

## **Annex 1.15: Assessing the Poverty Impact of Rural Roads Projects in Vietnam**

### **I. Introduction**

**Project Description.** Rural roads are being extensively championed by the World Bank and other donors as instruments for alleviating poverty. The Vietnam Rural Transport Project I was launched in 1997 with funding from the World Bank for implementation over three to five years. The goal of the project is to raise living standards in poor areas by rehabilitating existing roads and bridges and enhancing market access. In each participating province, projects are identified for rehabilitation through least-cost criteria (size of population that will benefit and project cost). However, in an effort to enhance poverty targeting, 20 percent of each province's funds can be set aside for low-density, mountainous areas populated by ethnic minorities where projects would not strictly qualify under least-cost criteria.

**Impact Evaluation.** Despite a general consensus on the importance of rural roads, there is surprisingly little concrete evidence on the size and nature of the benefits from such infrastructure. The goal of the Vietnam Rural Roads Impact Evaluation is to determine how household welfare is changing in communes that have road project interventions compared with ones that do not. The key issue for the evaluation is to successfully isolate the impact of the road from the myriad of other factors that are changing in present-day rural Vietnam as a result of the ongoing transition to a market economy.

The evaluation began concurrent with project preparation, in early 1997, and is in process. No results are available yet. The evaluation is compelling in that it is one of the first comprehensive attempts to assess the impact of a rural roads project on welfare outcomes—the bottom line in terms of assessing whether projects really do reduce poverty. The design attempts to improve on earlier infrastructure evaluation efforts by combining the following elements: (a) collecting baseline and follow-up survey data, (b) including appropriate controls so that results are robust to unobserved factors that influence both program placement and outcomes, and (c) following the project long enough (through successive data collection rounds) to capture its full welfare impact.

### **II. Evaluation Design**

The design of the Vietnam Rural Roads Impact Evaluation centers on baseline (preintervention) and follow-up (postintervention) survey data

for a sample of project and nonproject communes. Appropriate controls can be identified from among the nonproject communities through matched-comparison techniques. The baseline data allows before-and-after ("reflexive") comparison of welfare indicators in project and control group communities. In theory the control group, selected through matched-comparison techniques, is identical to the project group according to both observed and unobserved characteristics so that resulting outcomes in program communities can be attributed to the project intervention.

### III. Data Collection and Analysis Techniques

Data collected for the purposes of the evaluation include commune- and household-level surveys, along with district-, province-, and project-level databases. The baseline and follow-up commune and household surveys were conducted in 1997 and 1999, and third and fourth survey rounds, conducted at two-year intervals, are planned. The survey sample includes 100 project and 100 nonproject communes, located in 6 of the 18 provinces covered by the project. Project communes were selected randomly from lists of all communes with proposed projects in each province. A list was then drawn up of all remaining communes in districts with proposed projects, from which control communes were randomly drawn. (Ideally, controls differ from the project group only insofar as they do not receive an intervention. And for logistical reasons, it was desirable to limit the fieldwork to certain regions. Controls were therefore picked in the vicinity of, and indeed in the same districts as, the treatment communes. Districts are large and contamination from project to nonproject commune is therefore unlikely, but this will need to be carefully checked.) Propensity-score matching techniques based on commune characteristics will be used to test the selection of controls, and any controls with unusual attributes relative to the project communes will be dropped from the sample. A logit model of commune participation in the project will be estimated and used to ensure that the control communes have similar propensity scores (predicted values from the logit model).

The commune database draws on existing administrative data collected annually by the communes covering demographics, land use, and production activities and augmented with a commune-level survey conducted for the purposes of the evaluation. The survey covers general characteristics, infrastructure, employment, sources of livelihood, agriculture, land and other assets, education, health care, development programs, community organizations, commune finance, and prices. These data will be used to construct a number of commune-level indicators of welfare and to test program impacts over time.

The main objective of the household survey is to capture information on household access to various facilities and services and how this changes over time. The household questionnaire was administered to 15 randomly selected households in each commune, covering employment, assets, production and employment activities, education, health, marketing, credit, community activities, access to social security and poverty programs, and transport. Owing to limited surveying capacity in-country, no attempt is made to gather the complex set of data required to generate a household-level indicator of welfare (such as income or consumption). However, a number of questions were included in the survey that replicate questions in the Vietnam Living Standards Survey. Using this and other information on household characteristics common to both surveys, regression techniques will be used to estimate each household's position in the national distribution of welfare. A short district-level database was also prepared to help put the commune-level data in context, including data on population, land use, the economy, and social indicators. Each of these surveys is to be repeated following the commune survey schedule.

Existing information was used to set up two additional databases. An extensive province-level database was established to help understand the selection of the provinces into the project. This database covers all of Vietnam's provinces and has data on a wide number of socioeconomic variables. Finally, a project-level database for each of the project areas surveyed was also constructed in order to control for both the magnitude of the project and its method of implementation in assessing project impact.

The baseline data will be used to model the selection of project sites by focusing on the underlying economic, social, and political economy processes. Later rounds will then be used to understand gains measurable at the commune level, conditional on selection. The analytical approach will be "double differencing" with matching methods. Matching will be used to select ideal controls from among the 100 sampled nonproject communes. Outcomes in the project communes will be compared with those found in the control communes, both before and after the introduction of the road projects. The impact of the program is then identified as the difference between outcomes in the project areas after the program and before it, minus the corresponding outcome difference in the matched control areas. This methodology provides an unbiased estimate of project impacts in the presence of unobserved time-invariant factors that influence both the selection of project areas and outcomes. The results will be enhanced by the fact that the data sets are rich in both outcome indicators and explanatory variables. The outcome indicators to be examined include commune-level agricultural yields, income source diversification, employment opportunities, land use and distribu-

tion, availability of goods, services and facilities, and asset wealth and distribution.

#### IV. Evaluation Costs and Administration

**Costs.** The total cost of the evaluation to date is \$222,500, or 3.6 percent of total project costs. This sum includes \$202,500 covering the first two rounds of data collection and a \$20,000 research grant. World Bank staff time and travel expenses are not included in these costs.

**Administration.** The evaluation was designed by World Bank staff member Dominique van de Walle. An independent consultant with an economics and research background in rural poverty and development was hired to be the in-country supervisor of the study. This consultant has hired and trained the team supervisors, organized all logistics, and supervised all data collection.

#### V. Source

van de Walle, Dominique. 1999. *Assessing the Poverty Impact of Rural Road Projects*. World Bank, Washington, D.C. Processed.