

0. Summary

Considering the focus points of the national development strategy, it can be seen that this project was relevant to development policy at both appraisal and ex-post evaluation. There was a strong development need for the construction of infrastructure in rural areas in order to stimulate the regional economy in the Greater Faridpur Area. An increase in project outputs having been provided, the project cost was within the plan although the project period was slightly delayed. The improvement of roads brought about not only an increase in traffic volume but also an increase in motorized traffic and, thus, a change in the quality of traffic. The improvement of roads also led to an increase in employment and business opportunities contributing to livelihoods as well as to better conditions for agricultural production. No serious damage negatively affecting the incidence of project effects was observed during the site survey of the facilities constructed by this project. The actual allocation of the maintenance budget had been under the required amount, and the setting of roads as a priority showed that the appropriate distribution of the maintenance fund had been taken into consideration. In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project Location



Improved Upazila Road (Rajibari District)

1.1 Background

In the last half of the 1990s, approximately 80% of the total population (approximately 120 million people) of Bangladesh lived in rural areas with half of these living under the poverty line. For this reason, rural development and poverty reduction were at the core of the development strategy set by the Bangladesh government. The Local Government Engineering Department (LGED) continuously made efforts to develop infrastructure, in particular rural roads, in rural areas. The development of rural roads would promote the agricultural sector and, moreover, contribute to income generation through an increase in employment opportunities. This would also improve living standards through easier access to social services including health and education.

The target area of this project was five districts in the Greater Faridpur area (Faridpur district, Rajibari district, Gopalganj district, Madaripur district and Shariatpur district). Because of the geographical nature of the area, which is surrounded by great rivers, floods made roads

impassable in the rainy seasons and the interruption of logistics had prevented social and economic development in the area. The development of the transport infrastructure was a development issue with considerable urgency in this area.

It was within this context that this project implemented the improvement of rural roads in the Greater Faridpur area. In addition to rural roads, the project also constructed facilities which would enhance the effects of rural roads such as Growth Centers (rural markets) and Union Parishad Complexes.

1.2 Project Outline

The objective of this project is to reduce traffic costs and improve accessibility to social services by constructing rural infrastructure such as roads, Growth Centers and Union Parishad Complexes in the Greater Faridpur Area, thereby contributing to improvement of livelihoods and the living standards of residents.

Loan Approved Amount/ Disbursed Amount	4,055 million yen / 3,978million yen
Exchange of Notes Date/ Loan Agreement Signing Date	August 2000 / March 2001
Terms and Conditions	Civil Work, etc.: Interest Rate 1.0%, Repayment Period: 30 years (Grace Period: 10 years), General untied Consulting Services: Interest Rate 0.75%, Repayment Period: 40 years (Grace Period: 10 years), General untied
Borrower / Executing Agency	The President of the People's Republic of Bangladesh / Local Government Engineering Department
Final Disbursement Date	July 2008
Main Contractor (Over 1 billion yen)	None
Main Consultant (Over 100 million yen)	Engineering and Planning Consultant (Bangladesh) • Engineering Consultants and Associates Limited (Bangladesh) • Devconsultants Limited (Bangladesh) • DHV Consultants BV (Netherlands) • WSP International (UK) (JV)
Feasibility Studies, etc.	“SAPROF for Greater Faridpur Rural Infrastructure Development Project” JBIC, 2000
Related Projects	JICA “Participatory Rural Development Project”, JICA “ Rural Development Engineering Center Setting-up Project”

2. Outline of the Evaluation Study

2.1 External Evaluator

Nobuyuki Kobayashi, OPMAC Corporation

2.2 Duration of Evaluation Study

Duration of the Study: December 2010 – October 2011

Duration of the Field Study: February 21 – March 16, 2011, July 2– July 14, 2011

2.3 Constraints during the Evaluation Study

As the period of site survey was limited due to unstable political situation, it was not possible to interview with affected residents about land acquisition during the field study. For this reason, the assessment of land acquisition was based on the information provided by the executing agency.

3. Results of the Evaluation (Overall Rating: B¹)

3.1 Relevance (Rating: ③²)

3.1.1 Relevance with the Development Plan of Bangladesh

The national development strategy at the time of the appraisal was the Fifth Five Year Plan (FY 1997/98-2001/02³). The plan recognized that poverty reduction required the stimulation of economic activities and it promoted both Growth Centers and rural roads providing access to Growth Centers. The development for rural areas accounted for more than 10% of the total investment which was higher than the 5% of the Fourth Five Year Plan. This large-scale investment was aimed at the construction and improvement of 600 rural markets called Growth Centers, 7,500km of Feeder Roads⁴ and 15,000km of Rural Roads⁵ during the plan period.

The national development strategy at the time of the ex-post evaluation was the National Strategy for Accelerated Poverty Reduction II (NSAPRII), which regarded growth aiming at poverty reduction as a key policy and which emphasized that a larger number of people throughout the country would participate in growth. The strategy noticed that rural towns play a vital role in growth with broader participation and it continued to focus on upazila and union roads which connect rural towns with highways⁶. Although NSAPRII placed a priority on maintenance, it was planned that upazila roads of 2,200km and union roads of 14,000km would be developed during the project period (FY2009/10-2011/12) with continual improvement of Growth Centers as well.

The national development strategy at the time of the ex-post evaluation emphasized poverty reduction as a policy goal more strongly than the one at the time of the ex-post evaluation. It also paid serious attention to the benefits that people in rural areas might have from economic growth. NSAPRII attached importance to the maintenance of rural roads rather than to new construction. With the importance of the existing road network in mind, this policy emphasized the sustainability of the results of development. This does not mean that the need for the development of rural roads diminished. A development approach which combined Growth Centers and the improvement of roads providing access to Growth Centers still continued. The main components of this project were the development of rural roads and that of Growth Centers with the intention that more people would benefit from economic growth. Given the focus points of the national development strategy, this project could be seen to be relevant to the development strategies at both the times of appraisal and ex-post evaluation.

