

INTERNATIONAL DEVELOPMENT ASSOCIATION



Transport

IMPROVING SERVICES FOR THE POOR

IDA at WORK



THE WORLD BANK



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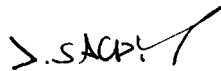
Rural communities are linked to schools, health services and markets by roads. Safe urban transport encourages economic growth and employment. Roads are vital for the economic development and improvements in the standard of living for the poor.

This booklet describes how the International Development Association (IDA), the concessional lending arm of the World Bank, supports countries to improve access to all-weather roads and through them education, health services and markets for the rural poor. It also shows several detailed examples of how poor countries have focused on road building and how they achieved marked improvements through better road networks.

The international development community has recognized the importance of road networks for poverty reduction through enabling people access to the services that will lift them out of poverty.

We believe that increased donor support can assist many countries to improve road networks and achieve the MDGs.

The World Bank remains committed to supporting its partner countries in addressing the problem of poor road networks, specifically in rural areas. We are looking forward to working with other donor agencies and partners.



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IDA at WORK

Rural Roads: Linking People to Markets and Services

Many studies point to the important economic and social impact of roads that link rural communities to schools, health services and markets. Yet an estimated one billion people, or about 40 percent of the rural population in regions served by the International Development Association (IDA) lack direct access to an all-weather road. The size of this unmet demand is reflected in the substantial volume of IDA lending for rural roads. About US\$1 billion of IDA funding per year goes into rural roads. This has generated positive outputs and outcomes. Under projects completed in the last five years, some 60,000km of rural roads were built, rehabilitated or maintained—benefiting over 60 million people.

Countries with a clear strategy and well-targeted IDA support for improving the rural population with access to roads have seen this access improve substantially. Econometric analyses point to significant economic impact of rural roads in India, Vietnam, Uganda, Ethiopia and Bangladesh, and

the social benefits of rural roads have been shown in a study in Morocco. In the last 10 years, 90 percent of rural road projects financed by IDA had outcomes rated satisfactory by the World Bank's Independent Evaluation Group (IEG).

In 2003, the World Bank established the rural access index as one of several key diagnostic measures for the sector. The data has allowed assessment of access needs and monitoring of progress. In its advice and publications, IDA has encouraged more community ownership of rural roads, more use of local labor, and more resources for road maintenance. Aiming at greater local ownership and lower transaction costs, there is now increasing emphasis on programmatic and sector-wide approaches, where IDA collaborates with both national governments and other donor agencies to support ongoing national programs. The large programs in India and Vietnam are examples of this.

At a glance

- Roughly 1 billion of the world's poorest people are still without access to roads.
- About US\$1 billion of IDA funding goes into rural roads annually (about US\$540 million in transport sector projects and another US\$475 million through multi-sectoral projects).
- Of 329 rural road projects (1991–2006) funded by IDA, 45 percent were in Sub-Saharan Africa, followed by South Asia (16 percent) and East Asia Pacific (15 percent).
- Under IDA funding, some 46,700 km of rural roads were constructed or rehabilitated and another 12,700 km maintained in the last five years, benefiting about 60 million people.



Sectoral Context

The Bank's work in the transport sector.

IDA support in the transport sector has contributed to reducing poverty and advancing toward the Millennium Development Goals.

It has done so by addressing critical infrastructure bottlenecks to promote economic growth and improve trade. For example, the completion of a 4.8 km bridge over the Jamuna River in Bangladesh in 1999, a project co-financed by IDA, the Asian Development Bank and Japan, has boosted access, employment and trade by linking Northwest Bangladesh to the rest of the country. The facilitation of cross-river transport for passengers, freight and electricity over the Jamuna Bridge was clearly central to economic growth.

IDA support for transport has also improved the livelihoods of rural populations who enjoy better access to markets and essential services, such as health and education.

Over the last 10 years IDA's transport priorities have been the construction, rehabilitation and maintenance of roads and highways, representing approximately 77 percent of commitments for the sector. Within this category, rural roads account for three quarters of the commitments.

