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INFRASTRUCTURE SERVICES

The Building Blocks of Development

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THE WORLD BANK



Worker during telephone line installation in Lebanon

A REINVIGORATED DRIVE FOR INFRASTRUCTURE

Infrastructure is the foundation for development of any country. Infrastructure is about delivering essential services—water supply, sanitation, energy, roads, and information communications technology—that people need to maintain a basic standard of living. These services lead to improvements in health, access to education, economic opportunities, and family income.

Yet for millions in many poor countries, these services are still beyond reach. About half of the world's population live below the poverty line, with some 1.1 billion people lacking access to clean water supply. Roughly 2.4 billion live with inadequate sanitation. At the same time, 2 to 3 billion people lack access to modern energy, and roughly 20 percent of rural populations reside more than 2 km from an all-weather road.

Infrastructure, an important part of the World Bank's development agenda, is central to the Bank's efforts to help achieve the Millennium Development Goals. The development community and developing countries recognize the key role that infrastructure plays, both directly and indirectly, in helping to achieve these goals. Infrastructure is essential for growth and poverty reduction. Infrastructure services are key inputs to health and for access to education. And such basic services as water are critical in and of themselves. This publication highlights the many ways in which the Bank's infrastructure activities are helping achieve these goals and more.

The World Bank Group has always supported infrastructure. During the 1980s, that support centered more on what could be called the "bricks and mortar" of infrastructure, i.e., the construction of projects. Today, the Bank places a greater emphasis on service delivery, recogniz-

the importance of policies and institutions, in addition to financing and construction to build sustainable infrastructure.

During the 1990s, the World Bank Group reduced its investment lending in infrastructure. The expectation was that the private sector would handle the brunt of such investment. However, private financing for infrastructure plummeted from \$128 billion in 1997 to \$58 billion in 2002, making it clear that such reliance on private sector financing would not be sufficient.

A new Infrastructure Action Plan, which emphasizes service delivery across the entire spectrum of public and private involvement, is guiding the Bank Group's activities in infrastructure development. Among other things, the plan envisages the financing of projects at regional, national, and sub-national levels. A presentation of the plan can be found on the Bank's Infrastructure website at www.worldbank.org/infrastructure.

We invite you to take a close look at the infrastructure work we are doing in partnership with client countries and others, and how the delivery of these services is helping to improve the quality of people's lives around the world.

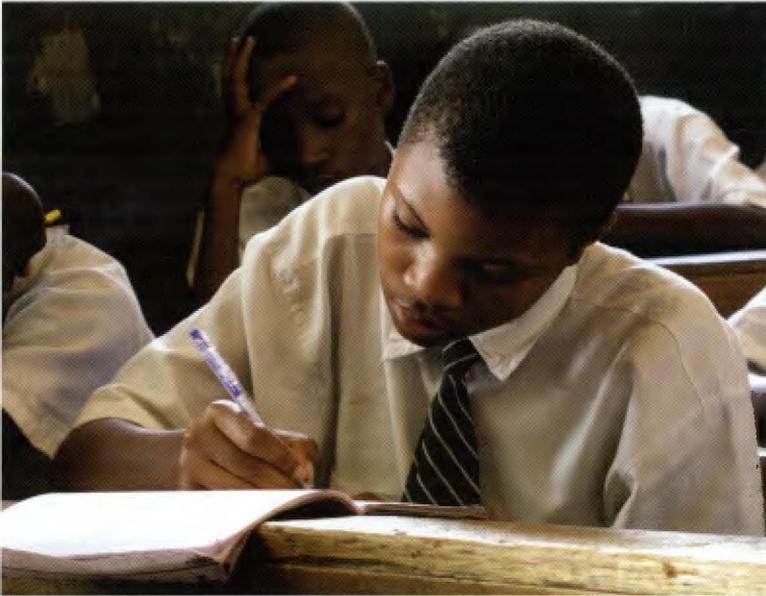
Nemat T. Shafik

Vice President for Infrastructure

World Bank

INCREASING EDUCATIONAL OPPORTUNITIES

In remote rural areas, access to educational opportunities can be severely limited. Even where there are school buildings, teachers, and books, children are often unable to attend school because they spend many hours every day walking miles to fetch water and firewood for cooking and heating. In addition, many schools lack safe and private sanitation facilities. Proper transportation, electricity, and connectivity through communications networks are essential for many poor children to attain higher levels of learning and opportunity.