¹ A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

² ③: High, ②: Fair, ①: Low

³ The fiscal year of the Bangladesh government starts in July and ends in June of a next year.

⁴ Roads to connect Growth Centers with major highways. This type of road was classified as “upazila” at the time of the ex-post evaluation.

⁵ This type of road was classified as “union roads” at the time of the ex-post evaluation.

⁶ Administrative hierarchy of Bangladesh is Division - Zila - Upazila - Union.

3.1.2 Relevance with the Development Needs of Bangladesh

At the time of the appraisal, people living in rural areas made up 80% of the total population of Bangladesh. A half of these (Upper Poverty Line Head Count Rate in 2000: 52.3%)⁷ were under the poverty line – a significantly higher proportion than in urban areas (35.2%). Undeveloped infrastructure in rural areas had prevented the improvement of living standards and of livelihoods. The Greater Faridpur Area (Faridpur district, Rajibari district, Gopalganj district, Madaripur district and Shariatpur district), the target area of this project, is adjoined by great rivers on its northwest, east, and west sides, and the area was prone to be flooded and thus disconnected from the capital city Dhaka by the Padma River, a major river without a bridge. A lack of employment within the region had led to a great number of migrant workers moving to major cities.

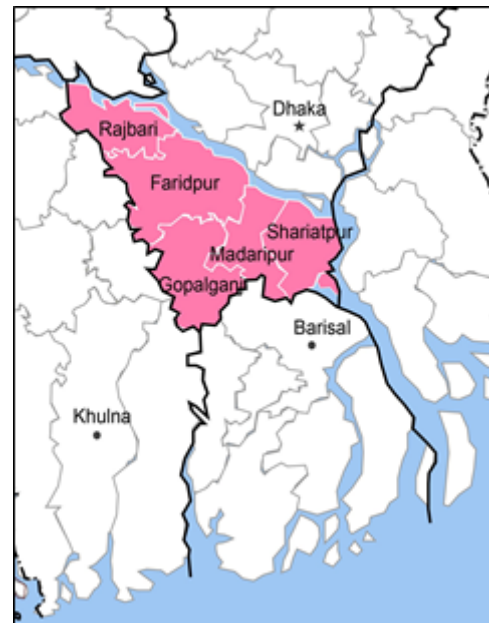


Figure 1: Greater Faridpur Area

At the time of the ex-post evaluation, the population under the poverty line accounted for approximately 40% of those living in rural areas (Upper Poverty Line Head Count Rate in 2005: 43.8%). Although the poverty rate in rural areas had improved, it was still higher than that of urban areas (28.4%). This suggested that poverty reduction in rural areas continued to be a development issue. The executing agency, LGED, was implementing a rural infrastructure project in the Greater Faridpur Area (Union Road & Other Infrastructure Development Project: Rajbari, Faridpur, Gopalganj, Shariatpur & Madaripur District). Through this project it was planned that infrastructure would be developed between FY 2008/09 and FY 2012/13 including Growth Center of 15 markets and roads of 95 km.

At the time of the appraisal, poverty reduction in rural areas was an important development issue. In particular, there was the need for the development of infrastructure and the stimulus of the regional economy in the Greater Faridpur Area where sufficient employment had not yet been generated. At the time of the ex-post evaluation, the poverty rate in rural areas was still relatively high, though the situation had improved. The succeeding project is on-going in the Greater Faridpur Area, which implies that the development issue still needs to be addressed.

3.1.3 Relevance with Japan's ODA Policy

Japan's Official Development Assistance (ODA) Charter, the preceding charter, which was approved in 1992, referred to the close relationship between Japan and Asia in terms of history, geography, politics, and economy, and placed a special emphasis on assistance to the Asian region. The charter defined infrastructure as a basic condition of social and economic development and included assistance in infrastructure investment in its priorities.

The Country Assistance Strategy (CAS) for Bangladesh in 2000 selected agricultural and rural development as one of the major issues in development. Agricultural and rural development, especially infrastructure development including rural roads, was among the priorities of the assistance strategy. For further participation on the part of local residents, CAS regarded collaboration with NGOs as an important point requiring serious attention in the implementation of development projects.

This project supported the development of various types of infrastructure in the rural area (the Greater Faridpur Area) and was consistent with Japan's ODA policy. NGOs were employed

⁷ Bangladesh Bureau of Statistics "Report of Household Expenditure Survey 2005"

for the training of local residents, showing that due attention had been paid to this point in the implementation of assistance.

This project has been highly relevant with the country's development plan, development needs, as well as Japan's ODA policy, therefore its relevance is high.