Policy objectives for the roads sub-sector have been improved asset management, sustained road maintenance funding, increased private sector participation in road maintenance, and performance-based contracting. IDA lending has also addressed policy and institutional development as well as urban transport, together accounting for about 13 percent of the transport sector total.

The remaining 10 percent include interventions in ports, shipping, railways and air transport. This note focuses on rural roads.

Rural roads cannot be divorced from the management of the main road network and the rest of

transport sector. National transport issues such as road safety, road maintenance, availability, and cost of transport services need to be addressed along with the provision of rural roads. Similarly, regional and social development policies strongly influence government programs for rural roads.

A focus on maintenance and community-driven initiatives.

Sustainable road maintenance is a key concern. IDA has been addressing it by securing adequate and reliable funding; promoting 'second generation' road funds (mainly based on user charges on fuel); supporting efforts to commercialize road maintenance operations; and helping build institutional capacity. As a result over the past 10 years, road maintenance in most IDA countries has benefited from substantially improved funding levels and efficiency. Returns from good maintenance are huge, typically many times the returns from road improvement or rehabilitation.

Rural roads are an important component of multi-sectoral projects, which are typically community driven development projects. Rural roads are very popular with local communities and naturally fit into projects that support area development, agriculture, or social objectives. Research shows the synergies among sectors and the strengths of an integrated approach at the local level.

A systematic approach to measuring results.

IDA's introduction of the rural access index, (included in 2005 in the IDA Results Measurement System), has raised strong interest in investigating the resources and time required to improve rural accessibility and reduce transport costs, so as to help combat poverty and stimulate growth.

The Rural Access Index for roads measures the percentage of the rural population that lives within 2 km (typically equivalent to a walk of 20–25 minutes) of an all-season road.

In 48 countries for which the data has been calculated, and which represent 89 percent of the rural population in IDA countries, only 56 percent of the rural population had access to an all-season road in 2006. In middle-income countries that borrow from the World Bank's other lending arm, the International Bank for Reconstruction and Development (IBRD), the comparable figure is 87 percent (based on 31 IBRD countries).

Hence it is estimated that nearly one billion of the world's poorest people remain marginalized without direct access to an all-weather road.

Although time series data are limited, there is evidence that the rural access index has improved substantially over time in countries which have a clear strategy for improving rural access and rely on well-targeted support from IDA and other agencies.

In Ghana, rural access has increased from 44 percent in 1997 to 61 percent in 2003, benefiting approximately 1.5 million rural people (13 percent of rural population). In Vietnam, rural access grew from 73 percent in 1998 to 84 percent in 2004, connecting an additional 6 million people to markets and services.

Comparable measures are being established to determine the level of "urban mobility" and to gauge transport costs as a measure of affordability. The former will become increasingly relevant as the number of poor people living in urban areas in IDA countries grows.

A cost-effective path to poverty reduction.

Econometric studies on India, Vietnam and Bangladesh,¹ where IDA has had large rural roads programs, show the significant development impact of improved roads.

In India, expenditures on roads were found to have by far the largest impact on rural poverty compared with other types of public expenditure. For every one million Rupees (US\$22,000) invested in rural roads, 163 people were lifted out of poverty.

In Vietnam, the level of economic activity was found to relate closely to the extent of the rural road network. After agricultural research, road investment produced the highest return of expenditures among various sectors. For every Dong invested in roads, the value of agricultural production would increase by three Dongs.

In Bangladesh, research found that certain road improvement projects led to a 27 percent increase in agricultural wages and 11 percent increase in per capita consumption. The incidence of moderate and extreme poverty fell by between 5 and 7 percent. Road improvement also led to an increase in schooling of boys and girls.

¹ The studies were carried out by Fan, Hazell and Thorat (2000) for India; Fan, Huong, and Long (2004) for Vietnam; and Khandker, Bakht, and Koolwal (2006) for Bangladesh.

