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**HOW AND WHEN INFRASTRUCTURAL INVESTMENTS
ENCOURAGE INCLUSIVE GROWTH:
LEARNING FROM ADB'S EXPERIENCE**

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HOW AND WHEN INFRASTRUCTURAL INVESTMENTS ENCOURAGE INCLUSIVE GROWTH: LEARNING FROM ADB'S EXPERIENCE

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A. Introduction

1. **Background.** This paper focuses on one type of infrastructural investments—rural roads. Participatory poverty assessments have long identified remoteness and isolation as critical components that prevent inclusive growth. Although it is widely assumed that investments in rural roads encourage inclusive growth, there is little evidence of the ways in which these impacts occur or what their determinants are. Through the collection of empirical evidence from a cluster of case studies drawn from past Asian Development Bank operations, the paper addresses this issue.² The objective of the study was to help improve the design of rural road projects to achieve sustainable benefits for the poor. Realizing that pragmatic recommendations need to capture the real-life impediments that often plague project design assumptions, the study focuses narrowly and deeply on selected case study villages within a project area. This enables an understanding of the factors that influence rural road impacts on inclusive growth.

2. **Methodology.** The study methodology was carefully designed to maximize the use of both qualitative and quantitative information available for a retrospective impact evaluation of this nature. It did not assume an automatic link between rural roads and poverty reduction, but considered the multifaceted impacts that determine how people respond to improved rural roads and shape livelihood constraints and opportunities. It accepted that poverty is a multidimensional condition, and that lack of income is only one component. It focused on both physical and nonphysical accessibility constraints that the poor may have, and reviewed both direct impacts that are often felt immediately and indirect impacts that take time to be felt. It recognized that women and men have different productive and household responsibilities and, therefore, different transport needs. To capture this broad sphere of influences, it focused on key impact indicators using available secondary statistics, and relied on classical road impact assessment tools such as traffic and passenger surveys and changes in vehicle operating costs. In addition, it collected data from household surveys, key informant interviews, participatory rural assessments (PRAs), and feedback workshops. These tools were used sequentially, each intending to inform the next phase and cumulatively to validate the data.

3. Three countries, with two projects in each, were selected. They were Indonesia, Philippines, and Sri Lanka.³ Cumulatively, the cluster of field sites selected covered a broad range of both physical and nonphysical factors likely to condition the context for rural road interventions. From each project, a road segment was selected as a case study area. Road segments in poor districts (where the incidence of poverty was high) were purposely selected during this process, as the study focus was the impact of roads on poverty and inclusive growth.

¹ The views expressed in this paper are those of the author and do not necessarily reflect the views and policies of the Asian Development Bank or its Board of Governors or the governments they represent. The Asian Development Bank does not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequence of their use. Use of the term "country" does not imply any judgment by the author or the Asian Development Bank as to the legal or other status of any territorial entity.

² This paper is based on the author's previous work. See Hemamala Hettige. 2006. *When do Rural Roads Benefit the Poor and How? An In-depth Analysis Based on Case Studies*.

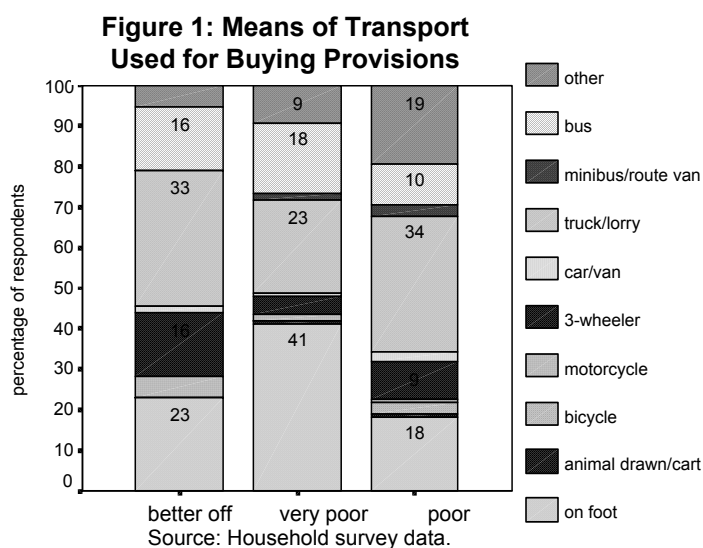
³ In Sri Lanka, the projects were located in Kurunegala and Matara. In Indonesia, they were in Bengkulu and Yogyakarta; and in the Philippines, the projects were in Sorsogon and Negros.

