



An evaluation of the World Bank's readiness to meet future urban transport challenges in developing countries

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Abstract

During 2006 a rigorous evaluation led by the author was undertaken for the World Bank Independent Evaluation Group to assess the effectiveness of the Bank's global support to the transport sector during the previous ten years. This paper builds on that platform, but specifically focuses on the results of the urban transport components of the study, including updates of progress since the work was published. Troubling issues include environmental damage, energy costs and efficiency, with implications for climate change, traffic congestion, and transport safety. Other questions relate to affordability and the logistical challenges of effective multimodal transportation. This paper assesses the extent to which the Bank's recently updated sector strategy in the urban context has adapted to the rapidly changing environment and the extent to which resources are being made available to meet urban challenges that are clearly accelerating in intensity.

Tout au long de l'année 2006, une évaluation rigoureuse a été menée, pour le groupe d'évaluation indépendante de la Banque mondiale, dans le but d'évaluer le niveau d'efficacité de l'appui global de la Banque dans le secteur des transports au cours des dix dernières années. Cet article s'appuie sur cette plateforme et se concentre spécifiquement sur les résultats des composantes du transport urbain, y compris les mises à jour du progrès accompli depuis la publication de l'oeuvre. Les problèmes préoccupants incluent les dommages environnementaux, les coûts énergétiques et l'efficacité énergétique, avec des implications pour le changement climatique, la congestion du trafic, et la sécurité routière. D'autres questions sont liées à l'accessibilité et aux défis logistiques d'un transport multimodal efficace. Cet article évalue le degré d'adaptabilité de la récente version éditée de la stratégie de la Banque dans le contexte urbain notamment dans le domaine de l'environnement, mais aussi et surtout le degré auquel les ressources sont rendues disponibles pour relever les défis urbains qui, clairement, accélèrent en intensité.

1 Introduction

Over the next 35 years 2.5 billion people will be added to the current world population of 6.3 billion. In developing countries, much of this growth will be urban and it is expected that there will be 358 cities exceeding one million inhabitants by 2015 [1]. In 2007 the world's urban population exceeded the rural population for the first time in history. This expansion, coupled with the impact of ongoing globalization and trade liberalization, is expected to significantly accelerate the demand for transportation. The motor industry, for example, may have reached maturity in the developed markets of North America, Europe, and Japan, but globally it is poised for a huge expansion, led by the motorization of China



and India. Within a few years, China will replace Japan as the second-largest national market after the United States; over the next 20 years, unless there are major shifts in the global economy or in technology, more cars may be built than in the 110-year history of the industry [2].

Today's concerns about high fuel prices will inevitably escalate. Road transport already accounts for 15 percent of the greenhouse gases contributing to climate change. Pollution, noise, ugliness, and wasted time from traffic congestion also impose substantial societal costs. In developing countries the problems of congestion and pollution are further compounded by poor road safety, which has led the World Health Organization (WHO) [3] to declare road safety an international public health issue. Just over a century after the first motor vehicle-related traffic death in 1896, over 1.2 million people are killed on the roads each year and 50 million more are injured. More than 85 percent of these victims are from developing countries and many live in cities.

Public transport offers clear advantages for reducing congestion and pollution and for increasing safety. But progress has often been disappointing, because private vehicle users rarely pay the true costs they impose on society, thus encouraging urban sprawl. At the same time, decentralized cities with lower population densities and long trip distances increase the cost of providing public transport. The urban poor, usually residing on city peripheries, tend to become marginalized by a lack of accessibility. Meanwhile, the rapid growth of megacities is raising concern about worsening air quality, the adverse effects of which fall disproportionately on the poor.

Transport accounts for nearly 6 percent of the global economy. It is thus hardly surprising that the World Bank (hereafter referred to as "the Bank") has provided more than \$30 billion, or well over 15 percent of its total lending commitments, in support of transport projects during the past decade. The Bank has been updating its strategic approach to the sector to address some of the more menacing impacts of global transport expansion and as an input to this initiative; the Independent Evaluation Group (IEG) [4] assessed the Bank's past contribution to the sector and its readiness to meet emerging challenges.