Rural Access Index: Regional Values: 2006 (IDA countries only)							
Region	Africa	East Asia/ Pacific	Europe/ Central Asia	Latin America/ Caribbean	Middle East North Africa	South Asia	Total
Rural Access Index (%)	36	88	62	32	21	57	56
Countries covered (number of)	25	7	6	4	1	5	48
Rural population covered (%) ¹	77	85	75	73	99	96	89

Source: Household survey; Bank staff calculations.

Note: Values of the Rural Access Index continue to be updated.

¹ This shows the percentage of the whole IDA rural population for each Region which is in the countries covered.

A Lifeline in Ethiopia.

The New York Times, November 8, 2004, reported on an IDA road project in Ethiopia: “A few months back, Desalegn Godebo’s wife descended into a feverish delirium. ‘It was as if she were mad,’ the farmer said, shuddering at the memory. ‘She was scratching me like a crazy woman.’ Before a new road was built through this village, Mr. Godebo would have loaded his wife onto his back and hiked six hours along narrow dirt paths to Awasa, a small city. Instead, he lifted her into a truck for the one-hour ride to town. Her condition was diagnosed as malaria and typhoid. She is well now and back home caring for their baby.

The dirt-and-gravel road may look like a timeless feature of the Great Rift Valley. But it is, in fact, part of a huge public road-building project that is slowly hauling one of the poorest, hungriest nations on earth into modernity.”

IDA Contributions

IDA’s global knowledge and long-standing engagement with both national and local clients have allowed it to address issues of road maintenance, transport services costs, community ownership, and integrated rural accessibility planning that are critical to the sustained impact of its lending.

Through its work on many road programs, IDA has developed a strong capability to diagnose bottlenecks, suggest solutions, and encourage institutional innovations (such as second generation road funds) in order to successfully implement new projects and programs.

Investment projects.

Supporting the building of rural roads is a core element of IDA’s work. Over the last 10 years, IDA lending for rural roads has averaged about US\$1 billion per year, or 14 percent of total IDA lending.

Of all 329 IDA projects approved between 1991 and 2006 with a rural road component, 45 percent were in Sub-Saharan Africa, followed by South Asia and East Asia Pacific. Eighteen percent were dedicated rural road projects, 14 percent were roads/transport sector projects that address rural roads among others, and the remaining 68 percent (224 projects) were multi-sectoral projects with rural road components.



Results on the ground.

Some of the results of IDA operations are institutional. About two-thirds of IDA projects on roads in a sample of 37 projects implemented between Fiscal Years 2002 and 2006 had a significant institutional development component. In India's state of Andhra Pradesh, for example, a rural roads program together with an economic restructuring project financed jointly by IDA and the IBRD (the World Bank's two lending arms) spurred the state government to adopt a policy framework for rural roads and update planning practices, construction standards and maintenance management systems.

Other results are vividly tangible. In Andhra Pradesh again an IDA roads project was found to be associated with substantial growth in crop yields, cultivated land, seasonal work opportunities, and literacy rates. It also reduced spoilage of perishable agricultural products and generated better prices for farmers. There was also increased attendance at schools and health clinics.

In Bhutan, an IDA rural roads project reduced the average travel time and travel costs to hospitals and markets by some 75 percent in five of Bhutan's 20 districts. Reduced travel times mean villagers now send their children to non-community schools which used to be prohibitively far by foot but have become easily accessible by bus. After a road changed a six-hour trek into a one-hour commute, families in Kikhar started sending 32 children off to school—instead of just four children in the past. Local commerce, construction methods and agricultural practices have all been galvanized and transformed by villagers' new proximity to markets and goods. Corrugated iron

roofs are replacing banana leaf roofs, and income from sales of agricultural produce has grown, on average, by 64 percent.

The establishment of a road fund in Ethiopia in 1997 substantially increased maintenance funding. The condition of road work improved significantly. The overall proportion of roads in poor condition dropped from 53 percent in 1995 to 40 percent in 2002—that share fell from 60 percent to 37 percent for regional roads alone.