B. Selected Study Findings

4. **Very poor live in a walking world.** PRAs indicate that the poor and very poor inhabit a localized village, walking world, and as such make little use of medium- or long-distance transportation links. Of more importance to them are the network of paths, tracks, culverts, and access routes in the immediate village vicinity, on which they rely to access water, firewood, fields, and local employment opportunities. Saving time in their within-community travel is important to them. Intermediate modes of transport that help them increase their carrying capacity are also useful to save time for more productive work. Most things critical to their lives can usually be found within the village locale, and travel outside is occasional and for a special purpose. Incremental benefits to them are more likely to come from accessing nonmotorized transport and ability to cross waterways, etc., to help in their daily routine tasks. Often, they cannot afford to use motorized vehicles, and these vehicles travel to destinations beyond their sphere of livelihood. Therefore, increasing the mobility within the village is as important for poverty reduction as providing access to markets outside the village. The time savings within the village will allow the poor and very poor to be more productive and generate small savings to explore opportunities outside the village.

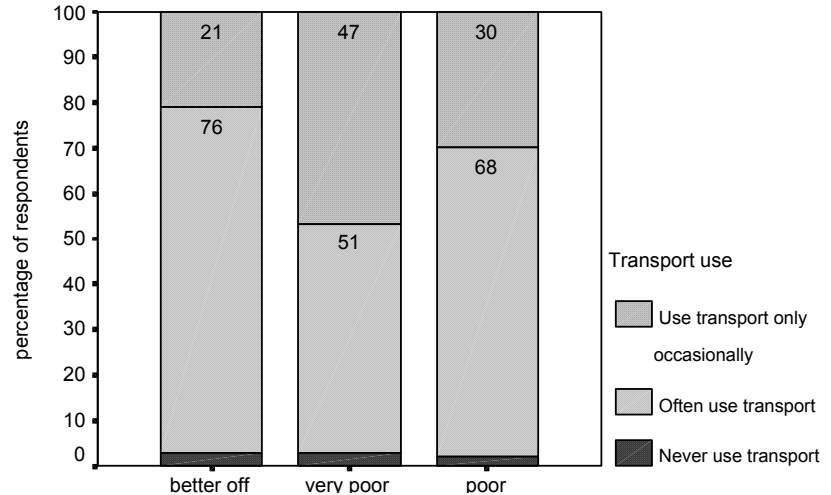
5. **Travel patterns differ by gender.** Inside the community, the survey shows that women are much more likely to travel for health purposes (55% as opposed to 5% for men), either for themselves or, more frequently, to accompany children. They are also much more likely to travel for provisions within the community, with 46% of responses against 17% for men, and 18% shared by both. Men are more likely to travel for crop processing (53% to women’s 14%, with 17% shared) and social travel within the village is largely shared. In travel outside the community, these patterns are broadly replicated. Survey returns also show that, for various tasks, men are more likely to have access to private means of transport like a bicycle, 3-wheeler, or motorcycle. Women are more likely to travel on foot to fulfill tasks, or use public transport like a bus or truck. The opportunities for men to travel outside the village and to take up outside work are reinforced and perpetuated by traditional gender roles in the study sites, with women responsible for household tasks and men for productive or economic tasks.

