

PROJECT REVIEW

In addition to the published literature, the study team reviewed documentation for all ADB and World Bank transport and energy projects approved by 2000 that identified poverty reduction as a primary or secondary strategic objective. The identification of poverty reduction as a strategic objective goes back only to the early 1990s, so all the projects reviewed were approved after that time. Consequently, most of them are still being implemented. Although some projects contained provisions for poverty impact monitoring, further reports from these projects were not available at the time of this review. None of the projects reviewed has yet been the subject of a post project evaluation report assessing its success in meeting poverty reduction objectives.

Asian Development Bank Projects

From 1993 to 2000, 30 ADB projects on transport and energy (26 for transport and 4 for energy) indicated poverty reduction as their primary or secondary objective. This includes transport and energy sector projects, and projects in other sectors (rural and urban development) with separately identified infrastructure components. These projects were being implemented in Bangladesh, Bhutan, Cambodia, PRC, India, Indonesia, Kyrgyz Republic, Lao People's Democratic Republic (Lao PDR), Nepal, Pakistan, Philippines, Thailand and Viet Nam.

Most (25) of these projects, including all energy projects, had poverty reduction as their secondary objective and economic growth as their primary objective. However, five transport projects (three of which were approved in FY2000) had poverty reduction as their primary objective. These projects were Indonesia's Community Empowerment for Rural Development Project, Kyrgyz Republic's Community Based Infrastructure Services Sector Project, Lao PDR's Rural Access Roads Project, Nepal's Rural Infrastructure Development Project, and Pakistan's Dera Ghazi Khan Rural Development Project.

These projects were designed to contribute to poverty reduction, either by targeting a particular region or province where most of the population is poor or by targeting the poor in a relatively urbanized area.

Transport projects with a poverty reduction objective generally aim to meet development needs by constructing or rehabilitating roads and, in some cases, also by strengthening the capability of institutions or agencies to manage road networks, with the hope of generating savings from lower costs for road maintenance and administration. Most transport projects, particularly roads, have identified a reduction in transport cost as the most immediate benefit they expect to attain. The reduction in transport cost is expected to facilitate the efficient movement of goods, reduce transaction costs, and improve incomes. Rural road improvements that will reduce transport costs and allow access to agriculture services are seen to accelerate agricultural production by increasing the marketed surplus of agriculture and livestock products, reducing spoilage, and encouraging diversification into or increased production of high-value (often perishable) crops. Other expected benefits of road improvements include reducing traffic congestion and accidents.

One of the major expected outcomes of road transport projects is the generation of employment opportunities for the poor, resulting either from road construction and maintenance activities or from enhanced business opportunities where economic activity has increased. Other important outcomes that are seen to contribute to poverty reduction are social welfare improvements resulting from increased access to basic social services, such as health care and education facilities; and financial services, such as credit. Lastly, the poor are expected to benefit from improvements in the physical environment.

One attempt to evaluate ex-ante the likely impacts of a road project on poverty reduction was the Poverty Impact Study carried out for ADB's East-West Corridor Development Project (Chamberlain 1999). The project was to rehabilitate a major highway linking the Lao PDR to Viet Nam. The area traversed by the road contains isolated indig-

enous communities as well as communities established along the road by recent immigrants. Poverty, illiteracy, and disease are especially prevalent among the indigenous communities, whose traditional economic activities have been disrupted by national land allocation and forest management policies. The study points out that such communities are unlikely to benefit from the road improvement unless feeder roads are constructed in tandem with the highway reconstruction. The predicted effects on poor communities are described in Box 3.1. It also warns of the possible spread of “urban” diseases due to increased contact between minority communities and outsiders, and the potential for increased community involvement in the drug trade and other kinds of trafficking.