The new road funds have also helped the development of small scale contractors. A good example is Tanzania where the new fund helped establish over 2,000 new small scale contractors. Road funds have also helped improve contract management. It now takes African road funds an average of 32 days to pay undisputed contractor bills, whereas it takes one year in Burundi, which does not have a road fund.

Road building can also help improve governance. IDA's rural road upgrading program in Vietnam was found to have a dramatic effect on transparency, accountability and equity (Leisher, 2003). This apparently came from a combination of training provision and better means of transport which increased the ease and opportunities for feedback and gave women better access to training.

Overall, IDA's rural road projects have had strong outcomes: 90 percent of the 156 rural road projects that closed between 1994 and 2006 were rated satisfactory (well above the 70 percent average for the totality of all IDA projects), including 8 percent rated highly satisfactory. Economic rates of return for the rural road components of eight projects ranged from 11 percent to 66 percent with an average of 29 percent.

However, the multi-sectoral natures of many projects that include road components make it difficult to attribute outcomes to roads alone. Progress is typically the product of a combination of factors that include rural infrastructure, community development and local governance.

A good example of this is the IDA-supported rural infrastructure project in Senegal which included substantial road improvements, strengthened decentralization and financed micro-projects covering water, schools, livestock and other developments. Beneficiary households in the 110 participating rural communities reported a 25 percent increase in incomes. Fiscal revenues for rural communities in the project area almost tripled. Markets, schools, and health facilities are now more accessible (children now typically spend 10 minutes going to school instead of 30), and the weight and height of children under three years of age has improved.

Road Funds.

Road funds have emerged as one of the more popular forms of financing road sector funding gaps by pooling fuel taxes, toll fees and other resources under various institutional arrangements and oversight rules. Commercially managed funds with financial discipline and minimum adverse impact on the state budget are considered good practice and are called 'second generation' funds.

The Road Maintenance Initiative, one of the central components of the Sub-Saharan Africa Transport Policy Program (SSATP), a joint undertaking of the United Nations Economic Commission for Africa and several development agencies coordinated by the World Bank, and the establishment of road funds have helped increase maintenance funding and its stability throughout Africa. Twenty-six new road funds have been set up in African IDA countries since 1994. Although the lion's share of funds from this source has gone into main roads, a smaller share has been used for rural roads.

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Planning tools and analysis.

In addition to lending, the Bank has helped to develop and support the Highway Development and Management (HDM) system, the most commonly used computerized planning tool for the appraisal of road investment in developing countries.

Recently, Bank staff has developed the Roads Economic Decision model (RED), an easy to use tool for lower-volume rural roads based on HDM, which is now widely used for rural road appraisal in IDA countries. Currently the Bank is commissioning, via a trust fund managed by the UK's Department for International Development (DfID), the development of a model to incorporate social benefits into road planning. This has particular relevance to isolated poor rural communities.

Other planning tools have been developed for calculating appropriate road user charges (suitable also for use by road funds) and significant databases of road construction costs and vehicle operating costs have been assembled. These have made the appraisal of rural road projects easier and better. Extensive documentation has been prepared on road funds, public private partnerships, rural road design, rural transport planning and rural road administration. A report on the design and appraisal of rural infrastructure has had a significant impact on the design of low-volume traffic roads and the adoption of suitable, low cost solutions (including a "spot improvement approach").

Overall over the last 10 years, the Bank has delivered over 600 analytical and advisory service products relevant to the transport sector. Roughly a third thereof relate specifically to IDA countries. A particularly large knowledge program that covers rural transport in IDA countries is the Sub-Saharan Africa Transport Program (SSATP) located at the Bank. Its publications list includes 320 transport reports (prepared through its own programs and

IDA/IBRD) that are particularly relevant to Africa. IDA countries have also received training courses on topics like competition and regulation that are relevant to transport. IDA co-operated with external training providers such as the International Roads Union (for vehicle driver training) and the University of Birmingham (for roads management).

Drawing on the Bank's strengths.