6. In looking at access to modes of transport, it is useful to consider transport used for buying provisions, which is a common task. Figure 1 shows the proportionate modes of transport for each group in the project sites. The very poor are much more reliant on walking than the better off. The latter are more likely to have access to private motorized means (motorcycle or 3-wheeler) or to a car or van. Interestingly, the poor are more likely to use a bicycle, while bicycle usage among the very poor is negligible. The very poor’s heavy reliance on walking is reflected in other tasks too, such as in accessing health services, going to school, and selling products.



7. **Transport needs differ by socioeconomic groups.** Transport needs are clearly different for different socioeconomic groups. The case studies show that most of the journeys made by the rural poor are for subsistence and household tasks, rather than for activities that are directly productive in an economic sense. For the rural poor, access to local facilities and the primary transport network is critical during times of need. The poor lack both time and energy, and impacts that either reduce or exacerbate these deficiencies have a critical bearing on poverty. Survey responses among different socioeconomic groups in the project locations show clearly how the use of transport services differs (Figure 2). Among the very poor, 47% say that they use transport only occasionally because they have little need for traveling outside the community more regularly, compared to only 21% of the better off and 30% of the poor.

Figure 2: Frequency of Use of Transport Services



Source: Household survey data.

8. There is little evidence from the case studies of an increase in personal mobility among the very poor following road rehabilitation in search of job opportunities outside the community or for any other reason. A traditional assumption on the mobility of the poor is that their lack of agricultural assets, particularly land, makes them more likely to seek employment outside the community and that road access helps this substantially. However, labor markets in remote rural areas are imperfect, and accessing opportunities is difficult, particularly where there is a lack of information. This lack of information and inability to command rights over work opportunities are themselves a function of poverty. Better-off households are much more likely to have access to information on well-paid, or stable, outside employment, while the poor and very poor access only temporary, seasonal, and unskilled work opportunities, which are usually poorly paid. Lack of education and lack of support networks in more urban areas compound this trend. But where the economic conditions are right, better basic road access can impact on the local wage-laboring and trading prospects of the poor, and thus enable them to benefit from wider processes of increased agricultural commercialization and trade, facilitated by better roads. In the study areas, a few households graduated from the poor to nonpoor status because of the opportunities that the road provided (Box 1).⁴ These households usually had some skills to sell or had a temporary injection of funds to start a small business.

⁴ The text boxes which provide qualitative information are shown in the appendix.

9. **Village conditions improve.** In general, the benefits of better roads (to all socioeconomic groups as a whole) are highly evident when project villages are compared to control villages. Average travel time taken is often half or less for project households than control households for all types of activities. For a variety of tasks, project households in the survey were more likely to travel on a weekly basis, and control households on a monthly basis. Due to difficulties of access, control site households often have to wait and combine a number of important tasks into one trip to avoid spending long periods of travel for one purpose only. In response to the questions on what the primary purposes of travel are and how often they travel outside their village, respondents in project sites and control sites had different priorities (Table 1). Control households travel more frequently for crop processing and for selling their produce than project households. This suggests that (i) primary agricultural activities are more important in the control areas, which may lack alternative livelihood opportunities; and (ii) due to better access, many of the services that come directly to the project site are not available in the control site. Evidence from PRAs in all locations suggests that, as a broad trend across all three countries, both of these factors are important. Project sites have a wider variety of services (e.g., crop processing) available within the village, and are also accessed more regularly by buyers, meaning that primary producers are less likely to have to travel outside the community to sell their produce.

Table 1: Travel Patterns and Time Outside the Village for Project and Control Sites

| Activity | Project Site | | Control Site | |
|----------------------------------|---------------------------|-------------------------------|---------------------------|-------------------------------|
| | Number of Trips per Month | Average Travel Time (minutes) | Number of Trips per Month | Average Travel Time (minutes) |
| Buying Provisions | 2 | 20 | 1 | 30 |
| Selling Crops/Products | 1 | 20 | 2 | 60 |
| Going to School | 2 | 30 | 1 | 50 |
| Processing Agriculture Products | 2 | 30 | 2 | 60 |
| Visiting Family and Friends | 1 | 90 | 1 | 180 |
| Accessing Medical Care | 1 | 30 | 1 | 90 |
| Going for Employment or Business | 1 | 60 | 1 | 240 |
| Obtaining Official Documentation | 1 | 30 | 0.3 | 110 |
| Other | 1 | 90 | 0.6 | 360 |

Note: Person trips are number of person times the number of (two-way) trips made.