The construction of a limited-access toll expressway from Beijing to Tongjiang in northeastern PRC was not specifically aimed at reducing poverty; the project’s goals were to reduce congestion on the road and rail networks serving the region and to improve access from the hinterland to key seaports. However, an ex post study of development impact, comparing the project area with a control area as well as to national norms, showed that access to markets and social services had improved and travel times were substantially shortened, leading to an increase in social and economic activity (Pan and Shu 2002). The supply of transport services increased markedly, especially short- and medium-distance bus services. Road accidents were significantly reduced. The project attracted industrial investment to the area and supported the growth of township and village enterprises, including tourism. Although the northeastern PRC is generally low in poverty, poor people from other parts of the country may have been employed in project construction. To enhance the poverty reduction impact, feeder roads serving low-income and vulnerable communities were also upgraded in Liaoning and Hebei provinces.

The PRC’s Guizhou-Shuibai Railway Project will provide transport infrastructure to help create the conditions necessary to reduce endemic poverty in the project area and promote economic growth. Inadequate transport infrastructure has constrained the production of existing coal mines and the development of other natural resources. The project will allow the efficient transport of coal to energy-deficient areas in Guizhou and neighboring provinces. Hence, it will promote an expansion of coal mining in Guizhou. This will also facilitate the establishment of related industries, services, and tourism, creating employment and income-generating opportunities that will help reduce poverty. Similarly, construction of the Jing-Jiu

Box 3.1. Poverty Reduction Effects of Regional Highways and Feeder Roads

Short-term positive impacts

- Access to markets for agricultural produce
- Access to the villages by government health officials and service providers
- Availability of temporary unskilled jobs for villagers in construction
- Opportunity to provide food and restaurant services for construction crews

Long-term positive impacts

- Access to long-distance transport services (personal mobility)
- Access to long-distance markets (buying and selling)
- Easier access to health care facilities and medical treatment
- Increased access to agricultural extension services, including veterinary services for livestock
- Reduced environmental pressure due to reduced reliance on unsustainable extraction of wildlife and forest products
- Increased access to education
- Increased opportunities for the development of tourism
- Diversification of income sources
- Increased participation in rural electrification schemes
- Improved social control (poaching and drug trafficking)

Short-term negative impacts

- Loss of field space and limitation of crop types
- Social disruption during construction resulting from interaction with workers from outside
- Increased risk of contracting socially transmitted diseases
- Physical disruption resulting in dust, noise, and refuse
- Potential safety hazards to villagers unfamiliar with heavy equipment
- Unaesthetic appearance of the road under construction (especially quarries), affecting tourism potential
- Potential for outside exploitation of villagers by entrepreneurs

Long-term negative impacts

- Economic exploitation—due to linguistic and educational background, poor groups are not able to compete effectively with mainstream groups
- Vulnerable groups—while it is probable that ethnic minority groups will experience many positive benefits from the project, they still are at a relative disadvantage as regards language and education
- Gender: increased economic activity may place additional burdens on women
- Increased noise and pollution will occur as a result of better roads and heavier traffic

Source: Chamberlain 1999.

Railway from Beijing to Kowloon, Hong Kong, while not targeted on poverty, promoted rapid growth in the seven provinces it traversed and generated employment, thereby reducing rural poverty significantly.

Urban infrastructure projects are expected to improve the working and living conditions of the urban poor, enhance the urban environment, stimulate economic growth, and generate employment. The Karnataka Urban Infrastructure Project in India aimed to promote decentralization of population growth and economic activity by addressing basic infrastructure deficiencies and related environmental aspects, as well as by building capacity for local governments and providing subsidized housing for low-income groups. The Kathmandu Urban Development Project in Nepal was to invest in core area upgrading, storm drainage, and flood control, bringing benefits to poor people living in squatter areas. The Subic Bay Municipal Development project in the Philippines aimed to rehabilitate and upgrade urban infrastructure, including roads, water supply, drainage and flood control, solid waste management, and markets to provide improved services to the urban population, of whom approximately one third are classified as poor.

