

People’s Republic of Bangladesh

FY2023 Ex-Post Evaluation Report of Japanese ODA Loan Project

“Chittagong City Outer Ring Road Project”

External Evaluator: Shiro Otomo, Ernst & Young ShinNihon LLC.

0. Summary

The objectives of this project are to alleviate traffic congestion for promoting logistics and to mitigate damage from natural disasters such as cyclones by constructing a ring road with an embankment function in Chattogram City¹, which is the second-largest city in Bangladesh and is expected to play an important role in the future development of the country, as it has the largest export processing zone, the largest port facilities, and an international airport, thereby contributing to the economic development of the Chattogram region as well as the country as a whole.

The project was consistent with the development policy and met the development needs of Bangladesh at both the time of appraisal and the ex-post evaluation. Although there was no specific collaboration/coordination with other JICA projects or assistance from other donors, the project was consistent with Japan’s ODA policy at the time of appraisal. Therefore, its relevance and coherence are high. Regarding the output, although changes were made to the original plan during the detailed design and one of the feeder roads was excluded, appropriate output was produced in light of the project objectives. The project cost increased significantly mainly due to changes in design, and the project period also increased mainly due to land acquisition. Both the project cost and period significantly exceeded the plan, so the efficiency of the project is low. Regarding the effectiveness of the project, the effect of alleviating traffic congestion in the city by distributing traffic volume and the bank protection function are seen to have been achieved largely as planned. The ring road constructed by the project is utilized as an alternative route to bypass Chattogram City, and helps to facilitate logistics across the regions towards Dhaka and Cox’s Bazar. It also contributes to the development of the regional economy by improving connectivity between the northern part of the city where the export processing zones are located, and the southern part where the special economic zones are located, through its connection to the Kamaphuli Tunnel. Therefore, the effectiveness and impact of the project are high. Slight issues have been observed in the institutional/organizational aspects including the current status of operation and maintenance, but there are good prospects for improvement/resolution. Therefore, the sustainability of the project effects is high.

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

¹ At the time of appraisal of this project, the name of the city was Chittagong, but it was changed to Chattogram in 2018. In this ex-post evaluation, the name Chattogram will be used as it was at the time of the ex-post evaluation (excluding the project title and the road name).

1. Project Description



Project location (Source: Evaluator)



Chittagong City Outer Ring Road (about 2 km from the starting point, with two lanes in each direction and a divider) (Source: Evaluator)

1.1 Background

In Bangladesh, road transport is the backbone of logistics in the transport sector, and the road network is an important means of transport. Between 1998 and 2006, the number of registered vehicles increased at an annual rate of about 6%, and the number of vehicles and traffic demand were expected to continue to increase due to economic development and population growth. On the other hand, a systematic road network connecting each city was underdeveloped. Even in the major metropolitan areas such as Dhaka and Chattogram, the development of trunk roads was insufficient, causing frequent traffic congestion, which was hindering economic activity and adversely affecting the lives of citizens, so alleviating traffic congestion was an urgent issue. Chattogram is home to the Chattogram Export Processing Zone (hereinafter referred to as “CEPZ”), which supports Bangladesh’s export industry, and Chittagong Port, which is the largest port in the country. As the second-largest city in Bangladesh, the economic development of Chattogram City was essential to the economic development of the country overall. However, the City’s underdeveloped infrastructure formed a bottleneck for the export industry in the region, and there was a growing need for smoother logistics around Chittagong Port and CEPZ. Furthermore, the areas along the Bay of Bengal located in Chattogram City that comprise the project site were particularly vulnerable to damage from cyclonic surge, and the existing embankments were eroding, so there were concerns about the loss of its overflow prevention function. Climate change in recent years has been making cyclones more intense, and measures to prevent losses from natural disasters have been an urgent issue.

