

IDA AT WORK

Rural Roads: Linking People to Markets and Services

Many studies point to the important economic and social impact of roads which link rural communities to schools, health services and markets. Yet an estimated 1 billion people, or about 40 percent of the rural population in regions served by the International Development Association (IDA), the World Bank's fund for the world's poorest countries, 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: projects completed in the last five years have built, rehabilitated or maintained some 60,000 km of rural roads—benefiting over 60 million people.

Countries with a clear strategy and well-targeted IDA support for reaching rural populations have seen road 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).

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 (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).
- With IDA funding, 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.

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 India and Vietnam programs are examples of this.



SECTORAL CONTEXT

The Bank's work in the transport sector.

The World Bank's recent Transport Business Strategy for 2008-2012 stresses the need for transport to be "Safe, Clean, and Affordable." The strategy approaches transport improvements in the context of what is needed to achieve the Millennium Development Goals (MDGs). Improved transport makes five key contributions to sustainable development:

- It improves trade which facilitates economic growth and regional integration.
- It makes cities work better for their citizens, for the environment, and for economic growth.
- It creates economic opportunity and growth in rural areas through better access to markets.
- It provides access to health care facilities and schools.
- It is safer and cleaner for users and the community.

IDA support has addressed critical infrastructure bottlenecks to promote economic growth and improve trade. For example, the 1999 completion of a 4.8-km bridge over the

Jamuna River in Bangladesh, a project co-financed by IDA, the Asian Development Bank and the government of Japan, has boosted traffic, employment and trade by facilitating transport of passengers, freight, and electricity and so economically as well as literally linking northwest Bangladesh to the rest of the country.

Over the last 10 years, IDA's main 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 included improved asset management, sustained funding for road maintenance, 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, the 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 a priority for 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 generated interest in investigating the resources and time required to improve rural accessibility and reduce transport costs, in order 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

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.

Reconstruction and Development (IBRD), the comparable figure is 87 percent (based on 31 IBRD countries).

Hence, it is estimated that nearly 1 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 that have a clear strategy for improving rural access and that 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 in 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 pub-

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.

lic expenditure. For every 1 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 Dong.

In Bangladesh, research found that 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.

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 enabled it to address the issues of road maintenance, transport service costs, community ownership, and integrated rural accessibility planning that are critical to the sustained impact of its lending.

Because of its work on multiple road programs, IDA has developed a strong capacity for diagnosing bottlenecks and can recommend solutions and encourage institutional innovation (such as second-generation road funds) for more successful implementation of new projects and programs.

Investment projects.

Supporting the building of rural roads is a core element of this effort. 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. Of these projects, 18 percent were dedicated rural road projects, 14 percent were roads/transport sector projects that addressed rural roads among other things, 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. Also in Andhra Pradesh, an IDA roads project was linked to 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, as well as 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 time means villagers now send their children to non-community schools, which used to be prohibitively far by foot but have become easily accessible by bus. Once a new road turned a six-hour trek into a one-hour commute, families in Kikhar sent 32 children off to school—instead of just the four that had gone 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

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 Program (SSATP), a joint undertaking of the United Nations Economic Commission for Africa and several development agencies coordinated by the World Bank, as well as the establishment of road funds have helped increase maintenance funding and its stability throughout Africa. Since 1994, 26 new road funds have been set up in African IDA countries. Although the lion's share of funds from this source has gone into main roads, rural roads have also benefited.

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 found in Tanzania where a fund helped establish more than 2,000 new small-scale contractors. Road funds have also helped improve contract management. It now takes African road funds in Tanzania an average of 32 days to pay undisputed contractor bills, whereas in Burundi, which does not have a road fund, it takes one year.

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,² This apparently resulted 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.

2. Leisher, 2003.

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 nature 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, among other things. 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.

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, a Bank team 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 more than 600 studies and technical assistance papers relevant to the transport sector. Roughly one-third of them relate specifically to IDA countries. The Sub-Saharan Africa Transport Program (SSATP) is a particularly large knowledge program that covers rural transport in IDA countries, including some 320 transport reports.

Officials in IDA countries have also received training courses on such topics relevant to transport as competition and regulation. IDA cooperated 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 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.

Because of 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 Partnership 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 knowledge and experience put IDA in a good position to understand the

transport challenges of most countries. The multidisciplinary capabilities of IDA allow multi-sectoral and rural community-driven initiatives.

These comparative advantages are recognized in a number of specific 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 help 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 transport 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.

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