The four energy projects reviewed are for rural electrification in Bangladesh, Bhutan, Cambodia, and Thailand. Provision of access to electricity is expected to improve the quality of life for the rural population and to enhance their income-earning potential through the establishment of local small industries that create jobs and consequently assist in poverty reduction. For instance, the Bhutan Rural Electrification Project was to provide indigenously generated hydropower to the domestic market in Bhutan to promote economic development, reduce the use of fuelwood for cooking and heating, and save foreign exchange by reducing expenditure on imported kerosene. The Provincial Power Supply Project in Cambodia was to restore and expand electricity networks in provincial towns, extending electricity coverage and making it more affordable to a greater number of poor households.

An ex ante study for a power rehabilitation project in Tajikistan included a participatory assessment of potential poverty impacts (Box 3.2). Previously, power generation, transmission, and distribution were the sole responsibility of the state power company. The centrally managed system was not responsive to client needs

and suffered severe damage due to civil conflict and natural disasters. The participatory assessment recommended strategies to ensure that electricity would be provided to vulnerable households as well as to social institutions, and to industries generating employment for poor people. It was also recommended that operation and maintenance responsibilities be delegated to local authorities, who should be authorized to retain a portion of the revenues to meet these responsibilities. Participants also noted that complementary actions in other sectors would be needed for energy improvements to have a significant impact on poverty.

World Bank Projects

The World Bank had 36 poverty-oriented transport and energy projects approved from 1994 to 2000. Of these, 32 were for transport or urban infrastructure and only four for energy. Fifteen transport/infrastructure projects were in Asia, covering Bangladesh, PRC, India, Indonesia, Nepal, Philippines, and Thailand. The other projects, including all four energy projects, are located outside Asia, in Africa and Latin America.

The poverty-oriented projects in Asia comprise eight road projects, four urban infrastructure projects, two rural infrastructure projects, and one waterways project. Road infrastructure projects in Asia include highways, rural roads, road equipment, and road safety programs. These road projects were expected to relieve traffic congestion, improve the safety and efficiency of road transport, and facilitate mobility. These outcomes were expected to stimu-

Future meets past, as a pickup passes a team of oxen on an all-weather road in Jamnagar in India's Gujarat State.



Box 3.2. Poverty Benefits of Power Rehabilitation in Tajikistan

Tajikistan is a landlocked, mountainous country with a population of about six million, 85% of whom are estimated to be poor. After 6 years of civil conflict and natural disasters, the country's infrastructure was severely damaged. The Government decided to rehabilitate and strengthen the power generation, transmission, and distribution systems operated by Barki Tajik, the state-owned power company. To determine how this project would affect poor people, a participatory assessment was carried out during project preparation.

The assessment identified the people who would be directly and indirectly affected by the project, including poor people and vulnerable groups, defined in terms of gender, age, ethnicity, and displacement. It also identified other stakeholders, such as non-government organizations (NGOs), community organizations, private businesses, government agencies, and international organizations. Focus group discussions were held to develop an energy resource inventory for poor and vulnerable groups, map energy use in time and space, and obtain people's perceptions about different energy sources. More structured meetings with community leaders, focusing on the role of electricity in reducing poverty, followed these discussions. The results were then carried forward to a workshop with central government planners, line agencies, NGOs, and business and industry groups.

The workshop recommended strategies to ensure that electricity was provided to vulnerable groups (the elderly, female-headed households, and orphans) as well as to social institutions (schools, health care centers) and to industries generating employment for poor people. Participants urged greater transparency in tariff setting, with a portion of revenues to be retained in each community to cover operation and maintenance costs. Independent energy sources, especially renewables, should also be explored. Finally, the participants noted the need for complementary actions in the education, health care, and water supply sectors for energy improvements to have a significant impact on poverty.

Source: ADB 2001d.

late economic activity and, in some projects, to reduce regional disparities.