Box 1: The Poor Able to Graduate if Conditions Permit

- Mr. Bon and his family belonged to the poor group in Sorsogon. Using his carpentry skills, he was sometimes able to save money, which his enterprising wife used for occasional banana supply business. The improved road greatly helped their business and increased their income.
- Mr. Valenzuela and his family belonged to the poor group in Negros project site. He used his carpentry skills and a network of contractors (made possible by the improved road) to find other opportunities outside. He is also using the travel time savings for productive purposes.
- Mrs. Peti in Bengkulu who used to be poor started a small business as a vendor at the market before the road rehabilitation and used her savings to expand the business to a kiosk. She has now been able to buy a truck to further her opportunities.

10. Project communities also appear to have better access to safe sources of drinking water and to have better sanitary and toilet conditions (Table 2). This may be a function of the general increased level of development of project over control sites (itself a function of better access to roads, communications, and opportunities). It also reflects the better accessibility of state services and nongovernment organizations (NGOs) to communities; roadside communities are more likely to have services provided under these schemes. However, the distribution of the benefits of these roads within communities is a separate issue, and there are no guarantees or

inherent mechanisms to ensure that benefits will be distributed equitably between the poor and nonpoor in communities.

Table 2: Access to Water, Sanitation, and Electricity

| Item | Share of Households (%) | |
|------------------------|-------------------------|--------------|
| | Project Site | Control Site |
| Drinking Water | | |
| Protected Well or Tap | 37 | 35 |
| Private Well or Tap | 28 | 14 |
| Piped to House | 16 | 0 |
| Unprotected Well | 11 | 24 |
| Private Rainwater Tank | 4 | 17 |
| Other | 4 | 10 |
| Sanitation | | |
| Private Flush | 5 | 7 |
| Private Latrine | 53 | 31 |
| Public Latrine | 4 | 1 |
| Open Pit | 20 | 22 |
| Field | 15 | 29 |
| Other | 3 | 10 |
| Electricity | | |
| Yes | 28 | 11 |
| No | 72 | 89 |

Source: Household survey data.

11. **Small business development.** Road investments have had significant indirect impacts on the general level of economic development in each of the study locations. This is clear from the development of small businesses in the project communities. Improved roads and the better ability to transport goods provide opportunities for those who can afford the investment to start a small store in the village or buy village produce or make their own and sell it in the nearby market centers. They also save people time in their previous occupations, allowing those who have the skills and/or savings to invest in other small businesses. Among project case respondents, 64% observed that the number of small businesses in the community had increased since the road was built or rehabilitated. Of those who had a business prior to the rehabilitation of the road, 55% felt that the project had a positive effect on these enterprises. Of the 17% of project respondents who had started a business since road rehabilitation, 69% said that the road was a factor in their deciding to start the business. Of these businesses, the majority in all locations were small provision stores supplying the local community.

12. **Better off get better.** Improvements in income were a key area of inquiry for the household survey. Table 3 below shows that a substantial proportion of villagers reported no change in income sources reflecting their lack of prerequisites to diversify. Those reporting no change were higher among control group (58%) than project (47%) respondents. Of all project site respondents, 23% reported receiving less income from agriculture, more from other sources, against 14% of control site respondents. Of the different socioeconomic groups across all study communities, the better off have both diversified and increased their income more than the poor and very poor. About 22% of better-off households report increasing both agriculture and other sources of income, whereas more than 50% of both poor and very poor groups report no change at all in sources of income.