The Bank's transport strategy evolved incrementally and is informed by three key documents: the *World Development Report: Infrastructure for Development* [5], which promotes an expanded role for competitive markets in transport; *Sustainable Transport* [6], which focuses on the need for transport systems to be comprehensively sustained—economically, environmentally, and socially; and, *Cities on the Move* [7] which concentrates on the urban aspects of transport including ways to strengthen urban transport authorities and policies. Much of the content of these earlier papers remains relevant today, but the existing strategy *Transport for Development* [8] grapples with emerging challenges such as globalization, climate change, and the escalating rate of urbanization.

2. Study logic and methodology

The IEG transport evaluation was the group's first comprehensive review of the sector; the period covered was July 1995 to June 2006, during which time there were 642



projects with transport components in the portfolio. Of these, 335 had been closed and 284 evaluated, so the size of the database was substantial. Over 75 percent of these projects relate to roads, representing commitments of \$25 billion over the decade. Several instruments were used in the evaluation:

Literature review: This covered published documents on transport issues relating to developing countries, complemented by a review of Bank non-lending transport activities.

Portfolio review: This extensive customized database provided the foundation for an analysis of how the projects performed, their outcomes, and what lessons have been learned.

Analysis of existing evaluations: Comprised 57 Country Assistance Evaluations, 254 reviews of Implementation Completion Reports (self evaluations), and 74 Project Performance Assessment Reports (detailed audits), covering 41 countries. The latter were usually carried out between two and four years after a project had closed and were in-depth evaluations involving site visits and discussions with government officials, user groups and relevant stakeholders.

Special thematic studies: These included papers on road funding and a global overview of public/private sector issues in transport.

Bank staff and stakeholder interviews: One-third of the Bank's transport network staff was interviewed. Stakeholders included government officials, providers of transport services, and interested parties such as consultants, user groups, and academics.

3. The urban environment

An IEG evaluation of environmental sustainability in development [9] noted that many developing countries view international concern over environmental problems in their countries as intrusive and likely to impede development. Their governments argue that developed countries have overexploited the environment, refused to take full responsibility for mitigation of their own impacts, and now want to shift that responsibility to developing countries without adequate compensation. This perception has substantial validity and has complicated the role of the Bank. At the same time, public tolerance for inadequate compliance by the Bank of its own policies is low.

Issues such as air pollution have gained importance in recent years. In Dhaka, Bangladesh, highly polluting three-wheeled taxis with two-stroke engines were removed under the Bank's Air Quality Management Project. This made a significant difference to air pollution. Similar measures to cope with two-wheeled traffic are needed in many other Asian countries such as Thailand and Vietnam. A Transport Air Quality Management Project in the Mexico City metropolitan area led to a significant decrease in the ambient concentrations of pollutants. It also resulted in fewer respiratory illnesses and other acute syndromes of poor quality air.

A seminal Bank publication on the air pollution issue, *Reducing Air Pollution from Urban Transport* [10], provides a practical framework of guidelines and principles on how to select appropriate policies and take mitigation measures against the worsening poor urban air quality. The WHO in 2000 estimated that 650,000 people die prematurely from urban air pollution in developing countries. But Bank involvement in such projects is still small and arguably should be much greater, especially in Asia. The adverse effects



of air pollution fall disproportionately on the poor, compounding other environmental problems such as lack of clean water and sanitation. Transport energy conservation is also being given prominence; in Brazil more than a third of the country's cars run on either pure ethanol or gasoline-ethanol blends. Natural gas to power public transportation is becoming more common, and several countries (Romania is a good example) have had programs to eliminate or substantially reduce the lead content in gasoline.

4. Urban planning, design and management

Urban planning programs that integrate public transport, land use, and air quality strategies have been promoted for many years. Curitiba, Brazil, and Bogota, Colombia, where user's mobility has been supported through promotion of public transport, have long been recognized as instructive models for urban planners, but such achievements resulted from exceptionally strong leadership. The Bank meanwhile has promoted the extension and modernization of urban commuter rail systems and bus corridors as an effective way to alleviate severe city traffic congestion (Brazil). Attention is also increasingly being given to the installation of centralized traffic management systems to regulate traffic flows as efficiently as possible (Bangladesh and Vietnam). Parking strategies can improve traffic flow, generate revenue, and discourage car usage. In a few cities special arrangements have also been made for non motorized transport (Bangladesh and Philippines), but this is an area where a greater research effort is needed.