The road projects were to contribute to poverty reduction by creating employment, i.e., using labor-intensive methods for road construction and maintenance, as well as by providing access to essential social services. Some road projects were also expected to contribute to poverty reduction by empowering poor households in the project areas to raise their incomes through increased grain, live-stock, and fishery production. The goal was to raise incomes to levels at least sufficient to meet the basic needs of food and clothing, and, in many cases, also to generate a marketable surplus to improve living standards.

In the PRC, rural road improvements were being carried out with World Bank support through a program called "Roads Improvement for Poverty Alleviation" (RIPA). The program, linked to ongoing poverty alleviation programs in five provinces, aimed at providing basic access to communities that are not connected to the road network. Basic access was defined as the least-cost improvement required to allow year-round access by the prevalent vehicles in the area (motorized and nonmotorized), and allowing for occasional (but not seasonal) interruptions of service. Roads were selected through a ranking procedure involving economic criteria (including direct measures of poverty) and social criteria (Box 3.3).

Road projects with policy reform and institutional strengthening components were expected to strengthen the capacity of transport ministries or departments so as

to improve the planning, design, and operation and maintenance of road and highway networks. No direct impact on the poor is expected from such capacity-building programs.

The World Bank's urban infrastructure projects in Asia that involve the provision of urban roads and transport services have also included other components, such as water supply, drainage and flood control, and waste disposal. These projects were expected to contribute toward urban poverty reduction, mainly by improving the working and living conditions of the urban poor, enhancing the urban environment, providing better access to basic services, stimulating economic growth, and generating employment.

Rural infrastructure projects in Asia have provided for rural roads, small-scale irrigation and sometimes water supply systems, agricultural processing facilities, and institutional support. These projects were expected to improve equity and support poverty reduction, mainly by raising incomes by expanding the capacity to process live-stock, horticulture, and agriculture; to provide better opportunities for poor farmers and women to contribute to agricultural growth and income generation; to improve the nutrition of the rural poor; and to relieve infrastructure constraints. The PRC's Inland Waterways Project aimed to improve connections between inland waterways and land transport services and to generate hydroelectric power, among other objectives. Two of the project site provinces—Hunan and Guangxi—are relatively poor, and project investments were expected to promote economic

Box 3.3. Road Improvements for Poverty Reduction in the People's Republic of China

The rural Road Improvement for Poverty Alleviation (RIPA) program of the People's Republic of China is linked to ongoing poverty reduction activities in five provinces: Gansu, Henan, Inner Mongolia, Ningxia, and Shaanxi. The program aims at providing basic access to poor communities that are not well connected to the road network. Basic access is defined as the least-cost improvement required to allow year-round access by motorized and nonmotorized vehicles of the types most commonly used in the area.

The levels of access that could be provided include (i) partial access, for trips that do not require all-weather accessibility (e.g., farm and forest roads); (ii) basic access, the minimum required to provide all-weather passability, with exceptions in extreme but infrequent weather conditions; and (iii) full access, a fully engineered road providing all-weather accessibility. Most communities have partial access now, but both residents and the Government consider this inadequate and inappropriate. The RIPA program defines three levels of basic access and associated design standards in relation to expected traffic.

Roads are selected for improvement through a complex process. First, priority counties are identified on the basis of economic and social criteria, including poverty measures, with the aim of targeting investments at poor areas that have potential for future development. Identified roads are then grouped into clusters, which are ranked according to a cost-effectiveness ratio (estimated cost per population served). Because cost-effectiveness criteria would tend to exclude projects in mountainous terrain, the cost of major bridges is excluded and the total cost for projects in these areas is adjusted downward. The final ranking also takes account of the severity of access problems, measured by the number of days in a year when the community cannot be reached by road. Economic rates of return are also calculated, but the minimum cutoff point is graduated (from 8% to 12%) in relation to the type of access provided.

Source: Hatim and Pendakur 2000.

development thereby helping to create new jobs, increase incomes, and reduce poverty.

