



Lessons from World Bank Support to Infrastructure

Contents

1. Challenges in Infrastructure Maintenance in Tanzania and Uganda
2. Achieving Economic Integration of Remote Areas in Laos
3. Maintaining Quality of Life through Systematic Urban Planning and Implementation: Case of Bhutan
4. Increasing Access and Improving the Quality of Services through Community Driven Models: Cases of Rural Water Supply and Sanitation Projects in Ecuador and Paraguay
5. Capturing Technology for Development: Evaluation of World Bank Group's ICT Work
6. Ongoing and Upcoming Evaluations

Infrastructure plays a key role in providing equal access to economic opportunities and social services. Infrastructure projects have been a large portion of the World Bank's work in supporting poverty alleviation. This note highlights lessons from the assessments of infrastructure projects in Tanzania, Uganda, Laos, and Bhutan, water supply projects in Ecuador and Paraguay, and World Bank Group's support to Information and Communications Technology.

Challenges in Infrastructure Maintenance in Tanzania and Uganda

IEG assessed the effectiveness of five transport projects⁽¹⁾ in Tanzania and Uganda, which had a common objective to improve accessibility to people and markets in a sustainable manner. The Tanzania projects included a component and an objective to improve the operation of railways through a private sector concession. In addition to the physical investments, the projects envisaged achieving this objective through institutional and policy support.

With regards to the accessibility through improvements in road conditions, overall both Tanzania and Uganda have progressed a long way since the 1990s. The percentage of main roads in good condition has increased substantially. In 2009, 87.5 percent of such roads in Tanzania and 70 percent in Uganda were in good to fair

condition, compared to less than 50 percent ten years earlier. While this has contributed to enhanced access to markets for the rural poor, small farmers, and businessmen, both countries lag behind the region in terms of the percentage of roads that are paved. Currently, 40 percent of Tanzania's and 32 percent of Uganda's main roads are surfaced.

Tanzania has made steady progress despite early setbacks with mismanagement and corruption in the 1990s. Transport Master Plans are now in place, a Road Fund has been set up (its framework cited as best practice in Sub-Saharan Africa), and an autonomous performance-based Road Agency is operating with a clear separation between its operational activities and the policy and regulatory functions of central government. Forced account has been phased out in favor of using local private sector contractors. However, despite stronger institutions and capacity, the risks to development outcome remain significant.

The Tanzania railway component had problems as the concession of Tanzania Railway Ltd. (TRL) ultimately failed, and the Government reassumed responsibility. Alternative solutions such as a new system using standard gauge track may be unaffordable unless the private sector agrees to support the venture. The rail system is facing a huge backlog in maintenance and suffers from declining financial and technical viability, leading to doubts about its sustainability.

1) The two Tanzanian projects are the Second Integrated Roads Project and the follow-on (First) Central Transport Corridor. The three projects in Uganda comprise the Road Sector Institutional Support Technical Assistance Project — which supported the First and Second Phases of the Roads Development using adaptable program loans. The period covered by these projects is from 1995 to 2009.

In Uganda, legislative approval to finance the Road Fund through user charges has not yet been obtained, while the Road Fund's income is currently insufficient to address the road maintenance backlog. Although the Road Fund's financing is not yet assured, the Uganda National Roads Authority has had to take on responsibility for an additional 10,000 km of district roads, as well as urban roads in Kampala, putting a considerable burden on a young organization. Serious concern remains about sustainability, because of uncertain funding for maintenance and inadequate staffing to cope with the present increased budget and workload. In-house force account work has been reduced, but not yet phased out. There are also concerns about the lack of effective control of overloaded vehicles and the additional and largely unfunded responsibility for 10,000 km of recently re-designated district roads as well as the main urban roads in Kampala. The Bank has proposed the introduction of performance and output-based contracts but none have yet been commissioned.