Arne Hoel/World Bank

Student in classroom in Kampala, Uganda



Curt Gamemak, World Bank



Top: Motorized and non-motorized transport along a rural road in Morocco
Above: Taroudant Province girls en route to rural school in Morocco

Morocco Rural Roads

Extensive socioeconomic surveys carried out in rural Morocco found that providing all-weather road access—and substantially lowering the operating costs for motorized vehicles—generated multiple benefits for people. One benefit: the improved quality of education, as it became easier to recruit and retain qualified teachers, and bring supplies.

Women and girls benefited especially from the road improvements. Primary school education enrollments jumped from 28 percent before road improvements to 68 percent afterwards. The new roads made walking or transport to schools more secure and encouraged parents to send their daughters to school.

Moreover, by making the delivery of butane more affordable, the improved roads reduced the need for women and girls to collect firewood. Having this free time (about two hours daily) opened new opportunities for women and girls—for education, work, and other activities.

The impact of electric lighting on education in the Philippines

A joint World Bank/Energy Sector Management Assistance Programme study in the Philippines examined the social and economic impact of rural electrification. The most important finding was the clear link between electricity and education. Rural households perceived electricity to be important for children's education because it improved study conditions during the evening. This was borne out by the increased number of hours spent by both children and adults reading in rural homes, where electricity was available. Children from electrified households gained about two years in educational achievement over children from in non-electrified households.



Curt Carremon, World Bank

Young children in Manilla, Phillipines

IMPROVING HEALTH

Throughout the world, lack of access to adequate water or safe sanitation is a key factor in the high levels of morbidity and mortality experienced amongst poor families, especially among children. While there is a clear connection between improved health and investments in water and sanitation, other infrastructure services also have high potential for improving health in remote or vulnerable communities. In Rajasthan, India, with better roads and transport, the proportion of pregnant women traveling to Zanana Hospital from more than 100 km away to give birth almost doubled. Before the improved roads, many women were unable to make the long and arduous journeys necessary to get to hospital, often giving birth at home without adequate medical care.

In many communities millions of poor people rely on firewood or dry dung cakes to fuel primitive cooking fires. The smoke produced by these fuels is deadly—the second largest cause of ill health in poor communities after a lack of clean water. Researchers have found that women and children have two to four times higher exposure levels to air pollution from wood and charcoal smoke than men, and are twice as likely to suffer from respiratory infections. The World Bank is addressing this problem by supporting the provision of modern energy services, such as electricity improved stoves, kerosene, LPG, and gel-fuel as a substitute for these traditional fuels.

Mother with baby, Rajasthan, India





Female employee and customers of the telephone store, at the female-dominated "Ladies Corner" enterprise area, in Bangladesh

GENERATING INCOME, EMPLOYMENT, AND GROWTH

Investments in infrastructure services play an important role in supporting the development of small businesses and community-based initiatives, leading to direct increases in income for poor communities and households. The introduction of telephones in rural Thailand allows farmers to check prices in Bangkok regularly, which has significantly expanded their profits—doubling some farm incomes. In Botswana and Zimbabwe, rural surveys suggest that areas with telephone access experience more entrepreneurial activity than those without access. And in rural Bangladesh, one survey found that introducing a telephone line reduced the amount of management travel, thus cutting such associated travel costs as gasoline and salaries by a factor 13 times the installation cost.

After the completion of networked water and sanitation services in Ahmedabad, India, women living and working in a slum area called "Sinheswari Nagar" increased their daily profits from vegetable vending at about Rs50 (US\$1) per day. These services also resulted in incidences of disease falling by 75 percent. Meanwhile in Bangladesh, the Grameen Phone network, which is putting mobile telephones in the hands of women villager operators who sell services, is generating net incomes of \$624 per operator. Bangladesh's GDP per capita, by comparison, is \$262. The International Finance Corporation (IFC), which is part of the World Bank Group, is an investor in Grameen Phone. Very poor households participating in a solar lantern project in India have increased their income by 10 rupees per day from small cottage industries which they handle at night.

GETTING GOODS TO MARKETS ...

For remote rural communities, infrastructure is the lifeline that connects them to the wider world of opportunities. Transport helps bring rural produce to urban markets. Affordable public transportation makes it possible for poor people to find jobs in nearby market towns. Telecommunications can also connect buyers and sellers cheaply and reliably, while energy powers the factories and the rural enterprises where people work. In Ecuador, rural communities have low telecommunications coverage (1.6 main telephone lines per 100 inhabitants), and 25 percent of the rural population has no access to electricity. A World Bank-supported rural electrification project in Ecuador is helping to improve living standards and broaden opportunities by linking poor communities to telecommunications, electricity, the Internet, and business services. The project addresses policy and regulatory constraints and supports the provision of infrastructure directly.