World Bank poverty-oriented transport and energy projects in Africa and Latin America comprise five road/rural road projects, eight rural infrastructure/other infrastructure projects, one urban development project, four energy projects, and three others: state reform, privatization, and capacity building. The main benefit expected from highway projects was reduced transport costs. Other benefits included reduction of future road rehabilitation requirements, avoidance of road accidents, and savings in passenger time. Increasing incomes by promoting agricultural development, improving access to economic and social services, and increasing employment by carrying out project works with labor-intensive methods were expected to reduce poverty. One project, the Road Sector Investment Project in Zambia, expected to create employment opportunities in the road sector and reduce poverty by creating 30,000 new jobs in road maintenance. Another expected outcome was enhancing the capacity of communities and local stakeholders.

Rural infrastructure projects aimed to improve access to basic services by constructing roads as well as health and education facilities and by providing institutional support. Other projects were to assist governments in addressing environmental concerns. For example, the Ghana Village Infrastructure Project had components for rural water infrastructure, postharvest crop protection, institutional strengthening, and rural transport infrastruc-

ture. The rural transport component was to selectively rehabilitate and improve degraded feeder roads, develop village trails and tracks linking farms to villages to permit the use of simple wheeled vehicles, and implement a pilot program to develop intermediate means of transport for the rural poor. The rural transport component aimed to reduce the need for women and children to head-load goods to market, thereby reducing postharvest losses and saving rural women's and children's time and energy.

Two projects in Brazil, Paraiba Rural Poverty Alleviation and Maranhao Rural Poverty Alleviation, aimed to reduce poverty in the states of Paraiba and Maranhao, mainly by providing basic social and economic infrastructure and employment and income-generating opportunities. The Social Fund Project in Comoros provided for the rehabilitation and construction of feeder roads, as well as infrastructure for primary schools, health centers, water supply systems, and market facilities. This project was to assist the country's poorer communities by replenishing a social fund designed to support demand-driven initiatives that these communities have developed; in doing so, it will create employment and improve access to basic social services.

Other rural infrastructure projects aimed to contribute to poverty reduction by (i) improving equitable access to credit for the rural poor, unemployed youth, and women; (ii) improving incomes and quality of life in rural communities; (iii) strengthening local governance in rural areas; (iv) promoting social and economic empowerment

of the rural population, including women, youth, and other marginalized groups; and (v) increasing access of the rural population to basic infrastructure and services. Projects with institutional support components were expected to strengthen the capacity of selected institutions in efficiently and effectively delivering infrastructure services to the targeted poor.

The Urban Development Project in Togo was intended to contribute to urban poverty reduction with components including infrastructure improvements such as traffic management, environmental and sanitation projects, and community development and institution-building pro-



Today, thanks to many road-building projects, Thailand has an extensive network of highways, like this one leading to the Northeast Region.

grams. Its contribution was to be mainly through small-scale urban works having optimal impact on the employment and incomes of the poor, and through the promotion of small contractors in the construction sector.

Four World Bank poverty-oriented energy projects were approved in the decade prior to 2000. Two projects: Kiev District Heating Improvement and Sevastopol Heat Supply Improvement, both in Ukraine, aimed to improve heat production and distribution. Social assessments for these projects were carried out by local institutions. In Kiev, the assessment found that poor households suffered more than others from insufficient heat and hot water because they could not always pay for these services, and official subsidies were poorly targeted and managed. Many households eligible for subsidies thought they were not eligible, or preferred not to reveal their eligibility status. The social assessment recommended a public information and com-

munication strategy for the project to improve subsidy targeting, to develop a constituency for a fair share of municipal subsidy funds, and to secure regular feedback from clients on service quality.

