

PRIORITIES FOR FUTURE RESEARCH

It was not possible for this regional technical assistance (RETA) to address the full range of issues on the subject of transport and energy infrastructure investments and their impacts on poverty reduction. It focused on the end user of transport and energy services, and on distinguishing impacts on the poor from impacts on the nonpoor. It looked at impacts primarily in a rural context, although it has paid some attention to the urban poor, and to the ways in which the poor use transport and energy services to link urban and rural contexts together. The time frame for the RETA, and the extent to which communities in the study areas were already served by transport and energy services, made it difficult to use a “double-difference” design for the field research. Instead, the country teams chose to look at differences in household-level access, and to focus on subjective perceptions of impacts as well as on objective indicators of change, to the extent that the data were available.

Within the transport sector, the RETA gave greater attention to the impact of recent rural road improvements. However, two of the studies looked at the impacts of railway construction and operation and one studied the impact of a private port project. While a considerable literature already exists on the subject of rural roads, relatively less is known about railway and port (and airport) projects, or the impacts of capacity expansion projects on major highways.

With respect to these larger projects, it appears that impacts should be separately studied for the construction period and for the period of transport operation. Construction of large projects can provide a short-term stimulus to the local economy through employment and the purchase of local goods and services. To the extent that labor-based techniques are used, part of these benefits can be directed to the poor. However, labor-based techniques are often inappropriate for large projects. The opportunities for local employment may be limited, and the opportunities to provide local goods and services may also require a level of investment that the poor cannot afford. The main purpose of large transportation projects (highways, railways, ports, and airports) is to create a favorable

environment for economic growth. The poor will benefit from growth opportunities to the extent that they have the necessary skills and assets to participate.

Within the energy sector, the RETA looked primarily at the impact of rural electrification programs based on extending grid electricity to rural communities. In principle, rural electrification programs based on other sources of electricity, such as community-based renewable energy projects, should not differ significantly in their effects on the poor. However, community-based projects might well have a significantly different effect, even though the electricity provided is the same. For one thing, community-based projects often have a limited capacity and a variable output. This limits the extent to which poor households can use such energy sources to increase their productivity. For another, the unit costs of delivering energy through community-based projects are generally higher than those of grid-based electricity services.

On the other hand, the relative advantage of grid-based electricity depends entirely on the quality of service provided and the relationship of the tariff structure to marginal costs. If state-supplied electricity is weak or unreliable, and if the tariff structure imposes excess costs on domestic consumers, then community-based projects may well be preferable. In addition, such projects can help to build community management capacity and increase local accountability for both the cost and quality of services. Decentralized activities, many believe, will increase the scope for participation by the poor, raising the probability that the poor will receive positive benefits and avoid negative side effects. This is a hypothesis worthy of further investigation.

Infrastructure and Pro-Poor Growth

The literature on the linkage between infrastructure investment, both public and private, and economic growth,

is growing. Some interesting work in this area has been done recently, especially in Asian countries, and continuing this general line of research would be worthwhile. Until now, the debate on pro-poor growth has focused on the link between economic growth and increases in poor people's incomes that can lead to a reduction in income poverty. However, it is also necessary to examine the link between economic growth and improvement in nonincome dimensions of poverty. It is necessary to broaden the notions of poverty reduction and pro-poor growth to cover both income and nonincome dimensions, and to conduct additional research to improve understanding of the latter. For cross-national comparisons, it will be necessary to develop a shared understanding of this broader concept of poverty and a common set of indicators for use in future research.

Sector Policy Issues

Transport

This RETA has mainly focused on the effects of improving road access to rural communities. It has not directly addressed the poverty reduction impact of system-wide improvements designed to alleviate congestion, increase average speeds, and provide more efficient transportation services on a larger scale. Yet, to the extent that the poor are using these systems, directly or indirectly, they may share in the benefits of such improvements. More work needs to be done to tease out the mechanisms by which transport cost savings that accrue in the first instance to vehicle owners or operators are passed on to intermediate users (shippers, merchants, service providers) and end users (travelers, producers, consumers). It seems that the degree of regulation and competition in service provision is likely to affect the pass-through of savings to end users. Subsidies to public transport providers, aimed at improving service to the poor, often appear to have perverse effects. Future research could explore these mechanisms and their effects on the poor in greater detail.

This study has indicated a relatively low level of concern among the poor about the potential risks of road travel. Yet the poor are commonly alleged to be the most likely victims of road accidents and inadequate emergency services. Research on road safety and the real incidence of accident costs may help to clarify views on this subject. Similarly, the poor, especially the urban poor, are more likely to suffer the effects of vehicular air pollution. Again, this has not been an expressed concern in this study. Additional

research might serve to raise awareness and stimulate policy change where needed.

