

Study on the Evaluation of Bridge Construction Projects in Bangladesh

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1. Introduction

Japan has provided various forms of assistance to many developing countries in the field of infrastructure development. International cooperation in the years to come is likely to require overseas investment based, more than in the past, on project screening from the viewpoint of returns of investment and investment efficiency. In anticipation of growing demand for the evaluation of Official Development Assistance (ODA) projects for infrastructure development, this study explores various possibilities for developing a method for evaluating the benefits of infrastructure development in developing countries as objectively as possible.

2. Post-project evaluation of Japan's ODA: present state and tasks ahead

Japan's ODA projects are evaluated mainly on a project-by-project basis by such implementing bodies as the Economic Cooperation Bureau of the Ministry of Foreign Affairs, Japan International Cooperation Agency (JICA) and the Japan Bank for International Cooperation (JBIC). The purpose of such project evaluation is to judge the relevance of particular projects objectively as possible and obtain the support and understanding of the public by developing new project plans, identifying any areas of possible improvement and securing accountability for project implementation, in order to implement projects more effectively and efficiently than in the past. Usually, however, evaluation is made mainly in terms of economic factors (direct benefits) and possible effects on the local community (indirect benefits: medical cares, education, living in general) are often not taken into account. Furthermore, few attempts have ever been made at quantifying the degree of contribution of a particular infrastructure project to poverty alleviation. If the social effects of a particular project on local residents are to be evaluated, it is necessary to develop an evaluation method that takes the conditions in the project country and project area into account. This is one of the tasks need to be addressed in the coming years.

3. Project impact analysis

Through this study, we've attempted to clear the degree of projects' contribution concentrating on the poverty alleviation. In order to define the effectiveness of the project targeting on the poverty reduction, various ways of analysis were considered and implemented.

a) Projects and study area

The projects for the purposes of this study are the Meghna Bridge (brought into service in 1990, bridge length: 930 m) and the Meghna-Gumti Bridge (brought into service in 1994, bridge length: 1,310 m) (Figure 1) that were constructed in the form of Japan's grant-aid cooperation on an arterial road which has been designated as Asian Highway Route 41 in Bangladesh. The two bridges are on an arterial road about 22 km to the east of Dhaka and are 12.5 km spaced apart on the same road. Field surveys were conducted in a number of communities either near these bridges or located along the road.

b) Survey method

With a view to analyzing and studying how the living environment, including daily life, medical care and education, particularly for the so-called poor class, has been improved as a result of the two bridge projects, statistical data including various social indicators were analyzed, and local residents were interviewed to collect basic data. In the interviews, interviewees were asked about personal attributes (e.g., age, address, income, family structure), usage of the bridges (e.g., frequency, means of transportation (before and after bridge construction)), economic status (e.g., sales and changes in market conditions

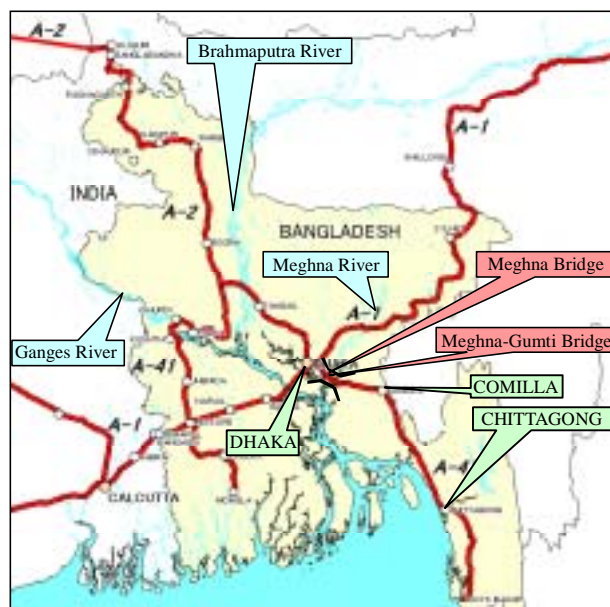


Figure 1 Location map of impact study site

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and customers, mainly in agriculture and commerce), everyday life (e.g., availability of food, prices, changes in income), education, medical care, job opportunities, and so on. To evaluate the impact of the bridge projects in reducing the poor class, JBIC's "general poverty line" (4,570TK/month 2.6USD/day) was used as a reference, and differences in the number of poor people in the study area before and after the completion of the bridges. For the purposes of the analysis, the pre-project value of money was converted to present value by defining deflators based on local unit prices and the value of money before and after bridge construction was compared.

c) Survey results

Effect 1: Considerable reduction in travel time to Dhaka

Concurrently with bridge construction, the road section between Dhaka and Chittagong was improved. This road improvement dramatically improved the two cities' accessibility.