Table 3: Change in the Source of Income Over the Past 5 Years (%)

| Change | Type of Site | | | Socioeconomic Group | | | |
|--|--------------|------------|------------|---------------------|------------|------------|------------|
| | Project | Control | Total | Better Off | Very Poor | Poor | Total |
| No Change | 47 | 58 | 53 | 36 | 54 | 55 | 52 |
| Less Income from Agriculture, More from Other Sources | 23 | 14 | 19 | 24 | 15 | 20 | 19 |
| More Income from Agriculture, Less from Other Sources | 8 | 7 | 7 | 9 | 7 | 8 | 8 |
| More Income from Both Agriculture and Other Sources | 8 | 5 | 7 | 22 | 3 | 5 | 7 |
| More Money Sent from Outside | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Other | 12 | 14 | 13 | 8 | 19 | 10 | 12 |
| | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Source: Household survey data.

13. In practice, it is those who are most secure and with savings who are able to make the best use of the opportunities better roads may bring. In fact, case study evidence suggests that better rural roads allow those with some savings to diversify into activities with substantially

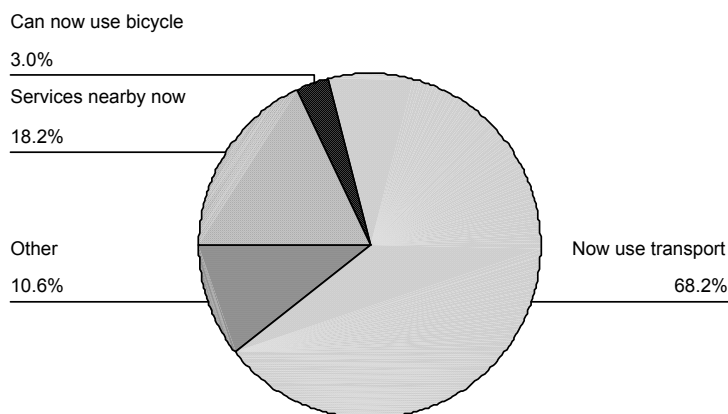
Box 2: Complementary Activities Connected to the Road—Helping the Poor Cope with Crisis

- The Weeragama Milk Cooperative’s collection center allows even the poor to sell milk regularly as an alternative livelihood. This operation relies heavily on all-weather road access.
- All-weather access has also allowed small fish traders on bicycles and motorcycles to operate in the surrounding villages.
- The villagers collect cow dung as a collection truck began operating after road rehabilitation.

better returns. Potential benefits from better road access and transport services appear to increase in relation to the degree to which households are nonpoor. The better off have surplus funds to invest in trading (even at very modest levels), have an agricultural surplus to sell, or have the network of connections and relationships outside the community enabling them to take advantage of trading or working opportunities. They have the security to be able to explore outside the village and the immediate locale for opportunities to diversify income and livelihood. People engaged as salaried workers in nearby town centers rely on a regular and rapid link and so benefit substantially from the efficiency and cost savings in commuting. They are heavily represented among the households considered better off in the study sites.

14. **Provide economic safety net.** The rural roads studied provided an important economic safety net allowing alternative livelihood opportunities. Such an alternative income stream, even if temporary or seasonal, is still important for household food security. A good road surface and the guarantee of all-year accessibility are important prerequisites for the development of any kind of regular enterprise (Box 2).

Figure 3: How Transport to Health Services Has Changed in the Last 5 Years



Source: Household survey data from project sites.

15. **Provide social safety nets.** Undoubtedly, in all case study projects, the poor and very poor benefited substantially from social impacts of rural roads through access to state services

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in areas such as health, education, agricultural extension, and provision of information. Improved rural roads create the conditions for better access of people to services, and of services to the village. Roads allow regular contact with the outside world and bring remote areas within the purview of the state and other networks (Figure 3). Such improvements reduce the perception of isolation and remoteness among the poor and very poor.