Arnie Hood, World Bank



...CONNECTING COMMUNITIES TO THE WORLD AROUND THEM



Ami Vitale, World Bank

Left: A truck laden with sacks of coffee en route to Dili, East Timor

Left (inset): Transporting bananas to market in Unguja, Zanzibar

Above: Radio Femmes Solidarité, a grassroots women's movement in Cote d'Ivoire

Right: Mozambique TV Studios



Eric Miller, World Bank

IMPROVING THE LIVES OF WOMEN AND CHILDREN

Around the globe, women and children bear the brunt of the burden of poverty in rural and urban areas. They spend valuable time away from productive, educational, or other activities as they walk long distances to fetch water and firewood. In South Africa alone, it is estimated that women walk the equivalent of 319 times around the earth's equator (or 16 times to the moon and back) each day to fetch water. Targeted infrastructure interventions aimed at providing safe water to households directly benefit women and children, and can also provide the means for women and disempowered groups within society to mobilize their collective resources to achieve wider development objectives.

Alejandro Lipszyc, World Bank



Two girls study in the community school in Una in the state of Bahia, Brazil

***Sudha, Master Hand Pump Mechanic,
Cuddalore, Tamil Nadu***

“Being a hand pump mechanic is even better than being a gram panchayat president because our skills will last while the job of president will not.”



Curt Carnemark, World Bank

Sudha, who comes from a very poor family, seized the opportunity to train as a hand pump mechanic. She wanted to improve the lot of village women like herself because broken village pumps necessitate long walks to fetch water and take a tremendous toll on time and health. After taking an intensive training program, she became a master mechanic, charging the full market rate for her work. Sudha notes, “The extra money has enabled me to pay for the education of my daughter as well as my son... something I definitely would not have considered before.”

Women around water pump in India

BUILDING ENVIRONMENTALLY SOUND POLICIES

Poor communities are most at risk from the damaging effects of environmental degradation. In rural areas, the natural environment lies at the heart of local production. And it is often poor families in these areas that bear the burden of water-borne disease and air pollution. In urban communities poor families are forced to reside in areas that are virtually untenable—and lack an adequate voice in decision making. These communities usually endure the accumulation of solid and liquid wastes, are often subject to unpredictable natural disasters, such as floods and landslides, and suffer the most from air pollution from dust and vehicular emissions. Well designed projects can provide the right policy environment to mitigate these ill effects and give poor people a voice in determining appropriate approaches to environmental management.

Local initiatives and the environment in Morocco

Sidi Bernoussi, an industrial zone in a suburb of Casablanca, is home to about 600 enterprises. Energy audits found that considerable energy was wasted through poor equipment and unmetered consumption in the slums that sprawled throughout the park.

The local industrial association and the dwellers, with assistance from the Energy Sector Management Assistance Programme, came up with a community-oriented energy saving project where some of the energy savings would be credited to an environmental trust fund for relocating all 1,000 households living in the park. The concept, combing social, environmental, and energy aspects, has considerable potential for replication in other communities. The World Bank is supporting this project through a grant from the Global Environmental Facility.



Agricultural landscape in Nepal

INTEGRATING THE URBAN POOR INTO THE CITY

Municipal services often bypass illegal and informal settlements, providing services to a very small percentage of the urban population. Because of this, poor people often resort to informal solutions, connecting to electricity grids illegally, or relying on the private sector for their water or transport needs. Improving the overall delivery of municipal services (electricity, water, sanitation, public transport, and telecommunications) and creating formal links to small-scale private providers of service can improve the quality of service to people in poor communities while building a strong link between them and the city. When this is done well, those residing in informal settlements can participate more actively in the life of the city, facilitating a process of legalization and enabling them to influence decisions that affect them. The improved levels of participation have a corresponding impact on the economic life of the city.

Infrastructure Upgrading in Ghana's Cities

Upgrading projects in Ghana's cities over a period of 15 years improved the living conditions of almost half a million poor people living in an area of approximately 800 hectares. The provision of low-income settlements with basic infrastructure and services contributed to a healthier environment and the development of small businesses.

Suame Magazine in the city of Kumasi is called the "Mechanicsville" of Ghana. It is a densely populated area where informal mechanics and motor fitters have set up shop. The winding streets of Suame Magazine were previously dusty and pothole-ridden. The area also lacked running water or proper sanitation facilities, and flooding was a regular problem. Yet, this area housed about 60,000 workers who worked in difficult con-

Municipality of Sao Paulo, Department of Housing & Urban Development



Municipality of Sao Paulo, Department of Housing & Urban Development



A street in an area of Sao Paulo, Brazil before and after urban development upgrading

ditions, providing much needed automotive services to Kumasi and surrounding areas.