3.2 Efficiency (Rating: ②)

3.2.1 Project Outputs

The planned and actual outputs of this project were as follows:

Table 1: Project Outputs

At the time of the appraisal (Plan)	At the time of the ex-post evaluation (Actual)
(1) Civil Work <ul style="list-style-type: none"> · Feeder Road B: Improvement 496.4km, bride & culvert 4,328m, tree plantation 360km · Rural Road: Improvement 150km, bride & culvert 1,500m, tree plantation 120km · Growth Center: 62 markets · Union Parishad Complex: 27 units · Earth road maintenance 4,070 km, Pipe casting 2,300 units, culvert 230 units 	(1) Civil Work <ul style="list-style-type: none"> · Upazila Roads (Former Feeder Road B): Improvement 562 km, bride & culvert 6,051m, tree plantation 360km · Union Roads (Former Rural Road): Improvement 217km, bride & culvert 1,867m, tree plantation 120 km · Growth Center: 62 markets · Union Parishad Complex: 20 units · Earth road maintenance more than 4,070km · Flood Damage Rehabilitation: Pavement of Upazila Roads 75km, Pavement of Union Roads 65km, Growth Centers 7 markets
(2) Equipment and Vehicles <ul style="list-style-type: none"> · Construction equipment, etc. 	(2) Equipment and Vehicles <ul style="list-style-type: none"> · Construction equipment, etc.(construction equipment - as planned, an increase in 4WD, an decrease in motor cycles)
(3) NGO Activities <ul style="list-style-type: none"> · Training 	(3) NGO Activities <ul style="list-style-type: none"> · Training
(4) Consulting Services <ul style="list-style-type: none"> · Scope: Procurement Assistance, D/D Review, Construction supervision, monitoring, etc. · International: 69 M/M, National: 1,080 M/M 	(4) Consulting Services <ul style="list-style-type: none"> · Scope: Procurement Assistance, D/D Review, Construction supervision, monitoring, etc (as planned) · International: 59.21 M/M, National: 1,391.3 M/M
(5) Others <ul style="list-style-type: none"> · Research (Social Survey) · Training of LGED employees 	(5) Others <ul style="list-style-type: none"> · Research (Social Survey) · Training of LGED employees

Source: Appraisal documents, Project Completion Report

For civil works, the actual outputs except the Union Parishad Complex were as planned or were above the planned outputs. The actual outputs included flood damage rehabilitation, which was not included in the plan. This portion took advantage of the on-going project for faster recovery and coped with damage of the infrastructure during a flood in the Greater Faridpur Area in 2004. Embankments were constructed in some sections of the rehabilitation works so that through this work roads could be made passable throughout the year. The difficulty in land

acquisition for building sites⁸ and the lack of counterpart finance in unions caused delays in project implementation and meant that it was not possible to achieve the planned target for the Union Parishad Complex.

The scope of consulting services was in line with the plan at the time of the appraisal. In order to cope with a prolonged implementation period, the executing agency increased the man/month for consulting services. Training by NGOs had two phases. The first phase was training for trainers consisting of local NGO staff. The planned target was fully achieved, based on the frequency of training. The second phase was training for local residents and this achieved 97% of the planned target based on the number of training days. However, training for women shopkeepers could not be carried in accordance with the plan because of a delay in the construction of Growth Centers⁹.

Table 2: Training which NGOs provided to local residents

Target Population	Training
Union Parishad members	Role of Union Parishad Members, Planning and Financial Management, Gender, Participatory Methods, etc.
Union Parishad female members	Role of Union Parishad Female Members, Women's rights, Hygiene & Environment, etc.
LCS ¹⁰ members	Health & Hygiene, Animal rearing, Saving management, Small businesses, etc.
Growth Center stakeholders	Operation and Maintenance of Growth Centers, Gender, Participatory Planning, etc.
Growth Center Women Shopkeepers	Business Management, Marketing, Accounting, etc.

3.2.2 Project Inputs

3.2.2.1 Project Cost

The project cost computed at the time of the appraisal was JPY 8,713 million. Reflecting an increase in project outputs such as the extension of improved road sections, the adjusted planned project cost was JPY 10,176 million. The actual project cost was JPY 8,577 million and was lower than both the unadjusted and adjusted planned project costs (84% of the adjusted planned project cost). The project cost in Japanese yen was below the plan at the time of the appraisal due to appreciation of the Japanese yen against the local currency and a decrease in costs derived from competitive tenders. The size of contracts was relatively small so that medium-sized contractors could easily participate in tenders.

3.2.2.2 Project Period

The project period at the time of the appraisal was at 58 months. Reflecting an increase in project outputs, the adjusted planned project period was 82 months, which was slightly longer than planned (107% of the adjusted planned project period). The main reasons for the delay in the project period were the slower than planned commencement on union roads (former rural roads) caused by a delay in the selection of consultants.

⁸ There were several reasons. Local resident could not agree on the location of building site. Union Parishad could not obtain land for building site.

⁹ At the time of the ex-post evaluation, the executing agency was trying to complete the women's corner prior to the construction of Growth Centers in a similar project.

¹⁰ Abbreviation of Labor Contracting Society. LCS is a women's organization to contract and conduct road maintenance.

Table 3: Project Period

	Plan (at the time of the appraisal)	Actual (at the time of the ex-post evaluation)
L/A signing	March 2001	March 2001
Consulting services	Q1 2001-Q2 2005	Q3 2001-Q2 2008
Civil works	Q1 2001-Q2 2005	Q4 2001- Q2 2008
Project Completion (Project period) ¹¹	December 2005 (58 months)	June 2008 (88 months)

Source: Project Completion Report

Although the project cost was within the plan, the project period was slightly exceeded, therefore efficiency of the project is fair.