One of the key lessons from the assessment highlights that the Road Agency model can provide institutional capacity to improve the delivery of new main roads and their maintenance in low income countries such as Tanzania and Uganda. The assessment shows that during road reform initiatives, the country's absorptive capacity, the degree of opposition to change, and the time it takes to prepare and adopt new legislation, have often been miscalculated by the World Bank and other development partners. Another lesson is that an annual assessment of the condition and traffic usage of the roads in the network enables the decision makers and the public to understand the implications of greater or lesser funding. When two modes such as road and rail are competing for freight traffic in the same corridor, an improvement or deterioration in one mode will affect traffic in the other. This should be built into the risk analysis before an investment is made. Rehabilitating and reforming rail systems is a demanding and complex undertaking that normally requires dedicated staff and expertise. This should be accomplished through an exclusive and separate operation, and not tacked on to an existing road project. Public-private partnerships will only be successful if there are real opportunities for gain by both parties. Lastly, when concessions are a key ingredient to reforms, contingency plans should be made in the event of delay or lack of interest of concessionaires.

For more information, download the Project Performance Assessment Report, *The United Republic of Tanzania: Second Integrated Roads Projects, Central Transport Corridor Project, Republic of Uganda: Roads sector Institutional Support Technical Assistance Project, Roads Development Program Phase I, and Roads Development Program Phase II*)

Achieving Economic Integration of Remote Areas in Laos

The Lao People's Democratic Republic (PDR) Provincial Infrastructure Project is a story of how the country's two poorest and most remote provinces - Oudomxay and Phongsaly - became linked to Southeast Asia's rapid economic development during

the decade-long project implementation period (1998-2007). The objective of this project was to help strengthen local institutions and upgrade infrastructure to reduce poverty and better integrate these provinces into the national economy.

As a result, both provinces are now better endowed with infrastructure than they were before the project. Oudomxay's paved highway network is now twice what it had been before the operation, and Phongsaly's is four times as extensive. These improvements assured year-round access and cut average journey times between 50 and 75 percent, as the project intended. Water supply was extended to some 16 percent of the urban population in the towns of Muang Xay and Muang Khoua and rural water supply benefited more than 8,000 households in 154 villages, about 15 percent of the rural population. On-the-job learning for professional staff of the provinces helped them take on -- for the first time -- full responsibility for procuring, contracting, financing, and implementing large construction works in accordance with Bank standards. It also helped prepare local officials and professional cadres to carry on the work of development investments after the project closed.

The key lessons learned from the project assessment are that within a broader national and international context of buoyant economic growth, new and upgraded infrastructure can help integrate poorer remote areas of a country and thus help them share in the benefits of growth for poverty reduction. Additionally, infrastructure that foment economic growth can also trigger unexpected demands for the infrastructure itself. One of the unintended effects of the project was that the new road infrastructure led to an upsurge in heavy truck traffic, resulting in the roads being used by much heavier trucks than they were designed for. More intense maintenance, strengthening the pavement, or restricting vehicle weights are among possible responses to prevent premature deterioration of the new infrastructure investments. Another lesson from the assessment is that on-the-job training prepares local officials and professional cadres to carry on the work of development assistance after a project has closed. Although formal training programs and courses have a big role, World Bank project designs and implementation should ensure that the learning opportunities are relevant to achieving an operation's intended outcomes. For more information, download the Project Performance Assessment Report, *Lao People's Democratic Republic: Provincial Infrastructure Project*.

Maintaining Quality of Life through Systematic Urban Planning and Implementation: Case of Bhutan

During the implementation of the Bhutan Urban Development Project the country began a momentous and rapid shift from rural to urban living that put increasing stress on urban infrastructure and challenged the government's flagship pursuit of Gross National Happiness (GNH). GNH is a policy that makes good governance, environmental protection, and cultural preservation central to boosting economic growth. The project objective

was to improve the quality-of-life in Bhutan's secondary towns through enhancing basic service coverage, while strengthening local financial and institutional capacity to deliver urban services.

Data collected during the IEG mission point to increased urban service levels in most project towns. Thus, in most towns, water supply coverage after the project was higher than before as a result of the project investments in this sector. But more water network connections themselves do not guarantee an improved water supply service when supply shortfalls leave the connections dry, as is the case in several project towns. Solid waste investments introduced regular collection services for the first time in most towns. One indication of improved quality-of-life is seen from an important health outcome – the incidence of diarrhea and dysentery fell more rapidly during 1999-2009 in project districts than in districts not assisted by the project. Project-supported infrastructure is likely to have contributed to this. Other improvements included cleaner and safer streets and generally better road access, notably during the monsoon.

