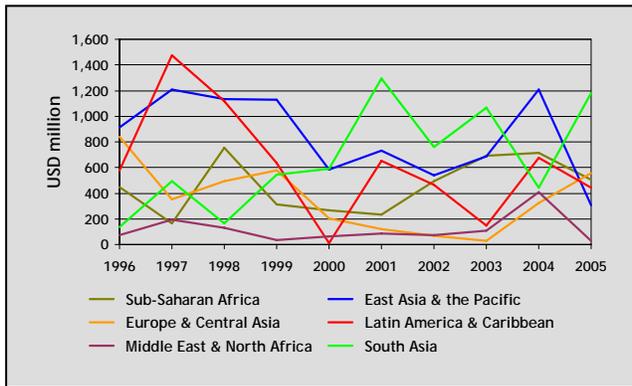
**Figure B-5. Average Size of a Transport Project/Year, 1996 to 2005.**



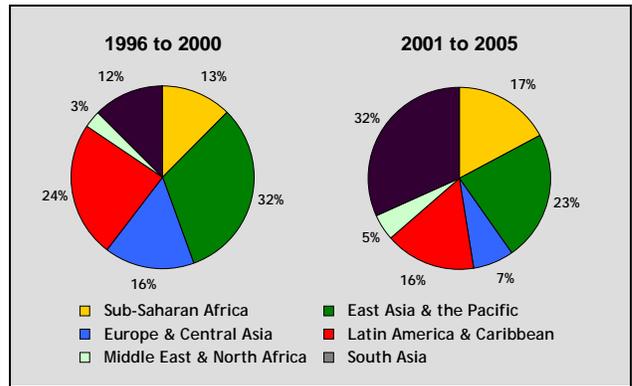
**Figure B-6. Transport Portfolio of Active Projects at end of FY2005.**



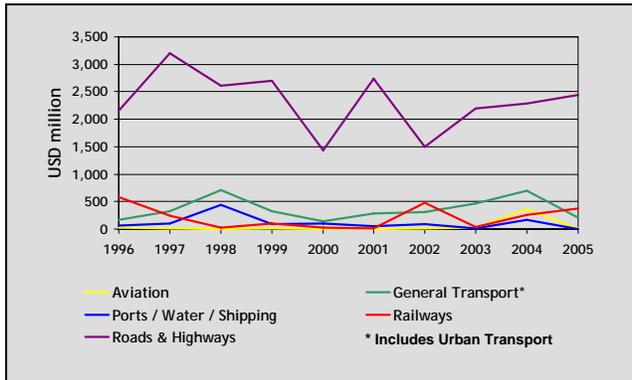
**Figure B-7. Transport Commitments by Region, 1996 to 2005.**



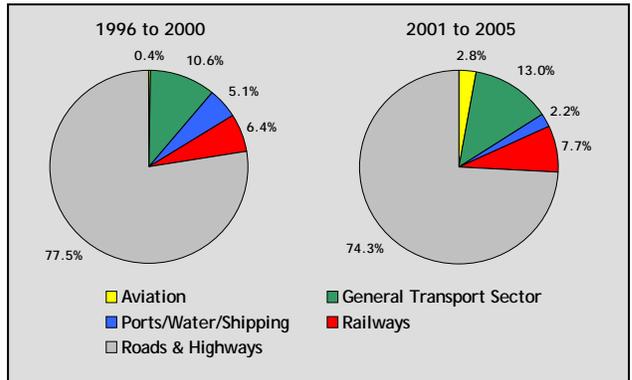
**Figure B-8. Annual Average Transport Lending by Region.**



**Figure B-9. Transport Commitments by Mode, 1996 to 2005.**



**Figure B-10. Annual Average Transport Lending by Mode.**



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