1.2 Project Outline

The objectives of this project are to alleviate traffic congestion for promoting logistics and to mitigate damage from natural disasters such as cyclones by constructing a ring road with a function of bank protection in Chattogram City, which is the second-largest city in Bangladesh

and is expected to play an important role in the future development of the country, as it has the largest export processing zone, the largest port facilities, and an international airport, thereby contributing to the economic development of the Chattogram region as well as the country as a whole.

ODA Loan Project

Loan Approved Amount / Disbursed Amount	9,096 million yen / 9,036 million yen
Exchange of Notes Date / Loan Agreement Signing Date	March 2010 / March 2010
Terms and Conditions	Interest Rate 0.01% Repayment Period 40 years (Grace Period 10 years)
Borrower / Executing Agency(ies)	Government of the People's Republic of Bangladesh / Chattogram Development Authority
Project Completion	June 2022
Target Area	Chattogram City
Main Contractor(s) (Over 1 billion yen)	Spectra Engineers Ltd. (Bangladesh) / KNR Construction Ltd. (India)
Main Consultant(s) (Over 100 million yen)	SMEC International Pty Ltd (Australia)
Related Studies (Feasibility Studies, etc.)	JBIC "Pilot Study for Project Formation for Multisector Infrastructure Development in Chittagong" (2006) JICA "Special Assistance for Project Formation (SAPROF) for Chittagong City Ring Road Project" (2009)

2. Outline of the Evaluation Study

2.1 External Evaluator

Shiro Otomo, Ernst & Young ShinNihon LLC.

2.2 Duration of Evaluation Study

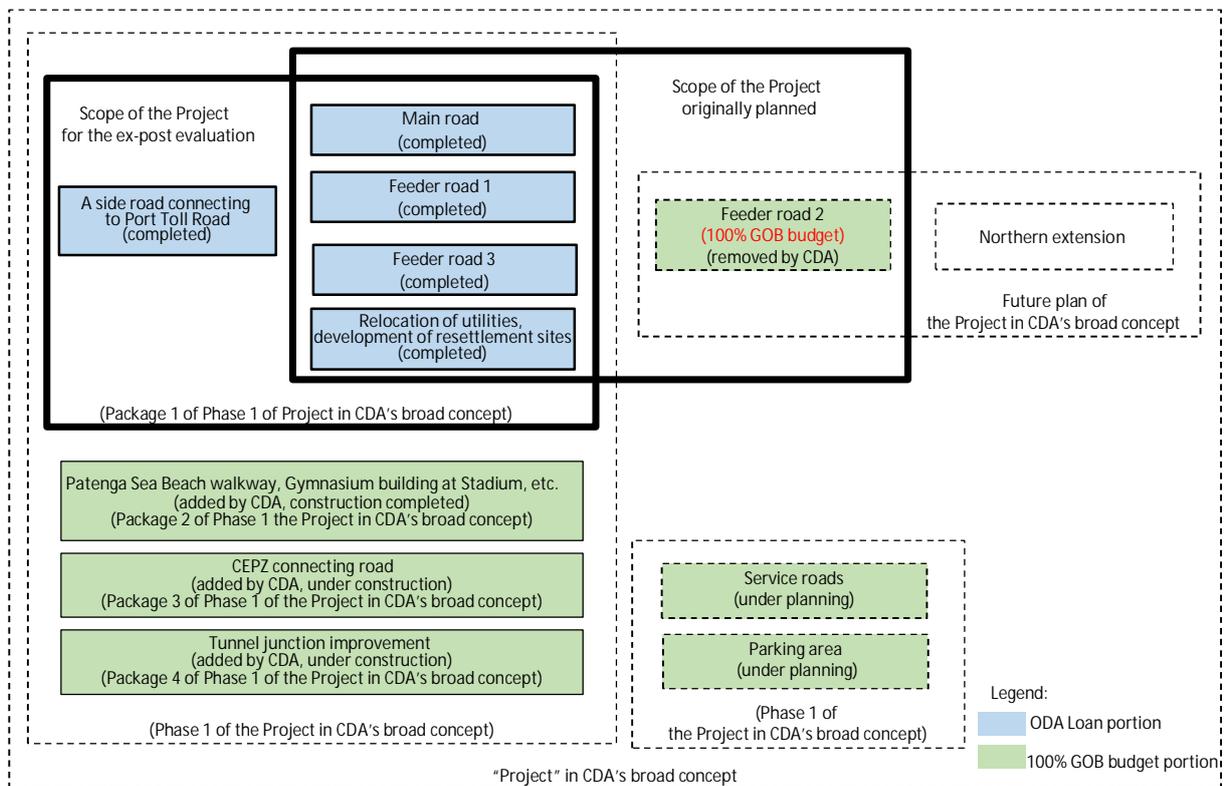
This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: November 2023 - January 2025