IDA's strengths in supporting rural roads projects are similar to those seen in other sectors. They stem from IDA's global reach and experience, the synergies with other parts of the World Bank Group, and the ability to work across disciplines and across different modes of transport.

Through its convening power, its strong financial management (particularly of complex trust funds) and its linkage with investment programs, IDA is able to play a formative and leading role in global partnerships such as the Global Facilitation Partnership for Transportation and Trade, the Global Road Safety Facility and the Sub-Saharan Africa Transport Program already mentioned.

The Bank has the largest concentration of full-time transport professionals of any donor organization. Its extensive research capacity, institutional memory, knowledge and experience put IDA in a good position to understand the transport challenges of most countries. The multidisciplinary capabilities of IDA allow for multi-sectoral and rural community-driven initiatives.

IDA's comparative advantage is recognized in a number of areas:

- assisting through dialogue with governments the formulation of national and rural transport policy, strategy and programs;
- preparing Terms of Reference and using technical expertise for policy analysis and project formulation;



- preparing, financing and managing the implementation of investment projects that are demanding, either because of their size or complexity;
- raising awareness of the need for a comprehensive approach to improving transport services, road safety, road maintenance and for an Integrated Rural Accessibility Planning approach rather than 'just' rehabilitating rural roads;
- providing results frameworks and metrics (such as the Rural Access Index) for rural transport investment and linking this with human and social development issues, for example to meet the MDGs;
- encouraging community participation and private sector involvement in rural roads projects;
- sharing global knowledge and providing lessons learned on institutional and financial arrangements in rural transport;
- developing sector-wide approaches and multi-donor cooperation for rural transport investment involving the combination of aid coordination, policy advice, and selective financial support.

Making Rural Roads Work for Vietnam.

IDA's support for the rural transport program in Vietnam drew on a winning combination of skills and capabilities:

1. IDA provided predictable financial support and coordination with other donors over a sustained period of time: US\$264 million for three projects covering 15 years (1996–2011). Combined technical expertise and large-scale support enabled the government of Vietnam to realize the poverty reduction impacts that rural roads can provide.

2. IDA helped develop the fledgling private sector by ensuring access to the rural road construction market where state provision was, until recently, the norm.
3. Technical assistance helped increase the effectiveness of public spending in the transport sector and assisted the government to make the best use of the US\$3 billion of investment expected in the sector over the next five years.

Moving away from project support, the program's third phase (2006–11) will focus on the national and provincial road program using government systems as much as possible. This approach includes incentives for performance and increased post-implementation reviews to ensure that procurement is carried out transparently.

Looking Ahead

In responding to the needs of IDA countries during the mid-1990s, the transport sector tended to focus on issues related to highways, rural roads and road maintenance. Since the mid-1990s, many IDA countries have made steady progress with improving road network maintenance, which is vital for sustainability.

In addition to technical support, institutional reform and capacity building have been crucial. IDA will continue to assist borrowing countries with governance issues and institutional strengthening that foster ownership and accountability.

The experience in rural roads in particular has shown how important it is for transport staff to engage effectively with other disciplines in order to better achieve the MDGs and ensure that there are equitable and sustained benefits to the poor.

Going forward, the main and enduring areas of IDA attention will be to ensure the financial sustainability of rural and inter-urban road infrastructure, and to encourage affordable rural transport to improve accessibility and reduce poverty.

Local Governments Upgrade Rural Infrastructure in Senegal

Challenge

Despite steady economic reform during the second half of the 1990s, poverty remained very high: more than a third of the total population lived beneath the poverty line. In Senegal, poverty is essentially a rural phenomenon. In addition, over the 1990s agriculture stagnated; attributed in part to limited basic infrastructure, continued state involvement in subsectors, poor quality farm support services, and a lack of empowerment of rural populations in planning, financing and managing local development.

Approach

In its strategy for development and poverty reduction, the government identified decentralization as critical to improving the living conditions of rural populations. The National Rural Infrastructure Project was designed as the first—or testing phase—of a potentially 12-year program to help strengthen rural Senegal's local governments and their ability to operate and maintain infrastructure investments—starting with the building of roads. In addition to institutional support, IDA provided financing for local investments.