Large infrastructure investments such as limited-access highways, railways, ports, and airports are expected to stimulate economic growth in the areas they serve. Although the opportunities for the poor to participate directly in the construction and maintenance of such infrastructure are limited, they may benefit from the employment opportunities created by general economic growth. The extent to which the poor participate depends on their ability to access the infrastructure and related services (for example, secondary roads linking communities to major highways), and on their ability to take advantage of resulting employment opportunities (skills, credit, etc.). A favorable environment for this type of indirect impact seems especially likely when transport and energy investments go together and are combined with strong investments in education and telecommunications. Future research might usefully focus on more specific cases, identifying the factors favoring the participation of the poor in infrastructure-induced economic growth, as well as the barriers to such participation by the poor.

Energy

This study strongly suggests that participation by the poor in the benefits of energy projects could and should be increased. The barriers are mostly regulatory (especially in the case of the urban poor), and high upfront costs. Research could help to identify regulatory barriers and examine the potential for well-designed, targeted subsidies or credit programs to cover upfront costs. Poor quality of service on existing energy networks is also a disincentive to participation by the poor. Future research might focus on better defining consumer needs at different levels of consumption, and making services more responsive to those needs.

This RETA has not specifically addressed the effects on the poor of current policy changes that involve “unbundling” energy sector services and encouraging greater private sector participation. Research elsewhere in the world, particularly Latin America, has suggested that such policy change will be beneficial to the poor, even if short-term costs increase. Private operators, it is believed, will be more responsive to the needs of their customers and will seek to operate services more efficiently. The poor who are currently shut out of services by regulatory barriers or poor quality will gain access and will see their total energy costs reduced, in comparison with the costs of meeting their energy needs in other ways. Others fear, however,

that the private sector will raise prices beyond reach of the poor, and insist on the need for continuing subsidies. Here is a fertile area for future research in the context of ongoing sector policy change in the developing member countries.

Service Provision

Although the RETA initially aimed to cover changes in service provision as well as infrastructure investments in the narrow sense, the field research mainly focused on infrastructure projects, treating service provision as an intervening variable. Although some changes in service provision are clearly related to infrastructure changes (for example, the proliferation of motorized vehicles on recently paved roads), others may be quite independent of such change. An interesting aspect of this question is the extent to which the poor invest in assets, such as vehicles, equipment, and appliances, so that they may become direct users of the infrastructure provided. Even if the poor are unable to make such investments, they may share in the benefits by using equipment acquired by others (e.g., taking crops to market in a neighbor's truck, watching television in a neighbor's home). Renting equipment is another mechanism by which the poor can make occasional use of services they cannot afford on a regular basis. Further research could focus more closely on such changes in the asset base of the poor and the extent to which the poor can "own" new services in this way.

The RETA also suggests that the improved quantity and quality of services at the community level can have an indirect effect on the poor, even if they are not direct users of these services. For example, reduced transport costs can lower the cost of goods in local markets and increase the reliability of supply. Street lighting and electricity in community facilities such as schools and health care centers bring benefits in which the poor can participate. More work could be done, perhaps through participatory methods involving the poor themselves, to identify and quantify such indirect benefits and their effects on the lives of the poor.

Infrastructure and Urban Poverty

This RETA has touched only lightly on infrastructure impacts on the urban poor. Yet the character of poverty in Asia is changing, and poverty is growing in many urban areas, even as it is being reduced in rural areas. The nature of poverty in urban areas is different: many goods that are "free" in rural areas, such as clean air, water, fuels, and building materials, must be paid for in an urban setting. Wage employment and cash income are more critically related to quality of life in urban areas than in rural areas. Many of the urban poor depend on the informal economy to make a precarious living. In addition, urban areas heighten the perception of poverty by offering a ready comparison with the lifestyles of the really rich.

Future research could examine more closely the ways in which the effects of transportation and energy investments in urban areas "trickle down" to the poor. The incidence of both costs and benefits needs to be taken into consideration. Large urban infrastructure investments consume land and create barriers to physical movement, potentially causing physical, social, or economic displacement of people who are likely to be poor. They also raise the value of surrounding land and buildings and encourage the growth of enterprises that consume additional land and constrain the space for housing and small businesses. Socially conscious urban planning would take such impacts into account and aim to ensure that the urban poor

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do not suffer in consequence. At the same time, urban infrastructure improvements that are appropriate in size and scale facilitate the delivery of services in poor neighborhoods and the access of the poor to employment and income-earning opportunities over a wider area. Policy research might focus on the meaning of “pro-poor growth” in urban areas and the types of controls that would be needed to ensure equitable participation by the poor.

Although the RETA did not specifically address rural-urban linkages, at least two of the country case studies (the People’s Republic of China [PRC] and Thailand) demonstrate their importance. In the case of Thailand, long-distance travel patterns reveal the role played by transportation in linking the rural poor to opportunities in the city and strengthening social bonds between family members living in urban and rural areas. The PRC study also shows the role of long-distance transport in promoting labor mobility and mitigating environmental risks such as drought. Both transport and energy projects played a part in improving communication and information flow between rural and urban areas. The full extent of these rural-urban linkages and their effects on the poor, both rural and urban, remain to be further explored.