Duration of the Field Study: May 1, 2024 - May 19, 2024

2.3 Constraints During the Evaluation Study

The second field survey, scheduled for September 2024, was cancelled due to the temporary deterioration of the situation caused by nationwide unrest that occurred in July 2024, and instead the field survey was conducted remotely through a local associate of the evaluator. In this project, the output was changed as shown in the figure below. In the evaluation of efficiency, detailed information on the project costs corresponding to the scope of the coverage of the evaluation was not available, so although a comparison of the planned and actual total project costs was made, it was difficult to analyse the breakdown or calculate the economic internal rate of return. In the evaluation of effectiveness and impacts, information on the process of setting and reviewing the operational and effect indicators as well as the project scope was not available, so some indicators were revised during the evaluation.



Source: Prepared by the Evaluator based on an interview with CDA

Figure 1 Scope of the project

The above figure shows the scope of the civil works of the Chittagong City Outer Ring Road (hereinafter referred to as “CCORR”), which is the output of the project, at the time of appraisal and the scope of the project covered in this ex-post evaluation. The scope of the project at the time of appraisal (2010) included the portion (Feeder Road 2) that was to be implemented 100%

with the Government of Bangladesh (hereinafter referred to as “GOB”) budget. Based on the results of the detailed design conducted after the project commenced, the executing agency, Chattogram Development Authority (hereinafter referred to as “CDA”), added a side road connecting the existing Port Toll Road and the main road of CCORR to the project scope in the section where the two roads run parallel, and started the construction works of a connecting road to CEPZ, an embankment walkway at Patenga Sea Beach, a gymnasium at the stadium and so on separately from the project, using 100% GOB budget, in view of the need to maximize the project’s effect. On the other hand, CDA postponed the construction of Feeder Road 2 due to budgetary constraints on the GOB side when prioritizing these construction works. In addition to these works, CDA’s broad concept of the project includes future plans such as Feeder Road 2 and the Northern Extension Road of CCORR. Therefore, according to CDA’s broad concept of the project, the project is not complete and is still ongoing at the time of the ex-post evaluation. In contrast, according to the Project Completion Report, CDA excluded the portion covered by 100% GOB budget from the original scope of the project, and redefined the project scope by including the portion covered with the ODA loan. Accordingly, the ex-post evaluation was carried out based on the scope defined in the Project Completion Report.

3. Results of the Evaluation (Overall Rating: B²)

3.1 Relevance/Coherence (Rating: ③³)

3.1.1. Relevance (Rating: ③)

3.1.1.1 Consistency with the Development Plan of Bangladesh

At the time of appraisal of the project (2010), the *Poverty Reduction Strategy Paper* (hereinafter referred to as “PRSP”) (2005), which was positioned as Bangladesh’s most important national development strategy, stated that infrastructure development was essential for poverty reduction and social development in the country, and positioned road sector development as a key policy. *PRSP II* (2008) also followed this policy of setting the road sector development as a key policy. At the national level, the *National Land Transport Policy* (2004) stated that transport infrastructure development was essential for socio-economic development, and set goals such as improving capacity, securing financial resources and formulating long-term development plans for the operation and maintenance of roads, while emphasizing the importance of connecting economic growth centres with rural road networks.