3.3 Effectiveness¹² (Rating: ③)

3.3.1 Quantitative Effects

3.3.1.1 Results from Operation and Effect Indicators

(1) Rural Roads (Upazila Roads)

Based on traffic surveys which took place at the time of the project commencement (2003) and after project completion (2010), analysis for comparable sections shows that the total traffic volume for all sections increased after the improvement of roads. The traffic volume of motorized vehicles (motor cycle, passenger car, bus etc.) also increased and this suggests a qualitative change in traffic following the improvement of roads. Traffic volume decreased in three sections but that of motorized vehicles increased even in these sections. It can be presumed that the sections which recorded a decrease in traffic experienced a transition period from non-motorised traffic (bicycles, rickshaws, carts, etc.) to motorized traffic

Table4: Traffic Volume per Day for the Improved Sections¹³

• 2003

No	District	Section	Hat/ Motorized	Hat/ Non-Motorized	Total	Non Hat/ Motorized	Non Hat/ Non-Motorized	Total
1	Faridpur	Nagarkanda - Chandhat	169	936	1,105	166	866	1,032
2	Faridpur	Madhukhali - Gopaldi	35	492	527	42	661	703
3	Madaripur	Kalkini - Kasherhat	145	466	611	134	730	864
4	Madaripur	Ghatokchar - Tribagdi	148	1,169	1,317	13	139	152
5	Gopalganj	Khanderpar - Majigati	4	198	202	139	1,118	1,257
6	Shariatpur	Bhojesswar - Golar Bazar	109	591	700	83	511	594
7	Shariatpur	Balar bazar - Subochoni - Moderhat	74	670	744	104	511	615
		Total	684	4,522	5,206	681	4,536	5,217

Source: LGED

• 2010

No	District	Section	AADT Motorized	AADT Non-Motorized	Total
1	Faridpur	Nagarkanda GC - Chandhat GC road	640	1,641	2,281
2	Faridpur	Gopaldi GC - Khalipur GC road	192	173	365
3	Madaripur	Kalkini Upazila HQ - Khasherhat GC	661	2,994	3,655
4	Madaripur	NHW - Tribhagdi	508	756	1,264
5	Gopalganj	Khanderpara - Majhigati - Ramdia GC	467	777	1,244
6	Shariatpur	Bhojeswar - Golar Bazar	197	111	308
7	Shariatpur	Balar Bazar - Subhochani - Moderhat - Negerpara	137	97	234
		Total	2,802	6,549	9,351

Source: LGED

¹¹ The project completion is defined as the end of the payment of construction and consulting services.

¹² On the judgment for Effectiveness, the findings in Impact have also been taken into consideration in the rating.

¹³ The same number in the tables for 2003 and 2010 is for corresponding sections.

In addition to that of 2003, another traffic survey for improved sections was conducted at the mid-point of project implementation in 2005. The questionnaire survey for road users showed that travel length increased except for travels by rickshaws while minutes per km were reduced for both motorized and non-motorized traffic. The improvement of roads increased travel length and road users could move efficiently in a shorter time. Shorter travel for rickshaws may be explained by the fact that motorised traffic had taken over longer journeys.

Table 5: Travel Length and Travel Time

Type of Vehicle	Travel Length (km)		Travel Time (min./km)	
	2003	2005	2003	2005
1. Motorized				
Auto Rickshaw	10	18	6.5	3
4WD	15	35	3.57	3
Motor Cycle	25	21	3.5	2.8
Pick-up Van/Microbus	9.5	11	5	3
Bus	20	30	5.2	3
Truck	12	27	6.2	4.25
2. Non-Motorized				
Bicycle	2.25	6	7.25	6.5
Cart	4.6	8	20.25	17.5
Rickshaw	10	5	12.45	8.5

Source: LGED

(2) Growth Centers

While data collection was carried out at one market from every district where the project implemented both at the times of the project commencement (2003) and the mid-point (2005), comparable data was collected at the time of the ex-post evaluation. At the Growth Centers where data were collected, the number of permanent shops had increased from “before” to “after” of project implementation. As this project supported the expansion of market facilities, a greater number of vendors benefited from the Growth Centers. In addition, there was also a substantial increase in the number of motorized vehicles in the Growth Centers comparing “before” to “after” project implementation. This increase implies that farmers are able to bring their products to the markets more effectively and that there are now more buyers from outside their communities. It can thus be seen that the strategy of developing both rural roads and Growth Centers simultaneously was effective.

Table 6: Permanent shops in Growth Centers

District	Growth Centers	2003	2005	2011
Faridpur	Hat Gazaria	61	87	120
Rajbari	Khankhanapur	439	491	500
Gopalganj	Bhatiapara	240	370	302
Madaripur	Mathabanga	34	39	35
Shariatpur	Chandrapur	155	182	300
Total		929	1,169	1,257

Source: LGED

Table 7: Motorized Traffic in Growth Centers

District	Growth Centers	2003		2005		2011	
		Hat	Non-hat	Hat	Non-hat	Hat	Non-hat
Faridpur	Hat Gazaria	66	52	95	125	182	114
Rajbari	Khankhanapur	185	122	252	145	250	100
Gopalganj	Bhatiapara	58	47	484	92	405	255
Madaripur	Mathabanga	32	56	51	78	225	200
Shariatpur	Chandrapur	64	52	70	67	250	115
Total		405	329	952	507	1,312	784

Source: LGED

(3) Union Parishad Complexes

Among the Union Parishad Complexes (UPC), the number of meetings and the number of participants at the UPC in the most populous union from each district is shown in the following table. Meetings per 1000 residents and participants per 1000 residents in Chhaygoan UPC and Amgram UPC, where LGED implemented the Local Development Coordination Program, were higher than in other UPCs. The program intended that local residents' access to administrative information be improved, developed the scheme to consolidate administrative information at union level, and supported local residents in organizing groups. According to Union Parishad members in the Chhaygoan union, coordination meetings of stakeholders for the allocation of development budgets and the identification of issues continued even after the above program was completed in June 2008.