Results

About 2.2 million people in 110 rural communities included in the first phase of the program reported marked improvements in living conditions, access to essential services, and incomes.

Highlights:

- Under the Local Investment Fund, each of 110 rural communities set up its own forum for the planning and implementation of projects—298 water supply projects, 141 schools, 140 health centers and health posts, 60 for women's empowerment, among many others.
- An impact study using panel surveys of 850 households over 2002–05 showed a 25 percent increase in household incomes in project areas, and measurable progress in the weight and height of children under three years old.
- 247 kilometers of roads were rehabilitated; this measurably improved access to essential services, for example reducing the time needed to reach schools.
- The fiscal revenues of the rural communities covered by the project increased by a multiple of 2.8.
- Among the improvements to local governance and participation: transparent procurement for public services, improved management of local public finance, establishment of a transfer system for public funds from the center to local governments.
- The participation of marginalized groups at the local level—including women and young people—has increased considerably.

IDA contribution

- Total project cost was US\$47.5 million, of which IDA provided US\$28 million from 2001 to 2005.
- Through this project, IDA had a large impact on the landscape of the country's rural communities.
- IDA's institutional support catalyzed the improvements in local governance, participation, and management of public finances.

- The project design provided the opportunity for rural communities in Senegal to engage in “learning-by-doing” practices, which, with adjustment, were internalized and sustainable.
- The project built a notably successful—and therefore replicable—system for the transfer of public resources to local governments.

Partners

International Fund for Agricultural Development, African Development Bank, OPEC

Next Steps

Although beneficiary communities have set up maintenance committees and set aside funds for operation and maintenance, operation and maintenance capacity is still weak and will require additional efforts by local governments. The subsequent phases of this program and the social development fund program were merged into the Participatory Local Development Project in the context of a national community-driven development program. The weak capacity and other related issues will continue to be addressed in order to ensure the sustainability of infrastructure.



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Rehabilitating Highways, Airport in Afghanistan

Challenge

More than two decades of conflict combined with a prolonged lack of maintenance resulted in damages to long sections of Afghanistan's roads, critical structures, and bridges—the road network was only partially usable and at a very high cost. Civil aviation infrastructure was also severely deteriorated. The transport sector was owned and managed by departments of centralized ministries, with service provision sometimes delegated to government enterprises.

Approach

In 2002, the Afghan Transitional Administration stated its intention to encourage private sector participation in service delivery, to use labor based approaches in road construction, and to strengthen overall management of the transport sector. In the short-term, however, fast-track projects to remove transport bottlenecks to recovery and growth were needed. Those needs were addressed by the Emergency Transport Rehabilitation Project.

Results

More than one million people along the project roads in Parvan, Baghlan, Kunduz, Takhar and Badakhshan Provinces have been connected to the country's main transport and infrastructure network, enjoying better distribution for agricultural products, humanitarian flows, access to social services and administrative centers.

Highlights:

- Rehabilitation of a main highway corridor from Kabul to the Tajikistan border—including the Salang Tunnel, one of the world's highest altitude tunnels severely damaged during the war—reduced average travel time between Kabul and Kunduz from more than 48 hours to about 6 hours.
- Average traffic volume on the rehabilitated 175 km Kabul-Doshi road increased from about 1,200 vehicles/day, to more than 12,000 vehicles/day and continues to increase.
- Average access time to markets, social services and administrative centers (for 10 communities along the rehabilitated roads) reduced from about 55-60 minutes to 22-25 minutes after rehabilitation of roads.
- In the northern area, where community schools were built by various donors but not functioning for lack of teachers, improved road conditions have helped teachers commute and begin teaching children.
- Rehabilitation of the Kabul International Airport (KAIA) runway (3,500 m) and provision of associated safety facilities and equipment have allowed international airlines to begin operations. In addition to UN Humanitarian Air Service flights, Ariana, Kam Air, PIA, Indian Airlines and Azerbaijan Airlines currently operate there.
- Civil aviation operations are improving with technical transfer from International Civil Aviation Organization experts.