The Sevastopol study showed that only half the customers on the district heating system also received hot water. As in Kiev, poorer households spent a higher share of their income on food and consequently had less capacity to pay for heat. The social assistance program in Sevastopol was less well known and less used than that in Kiev. On the other hand, most people seemed to feel that they need not pay for heating services as long as the State was not paying salaries on time, and they had little confidence that the charges were related to actual costs. A large majority of the households would prefer to have meters for heating and hot water and felt that this would encourage energy conservation. The study recommended improvements in the targeting and coverage of the social assistance program, reduced bureaucratic requirements, and a more customer-friendly approach. It also recommended a public information and education strategy to promote both the effectiveness of the social assistance program and revenue collection.

The Energy and Water Project in Cape Verde involved energy and water sector reforms as well as promotion of renewable energy. This project was to contribute to poverty reduction by improving power, water, and sanitation systems and increasing the operational and end-user efficiency of energy and water infrastructure.

The Renewable Energy in the Rural Market Project in Argentina aimed to reduce poverty at the provincial level by carrying out power sector reforms. The project supported the promotion of private sector investment in the power sector, taking into account appropriate policy and regulatory frameworks. The four main components of the project were (i) installation of electricity generating equipment for rural markets, either by new or existing concessionaires; (ii) installation of Wind Home System units in two small rural communities to demonstrate the commercial viability and long-run economic potential of wind power; (iii) technical assistance to implement power sector reform and adopt renewable energy technologies; and (iv) technical assistance for project administration.

The project also aimed to remove marketing barriers to the dissemination of renewable energy sources and to reduce greenhouse gas emissions by replacing traditional energy sources with renewable systems.

Three World Bank projects were not classified directly as transport or energy projects, but were to contribute to poverty reduction by assisting the transport and energy sectors, among others, through restructuring of public enterprises, privatization and capacity building, and community-based development. The Rio Grande do Sul State Reform Project in Brazil was expected to contribute indirectly to poverty reduction by improving efficiency in the government's service delivery through privatization and by improving the state's fiscal condition. The Privatization and Regulatory Capacity Building Project in Cape Verde appears to contribute to poverty reduction indirectly by creating an enabling environment for private sector development, including the transport sector. The Borgou Region Pilot Rural Support Project in Benin was to contribute to poverty reduction by improving the capacity of rural women and village communities to better manage their socioeconomic environment.

Monitoring and Evaluation

Most ADB projects included planned project monitoring and evaluation activities, although many were described only in a very general way in the report and recommendation of the President (RRP). Project monitoring mechanisms, including planned targets and indicators, were presented in the RRP's Project Framework. The indicators were mainly measures of project outputs or outcomes, such as the percentage of paved roads, traffic volumes, changes in passenger and freight rates, reduction in traffic congestion, and the passability of roads. For some projects, indicators included the number of jobs to be created. The more recent projects have identified poverty indicators, although some did not specify the extent of expected outcomes. Indicators of success in achieving poverty reduction objectives included, for example, a lower percentage of families below the poverty line, higher average rural household income, higher attendance in primary and secondary schools, improved literacy rates, and improved access to health care and other services.

In some cases, project monitoring mechanisms were to be put in place only when the project was implemented. Some projects stipulated setting up a project implementation office to collect and report data on the progress of the project. In other cases, benchmark data were collected

during project formulation and similar data will be collected during project implementation. The reports gave limited information on how the poverty reduction objective of these projects would be addressed in the definition, collection, and analysis of the data. Proposed monitoring mechanisms included review missions, progress reports, participatory rural appraisal results, and periodic surveys.

Numerous ADB projects included provisions for studies aimed at measuring the poverty reduction impacts of transport and energy improvements. One such study was the socioeconomic impact study of the Rural Roads and Markets Improvement and Maintenance (RRMIMP II) project in Bangladesh. The Phase I report for this study (Bangladesh Institute of Development Studies 1998) describes the socioeconomic profile of the study area prior to project implementation, and the benefits expected to accrue to the rural people arising out of the improved rural transport and trading infrastructure under RRMIMP II (Box 3.4). To analyze and quantify impacts, the study adopted a "before-and-after, with-and-without" ("double difference") approach. Ten sample roads were selected, with four control roads matched to four of the sample roads. For each road, one roadside village and one remote (2 km away) village were to be studied. The household sample in each village was stratified by land ownership and occupation. Benchmark data for the key variables prior to the infrastructure improvements were collected and were to be compared with information on the set of variables 1 year after construction was completed, to assess short-term impacts, and 3 years after completion for the longer-term impact.