One of the key lessons from the assessment is that it may be more effective to support a country intermediary that sustains several towns in a 'wholesale' project, rather than supplying support to each town individually. Additionally, there is a need for building greater capacity for local authorities to assess the efficiency of their investments, especially to help them avoid losses from sub-projects that, having incurred considerable costs, are left idle and thereby generate few or no benefits. The assessment also highlights that baselines must be drawn and identified at the appraisal stage not only to make final evaluation more robust, but also to be sure that a project is focused at the outset upon priority areas of need. Lastly, as urbanization takes root and accelerates, as it is the case in Bhutan, it is important for each city and town to prepare and implement its own urban plan. For more information, download the Project Performance Assessment Report, *Kingdom of Bhutan: Urban Development Project*.

Increasing Access and Improving the Quality of Services through Community Driven Models: Cases of Rural Water Supply and Sanitation Projects in Ecuador and Paraguay

IEG carried out a comparative review of the Rural and Small Towns Water Supply and Sanitation Project in Ecuador, which was the first phase of a three-phase adaptable program loan, and the Fourth Rural Water Supply and Sanitation Project in Paraguay focusing on the institutional and financial aspects of the projects. Both projects combined investment in water supply and sanitation infrastructure as well as technical assistance to improve the performance of key water sector institutions. The projects aimed to increase water supply and sanitation service coverage, as well as to strengthen sector institutions to deliver the services at the central and local levels. Both in Ecuador and Paraguay Water Beneficiary Associations (WBAs) were adopted as a common model for operations and maintenance of the water systems. In Ecuador, the municipal model was used for the small

towns and in Paraguay the private operator model was used in some rural water schemes.

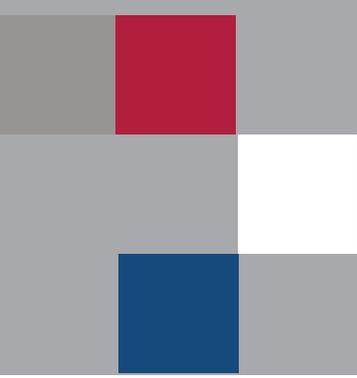
In terms of the reform objectives, limited results were achieved in **Ecuador** because of its slow progress in defining key policy areas that affect infrastructure sustainability, such as formalizing the allocation of responsibilities to undertake sector investments at the national and sub-national levels, defining asset ownership in the sector, and developing a consistent financing policy for investments. In **Paraguay** the project substantially achieved the objective of modifying the central sector agency, SENASA, whose role changed from an implementer of projects to an efficiently managed promoter.

Assessments of both projects highlight important lessons among which a critical role is assigned to identifying potential risks up front, carrying out proper stakeholder analysis, and making a realistic projection of the time it takes to change the roles of government agencies and to devolve the Water Sanitation Services investment, operation, and maintenance responsibilities to the local government or the community level. While it may not be sufficient for reform, sector policies and institutional responsibilities need to be formalized through legal decrees and approved by Congress as a precondition for the enforcement of financial and investment policies, especially as countries face political changes. Additionally, Conventional Water Beneficiary Association models in both Paraguay and Ecuador and the private sector operator models in Paraguay show stronger financial sustainability compared to the municipal models implemented in Ecuador, where tariffs are approved by municipal authorities. Because of the environmental and health externalities of the current low levels of sanitation coverage in both countries, it is important for the government and World Bank teams to pay more attention to and effectively track progress in the sanitation sub-sector, both during project preparation and implementation. Last, for the water systems to be sustainable, there is a need for an institutionalized arrangement of technical assistance and post-construction support to Water Beneficiary Associations to build the capacity of these institutions.