IDA contribution

- Total project cost is US\$162 million, US\$117 million from IDA credit and US\$45 million from an IDA supplemental grant.
- IDA was one of the initial donors for the rehabilitation of the transport sector infrastructure in Afghanistan.
- Timely completion of projects within a reasonable budget in a very uncertain project environment. The Salang Tunnel and snow gallery works begun in October 2002 were completed by September 2004, eliminating the largest bottleneck on the corridor. The entire project for Kabul-Tajikistan border was completed by April 2006. The KAIA runway rehabilitation was completed by November 2005.
- Technical assistance and project management helping build capacity of implementing ministries.
- Dialogue with the government and coordination with other donors on transport sector policy issues.

Next Steps

The sector has received a large amount of coordinated international assistance for reconstruction. Gaps in the main network have been progressively filled, and the investment program for the Ring Road and key connections to neighboring countries, including the roads covered by this Emergency Transport Rehabilitation Project, has been fully funded, with most project components completed or underway.

However, post-rehabilitation maintenance is becoming an issue. Challenges include high construction costs in a difficult security situation, lack of capacity in both public and private sectors and insufficient financing for maintenance.



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Jamuna Bridge Connects Bangladesh's Two Halves

Challenge

The Jamuna River splits Bangladesh in half in terms of both area and population. In the past, ferries plied across with an average waiting time of 36 hours for the more than 700 trucks that waited to board daily. Improving the flow of goods and passengers and connecting infrastructure from one side of the country to the other was critical and central to unlocking economic growth.

Approach

The project constructed a 4.8 km bridge for a four-lane road, a railway line, an electric power interconnector, a gas pipeline and telecommunication facilities with two end viaducts (128 m each), two guide bunds (2.2 km each) and two approach roads on the embankments at each end of the bridge. Measures were taken to mitigate the effects of the construction on people, the environment, fisheries and wildlife. Technical assistance was provided by IDA for project management, construction supervision, and establishment of the Jamuna Multipurpose Bridge Authority (JMBA).

Results

More than 30 million people are now connected to the country's transport and infrastructure network, and enjoy lower transport costs and quicker travel times.

Highlights:

- Transportation of natural gas, electricity and telecommunication is faster, cheaper and more reliable.
- Bus travel time from Dhaka to the trade city of Bogra was reduced from eight hours to four. Truck travel time from Dhaka to Bogra was reduced from 20 hours to 6 hours.

- Transport costs have been reduced and access to key consumption centers like Dhaka has improved. Average truck rates per ton went down 30 percent (from Tk450 to Tk320) after the bridge opened.
- Traffic over the bridge has increased by 11.5 percent per year since its opening in 1999. In 2005, 1.72 million vehicles used the bridge (50 percent trucks, 35 percent buses, 15 percent cars) compared with 0.89 million in 1999.
- The distribution of non-leafy vegetables from the Northwestern region to the Eastern part of the country has increased by at least 50 percent, according to truckers.
- Good progress is being made to ensure the sustainable operation and maintenance of the bridge. Revenues from tolls collected from vehicles are expected to recover the cost of the project in 30 years. Annual toll revenue amounts to US\$24 million for FY 2006–07 and is expected to continue to rise.

IDA contribution

- Total project cost was US\$754 million, US\$204 million from IDA, US\$154 million from the government of Bangladesh, US\$198 million from the Asian Development Bank and US\$198 from the Japanese Overseas Economic Cooperation Fund (currently Japan Bank for International Cooperation).
- IDA acted as the coordinator for project implementation at the request of the government. This enabled IDA to take a more proactive role within the partnership with Japan and the ADB in resolving key issues during implementation.
- Timely completion of the project within a reasonable budget increase. The physical components were completed by June 1998, six months behind schedule but one full year ahead of the project closing date. The project cost was 16 percent over the initial budget.