UPC had local branches of administrative departments in addition to a meeting room and an office for the chairman of the union parishad. These also provided services such as land registration and advice on agricultural techniques and internet connection to local residents

Table 8: Number of Meetings and Number of Participants

District	UPC	Number of Meetings	Meetings per 1000 residents	Number of Participants	Participants per 1000 residents
Faridpur	Gajirtek	12	0.41	124	4.24
Rajbari	Nadabpur	11	0.33	128	3.80
Gopalganj	Kalabari	12	0.51	146	6.15
Madaripur	Amgram	25	0.96	240	9.25
Shariatpur	Chhaygoan	17	1.22	179	12.82

Source: LGED

3.3.1.2 Results of Calculations of Internal Rates of Return (IRR)

As the nature of this project, where scattered project sites did not allow an accurate grasp of the incidence of project effects, made a quantitative estimation of benefits difficult, a quantitative analysis of the internal rate of return was not possible.

3.3.2 Qualitative Effects

(1) Improvement in Mobility

The questionnaire survey¹⁴ for residents near the upazila roads improved by this project showed that the improvement of roads had stimulated economic activities among local residents. Out of the respondents, approximately 90% replied that their frequency of leaving the village had increased after project implementation. More than a half of the respondents visited markets,

¹⁴ A questionnaire survey with 105 samples (35 samples x 3 villages) for residents living near the upazila roads improved by this project was carried out in the districts of Faridpur, Goparganj, and Madaripur. The results of the survey were used in "3.4.1 (2) Improvement of Livelihoods" and "3.4.1 (3) Contribution to the Agricultural Sector."

hospitals, and friends/relatives more frequently, and in particular there had been a significant increase in the frequency of visiting markets. Although the main mode of transport was still rickshaw or on foot, an increase in the use of motorized traffic was obvious. The most common answer for the main mode of transport was rickshaw (including vans with a loading platform) while use of motorized vehicles accounted for approximately 10% of the total. Nevertheless, the use of mechanized three wheelers such as auto rickshaws had become more frequent. The use of buses increased in villages where a bus service was operated.

Table 9: Changes in Frequency and Purposes of Visits after the Improvement of Roads

Purpose		Increased	Slightly Increased	Same	Slightly Decreased	Decreased	Total
Travel out of village	Respondents	77	23	5	0	0	105
	% of Total	73%	22%	5%	0%	0%	100%
Visiting Market	Respondents	86	17	2	0	0	105
	% of Total	82%	16%	2%	0%	0%	100%
Visiting Hospital	Respondents	46	52	7	0	0	105
	% of Total	44%	50%	7%	0%	0%	100%
Visiting Friends/Relatives	Respondents	42	31	21	5	6	105
	% of Total	40%	30%	20%	5%	6%	100%

Table 10: Main Mode of Transport at the Time of the Ex-post Evaluation

Mode	On foot	Bicycle	Rickshaw/Van	Motorcycle	Mechanized Three Wheeler	Total
Respondents	24	0	74	3	4	105
% of Total	23%	0%	70%	3%	4%	100%

Table 11: Use of Motorized Vehicles after the Improvement of Roads

		Increased	Slightly Increased	Same	Slightly Decreased	Decreased	Total
Use of Mechanized Three Wheeler	Respondents	99	6	5	0	0	105
	% of Total	94%	6%	5%	0%	0%	100%

		Increased	Slightly Increased	Same	Slightly Decreased	Decreased	No bus	Total
Use of bus	Respondents	28	2	5	0	0	70	105
	% of Total	27%	2%	5%	0%	0%	67%	100%

(2) Results of Training for Local Residents

In the interviews with Union Parishad members, some interviewees said that members frequently used their knowledge of their role and of planning/financial management. Some also mentioned that they had experienced difficulties in applying their knowledge and that they needed greater proficiency in administrative procedures for planning/financial management matters being at present dependent on secretaries commissioned from district commissioners' offices. This implies a need for refresher courses on these topics.

Interviews with members of the Union Market Management Committee (UMMC) revealed that UMMC members were frequently changed and, therefore, it was difficult for any knowledge obtained from training to take root in UMMC.

This project has largely achieved its objectives, therefore its effectiveness is high.

3.4 Impact

3.4.1 Intended Impacts

(1) Employment Generation

This project generated employment in civil works and road maintenance. This was estimated to be 8.59 million man/days through construction works implemented by the project¹⁵. While direct employment by LCS for road maintenance was estimated to be 1.4 million man/days at the time of the appraisal, the actual direct employment reached 1.8 million man/days and achieved the planned target. LCS consisted of poor women and this project brought them cash income which was very precious in the rural areas. A part of the income was saved as capital for income generation activities in the future.

(2) Improvement in Livelihoods

In the questionnaire survey for residents living near the upazila roads improved by this project, more than 90% of the respondents replied that opportunities for income generation such as employment and new business had “increased” or “slightly increased.” Similarly, more than 70% said that their household income had “increased” or “slightly increased.” For expenses, the price of groceries increased but availability improved.

As the economic expansion of Bangladesh in the last decade affected this result, other factors apart from this project clearly affected the increases in household incomes and the opportunities for income generation. Nevertheless, it can be concluded that the improvement of logistics, as mentioned in “3.3 Effectiveness” above, created an environment in which local people in the project areas could benefit from the economic growth of Bangladesh. The increase in grocery prices was affected by general inflation in Bangladesh. It can be presumed that the factors behind these changes were the reduction in logistics costs, resulting in more products in markets nearby, and the improvement in mobility allowing local residents to purchase and carry products from other markets.