At the time of the ex-post evaluation (2024), the country’s long-term development plan, the *Perspective Plan of Bangladesh (2021-2041)* (hereinafter referred to as “PP2041”), states that low-cost and efficient transport services are essential for economic competitiveness, and sets out the development of transport and communication infrastructure in the transport sector for

² A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory

³ ④: Very high, ③: High, ②: Moderately low, ①: Low

sustainable growth. The road transport subsector strategy sets out the upgrading of the National Highway Networks and ensuring connectivity between regions, special economic zones, ports, and so on. The *Eighth Five Year Plan (2020-2025)* emphasizes the importance of investment in transport infrastructure to improve domestic logistics, promote international trade, reduce costs, and strengthen competitiveness, and sets out the expansion of the road networks as well as improvement of the quality of road infrastructure and road functionality.

At the time of both appraisal and ex-post evaluation, the road sector has been a key area in the country's long-term development plans, and the importance of road infrastructure development has been also recognised in the sector's strategies. Therefore, the project is consistent with these development policies.

3.1.1.2 Consistency with the Development Needs of Bangladesh

At the time of appraisal, road transport was the backbone of the country's transport sector, and while transport demand was expected to increase, Chattogram City, which drives the export industry, had issues relating to a lack of infrastructure development and needed measures to alleviate traffic congestion and to mitigate damage to infrastructure caused by natural disasters. Based on the *Chittagong Metropolitan Master Plan* (hereinafter referred to as "CMMP") formulated in 1995, the *Detailed Area Plan* (hereinafter referred to as "DAP") for CMMP was formulated in 2008 as the basis for urban development with a target year of 2015. Among the roads listed as priority projects in the plan, the highest priority was given to the City's inner and outer ring roads, as well as the embankment road of this project. PRSP also positioned Bangladesh as "one of the most natural disaster-prone areas," and Chattogram city is located in an area that is particularly vulnerable to the effects of cyclones. Therefore, response to cyclone disasters was considered to be a high priority in urban planning. CMMP also listed the embankment road along the Bay of Bengal, part of this project, as one of the priority flood control projects.

At the time of the ex-post evaluation, the population of Chattogram City had increased by nearly 40% from about 4 million at the time of appraisal to about 5.5 million, and the number of registered vehicles had also nearly doubled from about 200,000 at the time of appraisal to about 385,000⁴. This indicates a clear increase in transportation demand and traffic volume, and a high need for congestion relief. The City also has Chittagong Port, the largest trading port in Bangladesh, and the cargo handling volume at the Port has more than doubled from the time of appraisal to the time of ex-post evaluation⁵. As a result, the demand for road transport via the Port has also increased, and it can be said that there is a high need to alleviate congestion due to the increase in traffic volume in the City. In terms of disaster prevention, CDA is currently

⁴ Based on the data of the number of registered vehicles (except rickshaws and bicycles) in Chattogram Metropolitan Area provided by Chattogram Office of Bangladesh Road Transport Authority.

⁵ Based on the annual report of Chittagong Port Authority.

constructing embankment roads along Karnaphuli River and strengthening measures to mitigate flood damage, and there is a high need for infrastructure development as a form of flood disaster preparedness.

This project was listed as a priority project in both DAP and CMMP at the time of appraisal. At the time of ex-post evaluation, it also met the development needs of Chattogram City, as it was positioned as a mitigation measure for natural disasters such as cyclones, in addition to meeting the need for development of road infrastructure to alleviate congestion in the City.

3.1.1.3 Appropriateness of the Project Plan and Approach

The project was planned based on the lessons learned from similar past projects, including the importance of ground and soil surveys at the planning stage, the importance of the role of field staff at the operation and maintenance stage, and the need for measures to ensure the livelihoods and living standards of those affected by resettlement. As shown below, it can be said that most of the lessons learned were addressed and that the approach was appropriate.