16. **External conditions that cannot be influenced by road design.** The study shows that the context within which economic impacts take place was often determined by conditions such as climate, agricultural potential, spatial position and proximity to networks, and world market commodity prices, as well as social structure and concentration of assets (Box 3). Although these conditions cannot be affected by road development, their careful consideration during project identification and design would enable a better assessment of potential for poverty reduction through such projects, while possible complementary measures could be considered to increase positive impacts.

Box 3: External Conditions that Cannot be Influenced by Road Design

- **Climate and natural endowments.** The Kurunegala project site shows how villagers' ability to make use of a better road is conditioned by wider climatic conditions such as the 3-year drought that has crippled the village's rice production. This has affected both landowners and wage laborers who work in the fields. In another project site in Yogyakarta, the project road passes through an area where water retention is difficult, the soil is rocky, and it is time consuming to prepare fields for cultivation. Therefore, crop diversification into higher value cash crops is difficult. Consequently, despite the incentives provided by better roads, these climatic and natural endowment conditions limit the ability of some areas to respond.
- **Remoteness and access to marketing networks.** Locational factors have an important bearing on the potential for development. A comparison of project sites indicates that there is a close correlation between the intensity and severity of poverty and the distance from major population centers and marketing networks. In more remote locations (Sorsogon), it is more difficult to attain a critical mass of demand and availability of transport services. In those locations closer to major towns or centers (Matara), distances are shorter and, therefore, the intensity of communications and information exchange is much greater. Rural inhabitants here are more likely to engage in alternatives to subsistence agriculture, at least seasonally, and to be able to achieve better prices for the goods that they sell, where competition and demand are higher. More remote areas, therefore, simply have a greater isolation barrier to overcome before the anticipated economic benefits of improved rural roads can make themselves felt.
- **Macroeconomic context and terms of trade.** Many of the study locations are heavily reliant on a single cash crop. In Sorsogon, it is copra, in Negros sugarcane, in Matara tea, and in Bengkulu rubber. Fluctuations in the world market prices of these commodities have an enormous impact on the well-being of all socioeconomic groups in the study communities, as all groups are tied into the commodity economy through sale or labor. Where crop prices are good or increasing, significant benefits accrue from road improvement and resulting marketing opportunities (tea in Matara). But a slump in world market prices creates a significant downturn in a village economy (copra in Sorsogon). Then, the poor and very poor, being risk averse, are more likely to concentrate on subsistence food production rather than cash crops (rubber in Bengkulu). The susceptibility of poorer farmer groups to debt also means that they are forced to sell their crop immediately after the harvest when prices are lowest; they cannot wait for prices to increase in the world market.

17. **Structural conditions that cannot be influenced by road development.** The prevailing social structure and concentration of productive assets (Box 4) have an enormous bearing on determining how impacts occur in each of the study locations. The concentration and distribution of land is particularly important, and largely outside the area of influence of a road project (Box 5). However, by understanding the asset ownership and how the benefits may distribute, complementary measures could be designed with the road investments

Box 4: The Very Poor Unable to Use the Better Road to Overcome Their Poverty Status

- Mr. Grita's family in Sorsogon is landless and lives on encroached land on the study road. He works about 4 days a month as a laborer when he can find work. The family experiences acute food deficits. They worry about sickness and damage to their small house. They recognize that more transport services are available but only use them intermittently when they have money to buy essentials.
- Mr. Olarte's family in Negros lives in a hut on the study road on a land owned by a plantation. The family has work during the planting and harvesting seasons and at other times experiences a food scarcity. They depend on remittances from two children who have migrated and store credit during slack times. They usually walk to work and only use the road to buy provisions when they have money.
- Mrs. Nandawatie and her family in Kurunegala are very poor and rely on labor opportunities that her husband can find and the garden that she cultivates. She sells the vegetables in the village and her husband uses the bicycle to search for work. They acknowledge that some goods are cheaper since the road improvement. She uses the road to buy essentials or to go to the hospital.