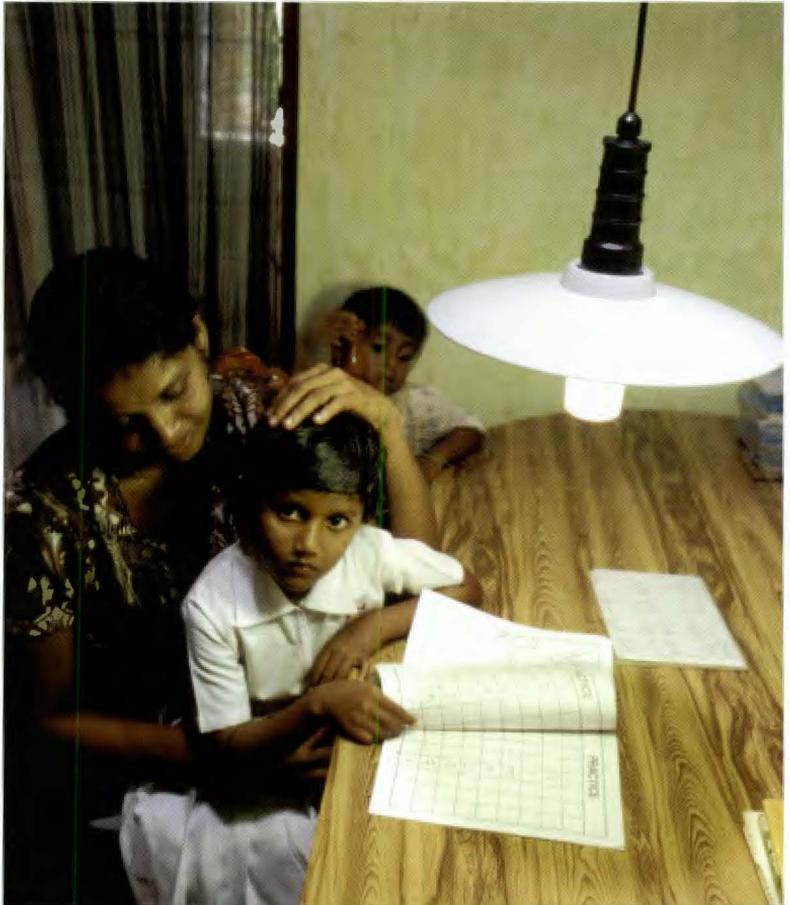
The upgrading of Suame Magazine has improved the sanitary conditions of these workers tremendously. It has also given a huge boost to business, as the earlier pothole-ridden, dusty streets have since given way to well paved roads. The mechanics can now rely on electricity to operate heavy-duty equipment. As a result of the upgrading, the area now draws workers from other parts of the country in search of work or seeking to learn an automotive trade.

“How electricity changed my life.”

Upali, from Soraborawewa Mahiyangana in Uva Province of Sri Lanka, was appalled when his daughter asked him why they didn't have electricity at home like her school friends. “I was worried. I don't have that kind of money,” says Upali, looking back at difficult times.

Upali was able to obtain a loan from SEEDS (Sarvodaya Economic Enterprise Development Services [Guarantee] Ltd.) to invest in a solar panel. Despite restrictions, the organization was able to work out a compromise solution that allowed Upali to install the panel on his grocery store, thereby increasing his income. “That was the turning point of my life.Now I could save some money for the future and spend some for my children's books and other needs”

Solar power allows child to study at home



Dominic Sansoni, World Bank

How improved urban transport saves time

Rosa Guevara, a middle-aged woman from a poor neighborhood in northern Bogota, understands the difference saving a few hours can make. She was laid off as a dressmaker four years ago and now supports her family by working from home, making uniforms for high schools. But as Guevara rides the new Transmilenio bus system, she is surprisingly upbeat. The US\$428 million system of articulated buses, with dedicated bus lanes and automatic ticketing that went into use in January 2001, is not only far safer and cleaner than the old-smoke belching buses, the seamstress now saves two hours in transport time on her trips into the city center to buy cloth and thread. "I can make 10–12 uniforms in those hours," she said. "That's a lot of money for me."

Tram in Bulgaria



Desislava Kulelieva, World Bank



Village shop at dusk lit by solar lamps, Sri Lanka





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