A review of project monitoring mechanisms and indicators described in the World Bank project appraisal reports shows that some projects, though not many, explicitly addressed poverty impacts in their proposed monitoring and evaluation activities. For instance, the PRC's Shaanxi Poverty Alleviation Project showed in a logical framework diagram how the individual project components were linked to poverty reduction. The monitoring system provided for monitoring of the direct impacts at an early stage of the project, while the indirect impacts were to be measured at a later stage. This poverty monitoring mechanism was also used in the Western Poverty Reduction project in the PRC. As part of the Mindanao Rural Development Project in the Philippines, a social assessment was carried out to ascertain the main constraints rural communities face. All these projects collected baseline information prior to project implementation.

For projects that had a specific objective of reducing poverty in a particular area, e.g., the PRC Western Pov-

Box. 3.4 Impacts of Rural Infrastructure Improvements in Bangladesh

The preliminary socioeconomic impact study of the Rural Roads and Markets Improvement and Maintenance project (RRMIMP II) in Bangladesh identified likely impacts in three interacting areas in the rural economy:

- the production and service sectors,
- the institutional and social service sectors, and
- the household sector.

In the production and service sectors, the anticipated impacts are increased access to inputs, increased marketing of outputs, and increased transport services. Increased access to inputs was expected to lead to

- intensification of factor use,
- improved input use and transition to better technology,
- increased volume of output,
- changes in the output mix, and
- a rise in productivity levels.

In marketing, the expected changes were

- locational spread of markets,
- increase in market size in terms of number of buyers and sellers and turnover leading to a rise in toll revenues,
- changes in the physical structure of shops,
- changes in the composition of goods and services traded,
- changes in the level of prices of goods exported from and imported into the area, and
- reductions in seasonal variations.

In transport services, the study expected

- increase in the volume of traffic, passenger and freight;
- change in modal mix and freight composition;
- reduction in seasonal variation in traffic flows;
- changes in transport sector ownership patterns; and
- lowered transport charges resulting in user cost savings.

In the institutional and social service sectors, indirect impacts were expected through changes such as

- better health care services,
- higher school enrollment levels,
- increased extension services, and
- more rural financial institutions.

At the household level, transport improvements would affect

- the level and characteristics of household members' employment, due to changes in both demand and supply of labor;
- the level and sources of wage and nonwage income;
- consumption and market surplus;
- use of transport;
- demand for institutional services, particularly health care, family planning, and education;
- savings and investment;
- asset accumulation; and
- demographic features.

Source: Bangladesh Institute of Development Studies 1998.

erty Reduction Project, the key performance indicators used to monitor the achievement of this objective included the percentage of population below the national poverty line, increases in crop and livestock yields, school enrollments, visits to health centers, jobs created, etc. A similar approach was used for the Shaanxi Poverty Alleviation Project, with the goal of reducing poverty in 20 of the poorest counties in Shaanxi Province. Indicators included real increase in rural incomes, percentage of households above the poverty line, employment rate, quality of housing and other assets, repayment of loans, wage income increases, etc.

For Nepal's Road Maintenance and Development Project, sector and outcome/impact indicators were classified. Sector indicators included improved access of rural population to basic infrastructure services and social facilities, and decreases in transport costs. Outcome/impact indicators were the share of population provided with increased access to basic motorized transport in the project districts, reductions in travel time and transport cost, employment creation, and improved road conditions and quality of road works. This list demonstrates that there was still some confusion about the difference between outputs and outcomes, as well as in the choice of indicators to assess project outcomes in terms of their impact on poverty reduction.