Effect 2: Increase in local residents' income due to direct access to Dhaka

Improvement in accessibility resulted in an improvement in the transportation environment for agricultural products and fish and shellfish bound for Dhaka and Chittagong, which are huge markets for primary products. Thus, the newly constructed bridges have freed production, marketing and sales that used to be confined to small areas from the geographical constraints, thus creating a considerable amount of new commercial activity. As an example, Figure 2 illustrates how the transportation costs of primary products have been reduced as a result of bridge construction. It can be seen from the survey results that the reductions in transportation time have stimulated local workers to greater effort, which in turn has resulted in increases in the income of local residents. The construction of the bridges has increased the interviewees' income by an average of 16%.

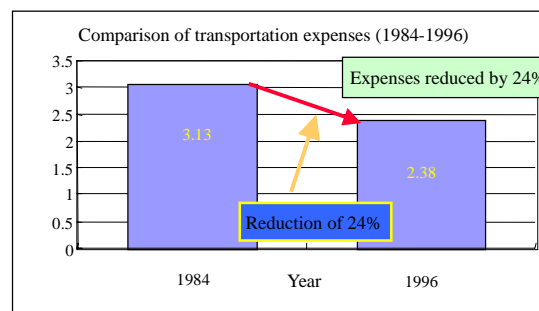


Figure 2 Changes in transportation costs of primary products

Effect 3: Improvement in medical care

The newly constructed bridges have improved medical care in the region and made it easier to go to sophisticated medical facilities in Dhaka, thereby improving the medical environment dramatically.

Effect 4: Increase in the number of locally employed residents due to incoming factories and businesses

Revenues of many businesses located along the road on which the bridges have been constructed have increased. As those businesses have grown and clearly have employed more people, job opportunities for local residents have expanded.

Effect 5: Contribution to local poverty alleviation

The degree of contribution to poverty alleviation was estimated from the viewpoint of changes in income level on the basis of the "general poverty line" threshold. The results indicated that the poor class in the interview survey area decreased by 8 percent as a result of bridge construction.

4. Conclusion

In this study, the roles of road bridge projects in the alleviation of poverty in developing

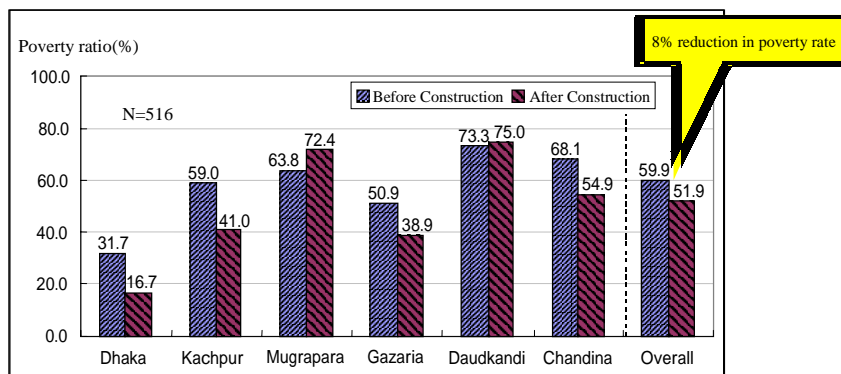


Figure 3 Poverty rates before and after the bridges went into service

countries were investigated by analyzing various data. Although the effects of bridge projects were found to be partially inseparable from those of other regional development projects, the benefits of bridge projects were found to be considerable. Tasks yet to be addressed in connection with project evaluation include establishing an evaluation system that is consistent throughout the process from pre-project to post-project evaluation, increasing the types of project that can be evaluated, expanding the scope of evaluation, researching and developing evaluation techniques, and producing human resources for evaluation. When evaluating the efficiency of a project thus chosen, it is necessary to monitor the progress of the project for its smooth implementation not only through post-project evaluation but also through project evaluation at the outset and implementation stage of the project, and to review the plans and procedures and propose modifications, if necessary. Establishing and making effective use of methods for evaluating the impact of different types of projects for not only roads but also rivers and electric power is a step toward realizing well-planned, well-focused and effective ODA projects and ensuring accountability to the public.