Whether and how transport can influence behavioral change in established industries and by consumers to meaningfully address climate change trends remains an open question. Given the expected growth in the vehicle population, the demand for road space by private vehicles will inevitably have to be constrained through pricing mechanisms and physical restrictions. Several solutions are already technically possible, but the extent to which measures that constrain vehicular use will be supported politically is uncertain, given their likely unpopularity with the public. This is a long-term problem to which the Bank will need to devote more serious attention and even strong advocacy.

Much of the growth in the world's population for the foreseeable future will take place in the cities and towns of the developing world. Some 600 million people are expected to migrate from rural areas to cities in the next ten years. To put this in perspective, this urbanization trend is equivalent to 70 additional cities roughly the size of London or Moscow. Although the benefits that urbanization brings are potentially huge, the speed and scale of this transformation present many challenges. Urban transport projects supported by the Bank have covered construction or rehabilitation of urban roads, bridges, and interchanges; improvements to traffic management and systems; and (in a few cases) support to suburban rail transport and renewal of bus and trolley-bus fleets.

Bank emphasis has often been on encouraging the design of urban transport projects to improve the integration between services and to increase the access of the urban poor to employment opportunities, health centres, and educational facilities. A new contingent of policymakers is assuming the diverse responsibilities of urban governance—as many national governments decentralize and devolve their functions; and programs in poverty,



health, education, and public services are increasingly being placed in the hands of hitherto untested municipal and regional governments.

Many of the Bank financed urban transport projects in Latin America based on urban railway restructuring or public transport reform have also been de facto instruments to catalyze broader institutional reform, such as the creation of metropolitan authorities, modal coordination, resource generation for the development of activity poles, and the private concessioning of operations. In some Brazilian cities improvements in access to metro stations through introducing connecting minibus service lines with subsidized fares have proved successful. However, poor people may live too far away from such public transport corridors to benefit. This is also an international problem because the urban poor, whether in Moscow, Paris, or Johannesburg, tend to live on the city peripheries where land is cheaper, but where travel distances are longer, more costly, and less convenient.

Some of the early projects that included components on bus deregulation and privatization proved unsustainable (Sri Lanka), and in recent years the Bank has resisted bus replacement, unless accompanied by significant regulatory reforms to achieve longer-term sustainability (Uzbekistan and the Kyrgyz Republic)—a strategy validated by project performance. Moreover, the Bank has discouraged, with a few exceptions, the use of development loans and credits in favor of private sector capital for metro and light rail construction worldwide preferring to invest in solutions such as bus priority measures, and bus rapid transit systems (Colombia). It has, however, supported improving the capacity (South Korea) or connectivity (Brazil) of existing metros.

Pro-poor fare pricing with targeted subsidies, such as the *vale transporte*, has been successfully promoted in Brazil, where it is an important social safety net (this subsidy is a compulsory requirement for employers and is used to finance part of the commuting costs of their employees). Without the *vale transporte*, millions of formally employed users earning \$300 per month or less would have trouble paying their fares. However, the *vale transporte* does miss the poorest people, and a future challenge is how to extend benefits to the informal sector.

5. Results and trends

For the foreseeable future the public sector in developing countries will continue to be the major owner and operator of basic transport infrastructure. This is in part because the sector is dominated by roads, which have public good characteristics. Bank projects featuring private sector concessions have grown but not substantially during the past decade. Clients generally turn to the Bank Group either for advice or when the investment is perceived as risky. But, where the Bank has been asked to support or facilitate concessions, they have usually been rated as satisfactory or better.

The Bank's most important contribution to involving the private sector, however, has been not in outright privatization, but through the many programs in which it has encouraged performance based private contracting. Also influential has been the abolition of departmental construction and maintenance units, support for road agencies and/or funds, and its insistence on competitive bidding for contracts. For railways, many



governments are not prepared to risk long-term concessions, but it has still proved possible to make major improvements in the accountability and transparency of financing arrangements, including more openness about subsidization arrangements for non economic services, and a greater willingness to divest non core business components.

The Bank has generally had a mixed performance in helping to strengthen client institutions, with mostly modest results in low-income countries where governance is weak, but with better results in middle-income countries. Training too has often been aimed at assisting the immediate project and thus less likely to have any broader or sustained impact. Sometimes, the timing of training interventions has not been synchronized with the organizational changes needed to improve public sector performance. Institutional change takes time, and the duration of the project intervention is usually relatively short. Institutional objectives need to be more realistic and pursued incrementally through a continuing support program that extends beyond the transport sector itself.