Large Projects

Considerable methodological difficulties arise when one examines the impacts of large projects, such as expressways or electricity generation, where attribution of impacts is especially difficult. At the same time, large projects continue to account for a large share of development partner support to the transport and energy sectors, and satisfactory existing studies of their impact on poverty are lacking. A case can be made for conducting studies to improve understanding of the nature and extent of poverty reduction impacts of larger projects. Such studies should be preceded by an initial phase to develop the conceptual framework and appropriate analytic methods.

Gender Issues

The field research done for this RETA did not permit an in-depth investigation of the differences between infrastructure impacts on men and women. Quantitative data were obtained at the household level, and the field teams did not find it useful to disaggregate their data in terms of male- and female-headed households. However, women actively provided answers at the community and household level, as well as in focus group discussions. In a few

cases, focus group discussions were held separately with women, but these did not reveal many significant differences from the findings for men.

The main conclusion from this aspect of the research is that transport and energy improvements create new opportunities for women as well as for men. However, the extent to which women can take advantage of these opportunities is influenced by economic, social, and cultural factors. Safety and security are especially important factors for women, who are vulnerable in public settings. Access to electricity makes it possible for women to do more and to learn more within the home, while improved transport facilitates their involvement in activities outside the home. However, greater income-generating opportunities for men, especially those that involve daily travel or migration, do not necessarily help to improve women’s productivity or status.

Most research on gender aspects of transport and energy infrastructure impacts has not distinguished between poor and nonpoor women, although it has generally been carried out in communities that could be characterized as poor. Future research could investigate this question more closely. Some research has suggested that, in the Asian context, poor women are actually more likely to benefit from infrastructure improvements than relatively better-off women, as the poor women are less socially constrained. If true, this hypothesis suggests that transport and energy projects may have a very profound effect on the social structure of rural communities.

Institutional Issues

By focusing on the end user, this RETA has paid little attention to the institutional and governance issues that have much to do with the effects of transport and energy investments on the poor. This is an area that really cries out for additional research. In addition to the general concerns of maximizing efficiency and quality in service delivery, research is needed on how to make regulatory institutions and service providers (public or private) more responsive to the needs of the poor. Decentralization of regulatory responsibility to local authorities has been proposed as one answer. Does this work, or will the decision-making process be captured by local elites? What safeguards are needed to ensure the equitable participation of the poor in, for example, stakeholder oversight groups? What role, if any, can be played by nongovernment organizations? How can the poor hold accountable those representing their interests? Do examples exist of effective community-based or-

ganizations that have successfully managed infrastructure assets and/or operations? What additional benefits can they bring to poor communities?

Another area that might usefully be studied is the behavior and incentives facing service providers at all levels. Anecdotal evidence from the RETA focus groups suggests that public transport operators, especially those serving the poor, often overload their vehicles, drive recklessly, and discriminate against women. Electricity agencies are notorious for their cumbersome, bureaucratic paperwork and procedures, which tend to discourage the poor. Lack of transparency and good governance at all levels creates opportunities for petty bribery that further penalize the poor in their attempts to secure services. At a higher level, decisions are taken on political grounds to which the poor have access only if a genuinely democratic political process is in effect.

Monitoring and Evaluation

Most of the ADB project reports reviewed for this RETA included project monitoring and evaluation (M&E) activities. However, the indicators were mainly measures of project outputs rather than poverty outcomes. For some projects, indicators include the number of jobs to be created. More recent projects identify poverty indicators, although some of these do not specify the extent of expected outcomes. Among the World Bank projects, some, though not many, have explicitly addressed poverty impacts in their proposed M&E activities. The World Bank has also developed detailed guidance on the design of M&E programs for transport projects.

Through the implementation of these ongoing projects, a substantial database on poverty impacts will be

created. If the projects are implemented as planned, this database will be of high quality, containing baseline data and periodic follow-up survey data on key indicators for both “treatment” and “control” groups. These ongoing projects should be inventoried to determine the definitions of poverty that they have used and the key impact indicators that they have in common. The findings can then be fitted into an analytic framework that would permit comparison across projects to examine the effects of contextual and situational factors on project outcomes.

Indicators of poverty and poverty reduction in such studies are usually limited to income levels, assets, occupational status, and some indicators of health and education status. Additional indicators relevant to the noneconomic dimensions of poverty, such as safety, security, and social participation, should be developed. Time budget studies may be particularly valuable in examining the effects of transport and energy interventions, and resulting time savings, on the lives of the poor. In all of these studies, data collection and analysis should be disaggregated by gender as well as by income levels, in order to facilitate the study of gender-specific impacts. Greater use could be made of qualitative and participatory research methods to gain insights into the direct and indirect effects of such projects on particularly vulnerable groups.

Methodological Aspects

The literature review and case studies of this RETA showed that attempts to study the poverty reduction impact of individual transport interventions face considerable difficulties at conceptual, methodological, and practical levels. To reduce the risk of conducting studies that produce inconclusive findings, future study proposals should generally be preceded by work to develop a reliable concept, methodology, and practical approach.