18. **Conditions that can be affected by roads development.** There are several issues that can be influenced by projects development that can lead to better inclusive growth (Box 6). Addressing these issues together with road investments would entail deviating from traditional road investment projects in several ways:

- Labor-based construction can provide the seed capital for poor to start a business or provides opportunities to break the debt cycle and sell to traders outside the village.
- The ability to get road access to communities depends on how politically influential the community is and is often not based on the need for inclusive growth.

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- Minor maintenance is often neglected because of lack of funds, but it is also neglected because there is little political capital or mileage in maintaining roads regularly, as the results of minor maintenance are not highly visible.
- Often, there appeared to be a lack of clarity over who was responsible for maintaining the project roads and where the funds would come from. Institutional continuity and ownership of the roads suffer as a consequence and roads fall into disrepair.

Box 5: Concentration of Land Ownership Greatly Influence the Impacts of Roads

- In the Sorsogon case study area, land ownership is heavily concentrated among a small number of owners. Many are absentee owners residing outside the village, with longstanding relationships with tenants who farm the land. Often, tenants are required to sell the crop (copra) to the landlord, at a predetermined price. In exchange, they receive credit facilities throughout the year against the next crop.
- Similarly in Bengkulu, intermediaries and traders effectively control market exchange in paddy and rubber with relationships of debt. It is increasingly difficult to escape from these relationships as indebtedness rises.
- In Negros, the concentration of land ownership is particularly heavy in the large estates where a majority of project site inhabitants live. Most villagers have no land at all, and the residents are required to work in the hacienda when seasonal labor is needed.
- The situation in Matara is slightly different because the level of land ownership is less concentrated, but landholdings are small and the poor particularly are required to work in the tea plantations throughout the year, limiting their opportunities for exploring more lucrative livelihood alternatives. Many are, therefore, locked into these long-term working relationships, which result from the prevailing norms in social relations, economic exchange, and ownership of productive assets.

Box 6:

- **Labor-based construction.** One very important way in which the poor can feel the direct economic benefits of rural roads is through labor-based road construction and maintenance. Unfortunately, only one project out of the six studied had a labor-based road component. Some authorities in the study countries appear to believe that labor-based construction methods are slow and their quality doubtful. But for low-traffic rural roads, the time and efficiency argument in construction or rehabilitation is surely not so important, as the opportunity cost of disruption to traffic is very low.
- **Roads as political capital.** Roads play a critical role as political capital in all of the study locations. Decisions about where roads should be built, which roads should be upgraded, and which roads should be maintained are heavily influenced by the prevailing political context. For example, Negros has always been a key sugar producing area of the Philippines and many of the decisions regarding its development have been made with sugar production, the plantation owners' interests, and the interests of the industry in mind. In the Matara and Bengkulu study areas, the villagers lobbied authorities and politicians for the inclusion of their roads in road rehabilitation schemes. The ability to do this successfully appears to depend heavily on the level of political influence communities can exert. As a result, decisions about road rehabilitation, maintenance, and the prioritization of work are often far from transparent. Poorer areas are likely to suffer under this regime, as they are least likely to have the connections and authority to lobby effectively for better roads.
- **Neglect of maintenance.** Regular maintenance of rural roads is a critical precondition for sustaining the positive impacts that roads bring to rural communities. Minor maintenance is often neglected because of lack of funds, but it is also neglected because there is little political capital or mileages in maintaining roads regularly as the results of minor maintenance are not highly visible. Instead, politicians prefer to authorize major rehabilitation or reconstruction to take place after the road has deteriorated very much. The promise of improved roads is often sufficient to ensure politicians their election. This practice prevails in all of the study countries to a greater or lesser extent. And in this context, establishing regular and transparent maintenance regimes and criteria for rehabilitation is very difficult. Roads consequently get reconstructed, are left to deteriorate, and then are reconstructed again in 10 or so year cycles, so that villagers experience peaks and troughs of accessibility, rather than having a constant and guaranteed level of access.
- **Institutional responsibility for roads.** Problems of maintenance, which stem from scarcity of funds, are exacerbated when the institutional responsibility for rural roads is not clear or where the budget source for maintenance has not been properly established. Often, there appeared to be a lack of clarity (in practice, if not in theory) over who was responsible for maintaining the project roads and where the funds would come from. Especially with the integrated projects, roads were often only a subcomponent of the investments, and the executing agency for the project was the agriculture or irrigation department, with no direct funding line for road maintenance. Also, problems of unclear institutional responsibility are compounded when there are frequent shifts in personnel at responsible implementing agencies due to the high level of politicization of the bureaucracy. Institutional continuity and ownership of the roads suffer as a consequence, and roads fall into disrepair.