In a 2003 IEG evaluation summary of urban transport some 30 Bank interventions in urban transport over the preceding 20 years were reviewed; 87 percent were found to have had satisfactory outcomes. The re-estimated average economic rate of return was found to be 30 percent, compared with 43 percent at appraisal, which shows a degree of over-optimism in preparation. These results are slightly better than those covered by the current study (1995–2006), but as 75 percent of projects had moderately satisfactory or better results, it is concluded that investments in urban transport in general tend to have positive outcomes.

An inspection of the complexity of the development objectives shows that more recent urban projects have had more institutional content. In terms of upgrading physical infrastructure, most projects achieved or even surpassed their physical objectives, while traffic management programs were more successful in countries with the ability to enforce traffic regulations. Projects that tried to bring about better integrated development, such as in the cities of Belo Horizonte and Recife, sometimes took longer than expected to implement because of exogenous factors (Brazil imposed severe fiscal constraints after 2002 following the macroeconomic upheaval in Argentina). Sustainability was considered likely, however, in more than two-thirds of all urban transport projects assessed.

Although a few projects have tackled the issue of integrating non motorized traffic and pedestrians in cities, this can be a difficult challenge because the incumbent professionals have often been trained in industrialized countries and follow developed country philosophies toward the control of transport in developing cities. Sometimes, a change in locally accepted notions of appropriate city planning is warranted. Non motorized transport projects are still comparatively rare given the huge numbers of non motorized transport users. Current estimates show, for instance, that there are 1.4 billion bicycle users worldwide, including 500 million in China.

Considering the present huge growth in developing cities (in East Asia 70 percent of regional economic growth) the number of urban transport projects supported by the Bank



appears comparatively low. Over the fiscal 1996–2005 period, such projects have only accounted for between 5 percent and 8 percent of the transport portfolio and appeared to have declined slightly rather than increased, as might have been expected. IEG has contended that this is partly due to insufficient capacity and/or relative priority in the Bank’s transport staff network, but also sometimes to an aversion to taking on too many large, complex projects that require lengthy preparation time. Given the successful results of urban transport projects reported above, the longer preparation time with more consultation does nonetheless appear to produce more positive project outcomes, and since 2006 there has been a significant increase in urban projects, both active and in the pipeline.

Table 1: Distribution of Urban Projects and Components, Closed and Active (1995–2005)

	1995–2000	2001–06	1995–2006
<i>Total number of urban projects</i>	41	37	78
Number of project components:	78	77	155
Urban roads	27	24	51
Traffic management and safety	10	9	19
Institutional, regulatory, planning	12	19	31
Non motorized, urban poor	7	7	14
Urban environment, air quality	3	3	6
Public transport	19	15	34

Source: World Bank data

When staff interviewees were asked what in their opinion was constraining the sector from undertaking more urban transport projects, the response was invariably the time taken to prepare projects in a complex environment in which there were multiple stakeholders, fiduciary issues, as well as relocation, environmental and safeguard concerns.

The recent referral of the Mumbai Urban Transport Project in India to an “Inspection Panel” was cited by some staff as an example of the hazards of increasing complexity. However, the results of the work on resettlement in Mumbai may prove in time to be more valuable than the physical outcome of the project. Other staff indicated that there was no internal incentive for them to get involved in more difficult, time-consuming, and risky projects; indeed, the nature of complex projects with many safeguard issues acted to discourage task team leaders. Others said there was a tacit understanding in some countries that because the Bank’s processes were “elaborate”, other financiers might be preferred for urban projects. The main risk of undertaking more complex projects is that because of longer preparation time, fewer projects overall will be completed with the same resources. There is already a clear trend towards larger projects to compensate to some extent for this. It is also possible that the number of successful projects will decline because there are more factors that can go wrong and more stakeholders to be satisfied. Nevertheless, the world is inexorably becoming more complicated, and this means that the Bank must prepare itself to meet such complexities head on and take more risks.



6. The way forward

The Bank's existing transport strategy, with its focus on sustainability, urban transport, and the encouragement of greater private sector involvement, remains broadly valid. But clean, affordable, and safe transportation is the important challenge for the coming years.