Table 12: Changes in Livelihoods after the Improvement of Roads

		Increased	Slightly Increased	Same	Slightly Decreased	Decreased	Total
Total household income	Respondents	23	54	28	0	0	105
	% of total	22%	51%	27%	0%	0%	100%
Employment Opportunity	Respondents	65	39	1	0	0	105
	% of total	62%	37%	1%	0%	0%	100%
Opportunity of starting a business	Respondents	67	37	1	0	0	105
	% of total	64%	35%	1%	0%	0%	100%

Table 13: Price and Availability of Groceries

		Yes, very much	Yes to some extent	Same	No, not so much	No, not at all	Total
Availability of Groceries	Respondents	64	34	6	1	0	105
	% of total	61%	32%	6%	1%	0%	100%
Cheaper Price of Groceries	Respondents	5	8	14	11	67	105
	% of total	5%	8%	13%	10%	64%	100%

(3) Contribution to the Agricultural Sector

In the questionnaire survey for residents living near the upazila roads improved by this project, residents with income from agriculture were asked additional questions about the conditions of agricultural production. While the price of agricultural inputs had increased,

¹⁵ The estimation of employment generation is based on working days required for each type of construction work.

availability had improved for all types of inputs. The reason that availability had improved can be presumed to have been the efficient transport of agricultural inputs by motorized vehicles such as trucks. On the other hand, the prices of agricultural inputs increased in line with the inflation of general prices. While opinion was divided on transport costs, more than 90% of the respondents said that they had experienced less spoilage during transportation.

Half of the respondents increased cultivation of commercial crops and this was presumably one of the factors which can explain the increase in agricultural income. It can be conjectured that more commercial crops were cultivated because more buyers came from outside the villages¹⁶.

Table 14: Availability of Agricultural Inputs after the Improvement of Roads

		Yes, very much	Yes to some extent	Same	No, not so much	No, not at all	Total
Fertilizers: More Available	Respondents	43	32	1	1	0	77
	% of total	56%	42%	1%	1%	0%	100%
Pesticides: More Available	Respondents	38	37	1	1	0	77
	% of total	49%	48%	1%	1%	0%	100%
Seed: More Available	Respondents	38	32	3	2	2	77
	% of total	49%	42%	4%	3%	3%	100%

Table 15: Price of Agricultural Inputs after the Improvement of Roads

		Increased	Moderately Increased	Same	Moderately Decreased	Decreased	Total
Price of Fertilizers	Respondents	56	13	6	2	0	77
	% of total	73%	17%	8%	3%	0%	100%
Price of Pesticides	Respondents	49	21	7	0	0	77
	% of total	64%	27%	9%	0%	0%	100%
Price of Seed	Respondents	55	16	5	1	0	77
	% of total	71.4%	20.8%	6.5%	1.3%	0.0%	100.0%
Transport Costs	Respondents	34	11	0	29	3	77
	% of total	44%	14%	0%	38%	4%	100%

Table 16: Spoilage during Transportation after the Improvement of Roads

		Increased	Slightly Increased	Same	Slightly Decreased	Decreased	Total
Spoilage during Transportation	Respondents	0	0	4	31	42	77
	% of total	0%	0%	5%	40%	55%	100%

Table 17: Agricultural Income and Commercial Crops after the Improvement of Roads

		Increased	Slightly Increased	Same	Slightly Decreased	Decreased	Total
Agricultural Income	Respondents	18	36	19	4	0	77
	% of total	23%	47%	25%	5%	0%	100%
Increase in Commercial Crops	Respondents	17	29	29	1	1	77
	% of total	22%	38%	38%	1%	1%	100%

¹⁶ For example, in an interview with farmers in the Gopalganj district, some suggested that the improvement of logistics had stimulated the cultivation of water melons.

(4) Development for Women Shopkeepers

Women's corners were built in 21 Growth Centers and approximately 100 women started their businesses there. As mentioned above (3.3.2 (2) Results of Training for Local Residents), local NGOs trained women shopkeepers. Through commercial activities in the Growth Centers, women shopkeepers found a way of obtaining cash income which was rare in rural areas. A participatory approach for the stakeholders of Growth Centers was used to decide the scope of markets. The strong opinions of influential male participants resulted in the exclusion of women's corners in some markets despite the advice of LGED that one should be included.



Photo 1: Women Shopkeeper

3.4.2 Other Impacts

(1) Impacts on the natural environment

The consultant who supervised the project implementation also conducted environmental monitoring and the results of the monitoring were shared with the executing agency and JICA. Impacts on the natural environment were negligible as the infrastructure constructed was small-scale and a major part of the civil works was the improvement of existing roads. Impacts on the natural environment were not observed during the site survey. According to the executing agency, the infrastructure of this project was designed so that, in wet lands, impact on river flows could be minimized and drainage could not be prevented.

(2) Land Acquisition and Resettlement

According to the executing agency, land acquisition was made along with roads but resettlement was not required. As resettlement was likely to have caused delays in project implementation, LGED minimized land acquisition and avoided resettlement through flexible design changes. The acquired land area was reduced from 50 ha, the planned area at the time of the appraisal, to 14 ha in actual implementation. According to the executing agency, land acquisition for this project required 10.25 million taka. Compensation was paid before land acquisition and in accordance with the regulations of Bangladesh.

Following the improvement of roads, the means of making a livelihood such as employment and business opportunities increased. The improvement in logistics contributed to better conditions for agricultural production. As the infrastructure constructed by this project was small-scaled and the executing agency made efforts to minimize land acquisition and avoid resettlement, impacts on the natural and social environments were negligible.