C. Conclusions and Lessons

19. Roads are clearly a critical enabling condition for improvement of living conditions in rural areas. However, the distribution of economic benefits is a separate issue, and there are no guarantees or inherent mechanisms to ensure that economic benefits will be distributed in an inclusive manner between the poor and nonpoor in communities. Nevertheless, the poor and very poor primarily benefit through the indirect impacts of road improvements, of better access to state services and improved provision of services to the village, and of opportunities in alternative livelihood income streams where the preconditions for their development are right. The poor can also benefit broadly from improvements to the rural economy through increased opportunities for agricultural wage labor, but again these impacts are contingent on favorable preconditions being in place. Therefore, the study confirms that better rural roads are a necessary but not a sufficient condition for graduating from poverty. There is little evidence that roads impacted directly in terms of reducing poverty on those groups in each study community who were identified explicitly as being very poor. The ability of the poor and very poor to make significant economic use of the road depends on their asset base and the entitlements to resources and opportunities that they can command, as well as the passage of time. In a few instances, the poor who have invested savings in a small business or used their skills have graduated from poverty, using the benefits from the road.

20. In the rural road projects studied, their ability to affect the distribution of assets and the skills capacity of the poor was limited and largely outside their scope because of external and structural conditions that existed. Nevertheless, recognizing how assets are distributed is important both for understanding how benefits will accrue and for planning complementary measures to enable those who lack assets also to benefit from the investment. Given the right complementary activities, projects can broaden livelihood opportunities. The poor need support to make use of the opportunities that rural roads may bring. This suggests that multifaceted projects are needed to address inclusive growth effectively. For this, linkages with complementary activities and services, which support the broadening of livelihood opportunities for the poor are needed.

21. Simply improving a road is not enough; the poor also require support in being able to make use of it. This support can come in many forms:

- In order for the poor to travel for productive purposes, the provision of transport services must be linked to some livelihood and income diversification activity, which builds on or supplements their existing subsistence activities. The poor require genuinely integrated programs of support right through the cycles of production, transportation, and sale. Diversification into alternative livelihood opportunities will also cushion them against the impact of adverse movements in commodity prices in these agricultural communities.
- The preparation in the context of an integrated program needs a proper period of mobilization and preparation in order to be effective and sustainable. Mechanisms should be institutionalized to ensure that the poor themselves are involved in many aspects of the investment design (but not engineering design), implementation, and operation and maintenance. Including the poor in identifying livelihood opportunities would ensure that programs are relevant to their needs and skills, that they are the principal beneficiaries, and that the benefits are sustainable.
- In addition, it also means designing interventions that concentrate on removing the access and mobility constraints of the poor in their existing livelihoods, and thus making investments in tracks, paths, culverts, and crossings, as well as improving transport modalities and their carrying capacity, especially intermediate (nonmotorized) means of transport that benefit the poor.

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- The poor are generally risk averse and will not engage in a new activity if they know that the road on which it depends will not be maintained periodically. Devolving responsibility for road maintenance to local communities, particularly for basic rural roads, is a means of ensuring simultaneously that the poor can receive benefits through direct employment and that local communities are stakeholders in the road serving their area.
- Another very important way to achieve direct benefits from rural road investments is through direct employment of the poor in labor-based road construction. Experience from Asia and Africa shows that, given a sufficiently long period of employment on the road, the poor can accumulate capital to invest in alternative livelihood opportunities and thus move away from poverty.