For more information, download Project Performance Assessment Report, *Ecuador: Rural and Small Towns Water Supply and Sanitation Project*, and *An IEG Comparative Review of Two Rural Water Supply and Sanitation Projects in Latin America and the Caribbean Based on Project Performance Assessments of Paraguay: 4th Rural Water Supply and Sanitation Project and A Rural and Small Towns Water Supply and Sanitation Project in Ecuador*.

Capturing Technology for Development: Evaluation of World Bank Group's ICT Work

IEG recently completed the evaluation of World Bank Group's activities in Information and Communication Technologies (ICT). The evaluation highlighted that the World Bank Group played a catalytic role in spreading ICT in developing markets. During fiscal years 2003–2010, the Bank Group provided \$4.2



billion in support of the ICT sector, of which \$2.9 billion was to the poorest countries, including in Africa where it remained the largest multilateral financier in telecommunications. The Bank Group's strategy focused on support for sector reform, increasing access to information infrastructure, and developing ICT skills and applications (that is, ICT components in projects in other sectors).

IEG's evaluation found that the Bank Group's most notable contributions to ICT development have been through support to sector reforms and to private investments for mobile telephony in difficult environments and in the poorest countries. One of the successful examples of such efforts is an IFC supported mobile operator which was the first to adapt a mass market strategy and established a Village Phone Program.

In other priority areas, including ICT applications, the Bank Group's contributions have been limited. Targeted efforts to increase access beyond what was commercially viable have been largely unsuccessful. Support to universal access programs was largely superseded by the roll-out of phone services by the private sector, in some cases supported by World Bank sector reforms. Access for the poor has been more effectively supported through general, non-targeted interventions focused on the enabling environment and direct support to private investments. The World Bank's record in ICT applications has been modest, despite their significant role in Bank projects. This reflects high risks of IT projects and shortcomings in the Bank's delivery mechanism. ICT skills development, which is emerging as an important constraint to the diffusion and use of ICT, has received little attention in WBG projects. To learn more about the study, download the evaluation on *Capturing Technology Development: An Evaluation of World Bank Group Activities in Information and Communication Technologies*.

Ongoing and Upcoming Evaluations

IEG is undertaking an evaluation on **Sustainable Provision of Infrastructure Services and the World Bank Group**, which reviews how WBG has, through its various types of interventions, supported the countries to establish institutional and financial mechanisms and build the sector capacity to ensure proper operation, maintenance and provision of infrastructure services. The evaluation covers three sectors that account for most of the

Bank Group's assistance for infrastructure—transport, water, and energy⁽²⁾, but given the complexity and range of the subject, IEG will adopt a programmatic approach. Using an evaluation framework that is broadly applicable to all three sectors, phase I of this evaluation will address the transport sector, and phase II will cover the energy and water sectors. The first phase will assess the sustainability of transport infrastructure for all six modes of transport, and the sustainability of transport services for urban transport, railways, ports and waterborne transport, and air transport sub-modes. The evaluation will be based on various building blocks, including (i) the portfolio review of Bank Group projects and sector work; (ii) 20 country case studies (of which at least five will be field-based); (iii) country/sector policy and strategy review; and (iv) preparation of issue notes for sub-modes of transport and focused topics including private sector participation and pro-poor policies in transport. Phase I of the evaluation, focusing on the transport sector is expected to be completed in early fiscal year 2013.

IEG is also planning on producing four cluster Project Performance Assessment Reports (PPARs) in the transport and water sectors. The findings of these PPARs will feed into the upcoming evaluation on Sustainable Provision of Infrastructure Services and the World Bank Group. The upcoming PPARs will cover the following projects:

- A cluster PPAR for Gujarat and Karnataka State Highway Projects and an economic and sector work for the highway sector.
- A PPAR for Poland's First and Second Road Maintenance and Rehabilitation Projects.
- A cluster PPAR for two transport projects in Mozambique; (i) Railway and Port Restructuring project; and (ii) Roads and Bridges Management and Maintenance Project, along with an economic and sector work study.
- A cluster PPAR on two state level rural water supply and sanitation projects in India.

For more information please visit IEG's web site at ieg.worldbankgroup.org.

2) Information and Communication Technologies (ICT) is the subject of a separate IEG evaluation that was completed in 2011.