3.5 Sustainability (Rating: ②)

3.5.1 Structural Aspects of Operation and Maintenance

In addition to its headquarters in the capital city Dhaka, LGED had branch offices at three levels: Regional¹⁷, District, and Upazila. In the five districts where this project was implemented, 1041 LGED staff engaged in maintenance in 2010 and the number of maintenance staff has remained at a similar level for the last three years. While LGED was directly responsible for the maintenance of upazila and union roads, it has also had an advisory role for the operation and maintenance of Growth Centers and UPC. This arrangement suggests

¹⁷ LGED divided Bangladesh into 10 regions (Chittagong, Rajshahi, Khulna, Sylhet, Barisal, Dhaka, Mymensingh, Faridpur, Comilla, and Rangpur) and placed an office in each region.

that the responsibility for maintenance has been clearly defined. The institutional arrangements for the maintenance of each type of infrastructure are as follows:

- Upazila Roads (former Feeder B roads) and Union Roads (former Rural Roads)

After the improvement of roads, LGED was responsible for roads, bridges and culverts. While LGED's upazila offices conducted routine maintenance of pavements, the routine maintenance of off-pavement areas, such as roadside trees and embankment slopes, was contracted to LCS. Contractors for periodic maintenance and emergency maintenance were selected by tender.

- Growth Centers

According to the regulations, a lease holder selected by tender was responsible for operation and routine maintenance such as cleaning and minor repairs. Major repairs were the responsibility of local government. UMMC supervised maintenance and its members were elected by stakeholders such as shopkeepers every few years. LGED gave advice on maintenance to UMMC members but it was not directly involved in maintenance.

- Union Parishad Complexes

Union Parishad were responsible for routine maintenance and major repairs after the completion of UPC. Union Parishad members were elected by residents in a union. LGED gave advice on maintenance to Union Parishad members but it was not directly involved in maintenance.

3.5.2 Technical Aspects of Operation and Maintenance

In FY 2009/2010, a total of 3,661 LGED employees participated in training for 10,481 days in total. Training covered various areas including public procurement, construction supervision, management of road maintenance, maintenance of equipment, and inspection of construction materials. Training placed emphasis not only on the attainment of engineering skills for maintenance but also on the skills necessary to efficiently contract out maintenance activities such as procurement, contract management, and the inspection of materials.

LGED established a Road Asset Management System (RAMS) which could be used for maintenance programming. Road conditions (sections, type of road surface, International Roughness Index¹⁸, traffic volume) and facilities near roads (schools, markets and hospitals) were included in the data base of the RAMS. According to the executing agency, data collection was carried out periodically.

LGED has laboratories for the quality control of civil works and materials at its headquarters (1 laboratory), at regional level (10 laboratories), and at district level (54 laboratories). The laboratories were used to control the quality of civil works conducted by contractors. LGED selected construction sites and assessed the quality of materials such as gravel, sand, brick chips, cement and cement products. In some cases, the quality of the materials did not satisfy standards, and reconstruction was required.

The JICA technical assistance projects, the "Rural Development Engineering Center Setting-up Project (Phase 1) / (Phase 2)", contributed to improvements in skills in the form of improved technological ability for planning, design, quality control, maintenance of rural roads in LGED. The above technical assistance projects supported the development of manuals on the procedures for inspections and road maintenance works, as well as carrying out instruction based on the manuals, and the implementation of equipment related to the database (PC, GIS equipment, and software).

Through the acquisition of technical skills via the training systems and the technical assistance projects, LGED gained the technological capability required for the routine maintenance of roads and the supervision of maintenance works.

¹⁸ The index which shows the roughness of road surfaces. It is used for the assessment of surface conditions.

3.5.3 Financial Aspects of Operation and Maintenance

- Upazila Roads and Union Roads

LGED's annual report for FY 2010/11 showed that the road maintenance budget was 5.7 billion taka of the general budget and that the budget allocation from the Annual Development Programme available for heavy maintenance was 2.14 billion taka. Although the budget allocation from the Japan Debt Cancellation Fund was terminated in FY 2010/11, the budget allocation from the general budget is expected to increase in FY2011/12.

Table18: Budget Allocation for Road Maintenance (Required and Actual Allocation)

Unit: million taka

Year	Required Budget Allocation		Actual Budget Allocation	
	Rehabilitation	Maintenance	Annual Development Programme	General Budget
2008/09	8,343.0	9,778.0	3,806.9	4,898.3
2009/10	9,830.0	11,501.0	3,596.3	5,084.8
2010/11	11,531.0	13,470.0	2,138.1	5,700.0

Source: LGED

The maintenance budget has been increasing but was still under the budget allocation required to maintain road maintenance at the appropriate conditions¹⁹. As mentioned above, budget constraints were taken into consideration in the distribution of the maintenance fund through the utilization of RAMS. Specifically, the budget allocation prioritized upazila roads in which the project mainly invested, laying emphasis on various factors such as road class, surface conditions, traffic volume, and source of funds. The executing agency implemented the remarkable measure so that it could effectively maintain a more valuable type of road assets under severe budget constraint.

- Growth Centers

According to the regulations, it was required that a lease holder elected by tender should pay the expenses related to the operation and routine maintenance of Growth Centers (such as cleaning and minor repairs). The lease holder would collect rent from the owners of permanent shops and from temporary vendors and use the rent to fund maintenance. However, some markets did not follow the regulations. The site survey revealed that UMMC took responsibility for routine maintenance budget in some markets. UMMC members were not necessarily familiar with administrative procedures. For this reason, they had no specific plan to obtain additional funds for major repairs from local governments. As elections for new members of UMMC were held frequently, knowledge of administrative practices hardly took root. To cover major repairs, local governments accumulated a part of the fees collected from the lease holders.