The monitoring activities for Second Shaanxi Provincial Highway Phe indicators were also classified into two other categories: those related to implementation targets (pointing to progress in reaching intermediate and end-of-project objectives) and those related to developmental impact objectives (pointing out both the more immediate/short-term conditions resulting from project investments and the longer-term outcomes of these investments). For the RIPA component, the key performance indicators included employment creation, school enrollments, hospital visits, increased traffic volumes, and reduced road closures. The assumption was that, since these investments were targeted to poor areas, the poor would gain the lion's share of the resulting benefits.

For other projects, the indicators presented were mostly of project output. For instance, the key performance indicators for the China Guangxi Highway Project were reduced time for interprovincial trips due to a more efficient highway system involving lower cost and shorter distances; more staff trained, formally and on-the-job, in technical and managerial skills, to respond to the needs of an expanded, high-grade highway network; an increased budget to rehabilitate and maintain provincial roads (other

than the high-grade network); and fewer traffic accidents, especially on the heavily traveled corridors. In the case of the Bangladesh Third Road Rehabilitation and Maintenance Project, some key indicators were completed national road network, reduced accident rates, reduced vehicle operating costs, improved feeder roads, and number of narrow bridges widened.

Mechanisms for monitoring and evaluation included the preparation of sector reports, country reports, progress reports on poverty assessment, project implementation reports (monthly, quarterly, and annual), and monitoring of disbursements. Data for assessing the achievement of project objectives were also to be collected through baseline and follow-up surveys. Other monitoring mechanisms included midterm reviews, final project evaluations, participatory rural appraisal results, community-based monitoring systems, etc. For some projects, e.g., the India Assam Rural Infra-

structure and Agricultural Services Project, a project unit was set up to monitor project implementation progress regularly.

In summary, while ADB and World Bank projects generally included provisions for project performance monitoring and often included impact monitoring and evaluation as well, relatively few projects, even those that explicitly targeted poverty reduction, actually monitored the outcomes of the project as to poverty reduction impacts. To do so with methodological rigor is a complicated exercise, requiring the investment of more resources than most borrowers are willing to devote to this task. Only in exceptional cases, such as the Viet Nam Rural Transport Project (Box 3.5), can field studies be carried out to adequately assess the linkages between infrastructure investments and poverty reduction. Filling this gap is one of the main objectives of the present study.

Box 3.5. Evaluating the Poverty Impacts of Rural Roads in Viet Nam

The Viet Nam Rural Transport Project is designed to rehabilitate rural roads in 18 poor provinces of Viet Nam. A poverty impact evaluation study is being implemented in 100 randomly selected project communes and 100 control communes in six provinces, representing Viet Nam's six geographical regions. Control communes were chosen from the same districts as the project communes to maximize comparability. However, to avoid the problems of endogeneity (impacts attributable to factors influencing program placement) flagged by several researchers (Binswanger *et al.* 1993), the comparability of the control sites will be further tested through use of a logit model based on the data collected in the baseline survey.

The logit model uses a panel design. In each commune, baseline data were collected in 1997 through a commune-level survey and a survey of 15 households selected through a process of poverty-stratified random sampling. A second round of surveys was completed in 1999, a third is planned for 2001, and a fourth for 2003. The household questionnaire replicates several questions addressed in the Viet Nam Living Standards Measurement Survey, enabling subsequent inferences about household poverty levels. District-, provincial-, and project-level databases have also been constructed. The study focuses on measuring changes in the determinants of living standards in relation to road improvements. Outcome indicators include agricultural production and yields; income source diversification; employment patterns; changes in land use and distribution; availability of goods, services, and facilities; and asset wealth and distribution.

Source: van de Walle 1999.



For most people in the study areas of this report, a motorscooter or motorcycle is the first step in motorized transport.