The greater emphasis on safety for example supports the Millennium Development Goals that address health issues. It is predicted that by 2020 road accidents will become the third-largest contributor to the global burden of mortality and injury. Bank-financed projects until recently have rarely tackled road safety holistically, but there is evidence that new programmatic road safety approaches are more effective. A sensible approach may, however, be to focus on pilot projects where the authorities have demonstrated serious commitment towards reducing the rate of road accidents.

The Stern Report [11] shows that air quality has assumed new importance with the growing number of motor vehicles contributing to the volume of greenhouse gas emissions. This is a powerful reason to increase support to urban transport; it provides opportunities not only to reduce air pollution and other environmental damage, but also to explore ways to reduce the long-term energy demand through traffic management and pricing, constraints on the use of private cars, and greater support for mass transit systems and public transport in general. London has successfully introduced a central city access charge, while Austria, Germany, and Switzerland have created electronic systems to charge trucks for the costs that they impose on the roads. Such advances in technology are expected to spread at least to some middle-income countries in the near future, but low income countries will need simpler and less sophisticated solutions with more focus on affordability.

The Bank has already discovered that it can obtain greater leverage from sources of funding such as the Global Environment Facility and the United Nations Environment Program. Carbon finance initiatives in future years also have the potential to fund global research projects. The UN Environment Program recently launched a multimillion dollar public transport project covering three polluted cities in Latin America. In Europe an emissions trading scheme, which imposes carbon dioxide emission limits on factories and power stations, has been introduced as the mainstay to meet its Kyoto Protocol goals. Transport will be included in 2013.

The rapidly increasing interaction between transport and other sectors is an important matter; there is no doubt that transport is developing into a complex multisectoral business. But it is not yet clear whether the present deployment of Bank resources will be sufficient to meet its share of these additional sector challenges as well. It appears to IEG unlikely that these new priorities can be achieved meaningfully without either scaling up support or reassessing sector priorities and engaging in greater dialogue with borrowers. This will require working across sectors through multisectoral teams and will generate increasing complexity. An additional factor to consider is the pace of change in the business environment. For example, in the coming decade many Asian countries will attain middle-income country status, effectively changing the nature of the demand for Bank services.



Another potential growth area includes introducing sub-national lending through a new facility (subject to the caveat that some national governments are worried about sub-national debt sustainability). Capacity at the sub-national level varies considerably. For example, in the Middle East and North Africa, few cities would contemplate taking on additional debt. However, in other cases there is a great opportunity because the Bank's comparative advantage lies in helping build capacity at sub-national level in support of national governments. This strength is expected to leverage additional finance for urban transport infrastructure.

The new priorities will require greater focus as well as more innovation and experimentation to ensure continued Bank relevance. A particularly big challenge will be to find low cost solutions for poor countries. Typical measures such as better traffic management have hidden costs in upgrading the level of law enforcement. Overall, the sector is at a crossroads, but the Bank does now have a window of opportunity to attain a higher level of relevance and offer a better level of support to its clients. In this regard it is expected to continue to improve its level of cooperation with other international financial institutions, follow a more programmatic approach, and look for better ways to share the lessons from the outcomes of the more innovative pilot and demonstration projects which it supports.

7. References

- [1] UN Habitat (United Nations Centre for Human Settlements) 2001 *Cities in a Globalizing World: Global Report on Human Settlements*. London: Earthscan
- [2] Economist 2005. Special Report: *The Global Car Industry*. September 10, 2005
- [3] World Health Organization *World Report on Road Traffic Injury Protection*. Geneva 2004
- [4] World Bank, Independent Evaluation Group *A Decade of Action in Transport: An Evaluation of World Bank Assistance to the Transport Sector, 1995-2005* Washington DC, 2007
- [5] World Bank *World Development Report: Infrastructure for Development* Washington DC 1994
- [6] World Bank *Sustainable Transport: Priorities for Policy Reform* Washington DC 1996
- [7] World Bank *Cities on the Move: A World Bank Urban Transport Strategy Review* Washington DC 2002
- [8] World Bank *Transport for Development; Safe, Clean and Affordable; the World Bank Group's Transport Business Strategy for 2008-2012*. Washington DC 2008
- [9] World Bank Independent Evaluation Group *Promoting Environmental Sustainability in Development: An Evaluation of the World Bank's Performance* Washington DC 2002
- [10] World Bank *Reducing Air Pollution from Urban Transport* Washington DC 2004
- [11] Stern, N. *The Economics of Climate Change* HM Treasury London 2006

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