- Union Parishad Complexes

Union Parishad conducted routine maintenance and major repairs from revenue. According to interviews conducted during the site survey, however, some unions said that they faced tight budget constraints which allowed only routine maintenance and that they had no specific plan to obtain additional funds for major repairs. Union Parishad members were not necessarily familiar with administrative procedures and, therefore, they had no specific plan to obtain additional funds for major repairs from the central government and local governments despite shortages of maintenance budget. It was pointed out that a union did not necessarily collect tax in accordance with government regulations and, as a result, suffered from a lack of funding.

¹⁹ Based on the Rural Road Master Plan

3.5.4 Current Status of Operation and Maintenance

- Upazila Roads and Union Roads

No serious damage negatively affecting project effects was observed during the site survey. In tandem with the improvement of roads, the traffic volume of trucks increased. While the increase in the volume of trucks enhanced the project effects, there was concern that it might lead to more damage of roads. LGED coped with this by more frequent maintenance works on the road sections used by many heavy vehicles. On the upazila roads improved by this project, the International Roughness Index was measured in 40 sections, out of which 16 sections were classed as “Fair” (6 m/km - 8 m/km) and 24 sections were classed as “Slightly Poor”(8 m/km - 10m/km)²⁰. Given the actual use of upazila roads, the current condition of road surfaces was considered acceptable. However, it would be sensible to take precautions against the further deterioration of road conditions in the long and mid term



Photo 2: Union Parishad Complex

- Growth Centers

No serious damage negatively affecting project effects was observed during the site survey. The site survey revealed that the cleaning of market places and toilets were conducted in all Growth Centers but that some markets could not manage maintenance works which required further labour and funds (such as the repair of drainage systems). LGED sporadically conducted monitoring on the status of facilities but not on the usage of facilities.

- Union Parishad Complexes

No serious damage negatively affecting the project effects was observed during the site survey. LGED sporadically conducted monitoring on the status of facilities but not on the usage of facilities.

Some problems have been observed in terms of the financial aspects, therefore sustainability of the project effect is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

Considering the focus points of the national development strategy, it can be seen that this project was relevant to development policy at both appraisal and ex-post evaluation. There was a strong development need for the construction of infrastructure in rural areas in order to stimulate the regional economy in the Greater Faridpur Area. An increase in project outputs having been provided, the project cost was within the plan although the project period was slightly delayed. The improvement of roads brought about not only an increase in traffic volume but also an increase in motorized traffic and, thus, a change in the quality of traffic. The improvement of roads also led to an increase in employment and business opportunities contributing to livelihoods as well as to better conditions for agricultural production. No serious damage negatively affecting the incidence of project effects was observed during the site survey of the facilities constructed by this project. The actual allocation of the maintenance budget had been under the required amount, and the setting of roads as a priority showed that the

²⁰ According to the LGED classification, this was “Good” for sections below 6 m/km, “Fair” for sections between 6 m/km and 8m/km, “Slightly Poor” for sections between 8 m/km and 10m/km, “Poor” for sections above 10m/km

appropriate distribution of the maintenance fund had been taken into consideration.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

The actual allocation of the maintenance budget was below the required amount. It is desirable that road maintenance is continuously based on priorities in light of traffic volume and road conditions with an attention paid to budget constraints.

Members of Union Parishad and UMMC were not necessarily familiar with administrative procedures. For this reason, they had no specific plan to obtain additional funds for major repairs from central and local governments despite shortages in the maintenance budget. One reason behind this was presumably that elections for new members of Union Parishad and UMMC were held regularly and, therefore, knowledge of administrative practices hardly took root. In order the members of Union Parishad and UMMC to continuously acquire practical knowledge, it is desirable that LGED to make efforts such as that sharing information Union Parishad requiring training with National Institute of Local Government, the government agency which is in charge of training for Union Parishad members, and organizing meetings for UMMC members to disseminate knowledge on how to obtain administrative supports and on good practices across them.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

This project defines the scope in improvement of Growth Centers by using a participatory approach. In some markets, women's corners were not constructed due to opposition from influential men. In a project where the participatory approach defines the scope, it is desirable that the appropriate constitution of participants is confirmed, that the voice of socially marginalized people is heard through measures such as voting, and that their opinions are reflected in the scope of the projects.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs	<p>(1) Civil Works Feeder Road B: 496.4 km Rural Roads: 150 km Growth Centers: 62 Union Parishad Complexes: 27 Maintenance of Earth Roads: 4,070 km</p> <p>(2) Equipment and Vehicles Construction equipment, etc.</p> <p>(3) NGO Activities Training</p> <p>(4) Consulting Services International: 69 M/M National: 1,080 M/M</p> <p>(5) Others</p>	<p>(1) Civil Works Feeder Road B: 562 km Union Roads :217 km Growth Centers: 62 Union Parishad Complexes: 20 Maintenance of Earth Roads: More than 4,000 km</p> <p>(2) Equipment and Vehicles Construction equipment, etc.</p> <p>(3) NGO Activities Training</p> <p>(4) Consulting Services International: 59.21 M/M National: 1,391.3 M/M</p> <p>(5) Others</p>
2. Project Period	March 2001 – December 2005 (58 months)	March 2001 – June 2008 (88 months)
3. Project Cost		
Amount paid in Foreign currency	3,710 million yen	3,614 million yen
Amount paid in Local currency	5,003 million yen (2,316 million taka)	4,963 million yen (2,606 million taka)
Total	8,713 million yen	8,577 million yen
Japanese ODA loan portion	4,055 million yen	3,978 million yen
Exchange rate	1 taka = 2.16 yen (As of May 2000)	1 taka = 1.904 yen (Average between January 2001 and December 2008)