- The Jamuna Bridge provided Bangladesh with the opportunity to handle the social and environmental impacts of an infrastructure project in a comprehensive manner for the first time. IDA helped prepare an Environmental Management Action Plan to mitigate the environmental and social impacts of the bridge as mandated by a “Category A” rating. All policies and plans adopted followed World Bank standards, and a Resettlement Action Plan was fully implemented.
- A Panel of Experts was established to help resolve key technical issues, such as adopting measures to counteract water erosion.

Partners

The Asian Development Bank, Bangladesh and Japan were co-financers. Implementation was facilitated by Milestone Decision Meetings that brought together government agencies, co-financers, consultants, the Panel of Experts, contractors and NGOs at regular intervals.

Next Steps

- The Jamuna Bridge has triggered several complementary transport sector investments that have multiplied its benefits, such as the Jamuna Bridge Access Road to Dhaka and the Nalka-Hatikamrul-Bonpara Road, also financed by IDA. The latter provides a bypass for east-west connections at the western side of the bridge.
- Streamlined border and transshipment arrangements with India would make the bridge a critical transport link on the trans-Asia highway and rail, facilitating movement of trade from Nepal, Bhutan and Northeastern India to and through Bangladesh.
- The success of the Jamuna Bridge has inspired another mega-bridge project, the Padma Multipurpose Bridge Project over the Padma River, to connect Dhaka with the southwest region of the country. The government of Bangladesh has requested IDA to participate as a co-financier of the Padma Bridge.



The success of the Jamuna Bridge has inspired another mega-bridge project, the Padma Multipurpose Bridge Project over the Padma River, to connect Dhaka with the southwest region of the country.

The Global Road Safety Facility

The Global Road Safety Facility has been established by the World Bank to generate increased funding and technical assistance to strengthen global, regional and country safety management capacity in low and middle-income countries. Its goals are to catalyze increased levels of road safety investment, accelerate safety knowledge transfer, and promote innovative infrastructure solutions in these countries, given the urgency of the growing public health crisis arising from deaths and injuries on their roads. By 2015 road crashes are projected to become globally the biggest cause of health losses for children aged 5–14 years and by 2030 the second biggest cause of health losses for men. The poor will bear the bulk of this burden.

The Facility aims to provide the strategic leadership to focus and financially sustain the collective efforts of all partners and stakeholders to implement the recommendations of the *World Report on Road Traffic Injury Prevention* which was jointly issued by the World Health Organization and the World Bank on World Health Day 2004. This report provides a consensus-based blueprint for the way ahead and a shared framework for action adopted by all partners and stakeholders. Its findings and recommendations were promoted by a World Health Assembly Resolution in 2004 (*Road safety and health*) and two successive UN General Assembly Resolutions in 2004 and 2005 (*Improving global road safety*).

There has been a widespread partnership response to these global initiatives and momentum is building at regional and country levels to target reductions in road deaths and injuries on a sustain-

able basis. This is exemplified in the 'Accra Declaration' arising from the African Road Safety Conference in Accra, Ghana in February 2007, where African Ministers for Transport and Health highlighted the importance of road safety as a development priority. Recalling the UN General Assembly Resolutions they encouraged member States to implement the recommendations of the *World Report on Road Traffic Injury Prevention* and commended the efforts of regional and global bodies to strengthen road safety initiatives in Africa. They also recognized the importance of the World Bank Global Road Safety Facility in advancing the global road safety agenda and called upon global and regional development partners to ensure that their assistance programs recognized the urgent need to improve road safety in Africa. The Ministers resolved to work with multilateral and bilateral donors to develop road safety projects and programs to build national road safety management capacity to achieve their overall target of halving road fatalities in Africa by the 2015. In this regard, the Global Road Safety Facility is preparing a program of initiatives for Africa and over the coming years it aims to make a significant contribution towards achieving the objectives of the 'Accra Declaration'.

Information on the Global Road Safety Facility Strategic Plan, the *World Report*, and the Accra Declaration can be found at: <http://www.worldbank.org/grsf>



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