(1) Implementation of ground and soil surveys at the time of detailed design:

The civil work of the project was implemented after conducting ground surveys and geological surveys of the soil and sand to be used in the landfill. When filling the land, sufficient curing periods were ensured before construction began.

(2) Development of field staff for proper road maintenance:

Through the implementation of the project, the consultant provided training to CDA staff, and the capacity of the staff of the executing agency was strengthened in the form of On-the-Job Training. Meanwhile, a decision was made to hand over the road maintenance from CDA to the Roads and Highways Department (hereinafter referred to as “RHD”) under the Ministry of Road Transport and Bridges. Since RHD already has a track record in road maintenance as well as its own manual, the maintenance manual that was originally planned to be prepared was no longer necessary for CDA, and was not prepared under the project.

(3) Implementation of appropriate measures based on the resettlement action plan:

In the project, an NGO (synonymous with a consulting company)⁶ in charge of resettlement was assigned within the project implementation structure, a Resettlement Action Plan (hereinafter referred to as “RAP”) was formulated, and based on the RAP, resettlement procedures were appropriately carried out in accordance with the laws and regulations of Bangladesh. CDA in collaboration with the Deputy Commissioner Office (hereinafter referred to as “DC Office”), and the NGO, disseminated information to the project-affected persons in each community within each construction site, and calculated and made payment of compensation. Through these activities, the capacity of CDA staff was strengthened.

⁶ In Bangladesh, organisations providing these services are referred to as NGOs, but they are synonymous with consulting companies.

(4) Appropriate monitoring after resettlement:

Although eviction of the affected persons was completed, negotiations regarding relocation to resettlement sites are still ongoing at the time of the ex-post evaluation between CDA and the affected persons who wish to move there. CDA continues to provide support for the procedures for relocating to resettlement sites and responding to inquiries from the affected persons.

3.1.2 Coherence (Rating: ②)

3.1.2.1 Consistency with Japan's ODA Policy

Japan's Country Assistance Program for Bangladesh (2006) listed "poverty reduction through economic growth" as one of its goals and the transport sector as one of the priority areas essential to economic growth. In addition, JICA's Country Assistance Strategy (2009) listed "economic growth" as one of its priority goals, and "development of economic infrastructure" as a development issue for economic growth, and identified the transport sector as one of the priority sectors. The Strategy focused on the road and bridge sector in particular within the transport sector, and aimed to provide both financial and technical assistance for the projects that would promote private investment and eliminate bottlenecks in economic development while covering both new construction and renovation as well as maintenance and management in a balanced manner. Therefore, the project was consistent with Japan's aid policy and was in line with JICA's assistance policy, which focused on the road and bridge sector.

3.1.2.2 Internal Coherence

The project did not anticipate any collaborative projects, and no collaborative/synergistic effects with other JICA projects were observed.

3.1.2.3 External Coherence

No particular collaboration or coordination with other donors or synergistic effects were observed in the project.

The project was consistent with the development policies of Bangladesh and met the development needs of the country both at the time of appraisal and ex-post evaluation. Although no specific coordination or collaboration was conducted with other JICA projects or assistance from other donors as there were no projects that required specific collaboration or coordination, the project was consistent with Japan's aid policy at the time of appraisal. Therefore, its relevance and coherence are high.

3.2 Efficiency (Rating: ①)

3.2.1 Project Outputs

The project was to construct a ring road, which would be part of the outer ring road along the Bay of Bengal in Chattogram City, along with a bank protection function, and consisted of civil works and consulting services. The plan and actual outputs are as follows:

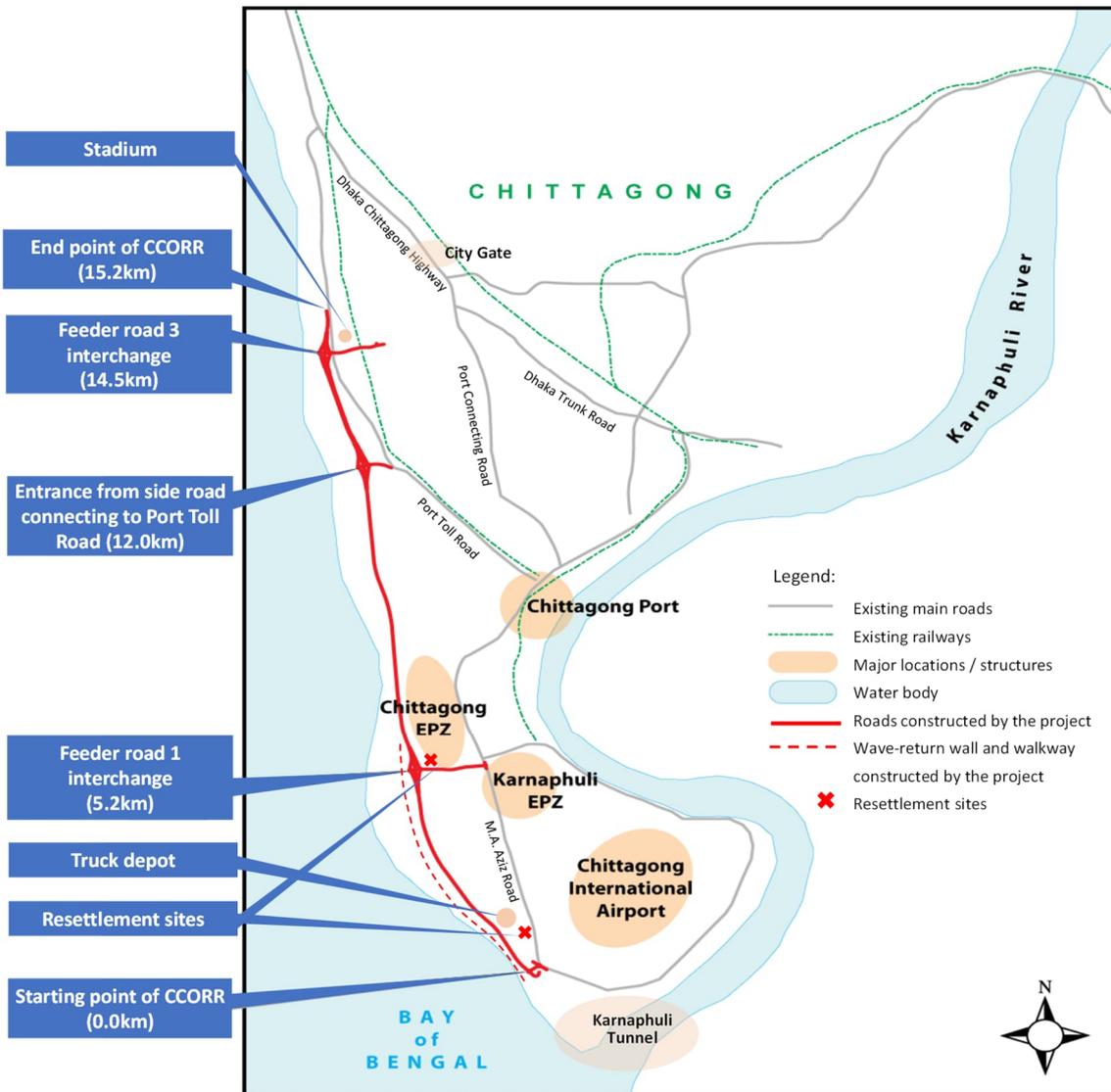
Table 1 Comparison of Planned and Actual Outputs

Item	Original plan	Actual outputs and reasons for changes
Civil works		
1.	Construction of roads	
(1)	<p>Main Road:</p> <ul style="list-style-type: none"> - 14.7 km - 4 lanes (2 lanes in 0-5.5 km section, 4 lanes in the remaining section) 	<p>Main Road:</p> <ul style="list-style-type: none"> - 15.2 km - 4 lanes (2 lanes in 12.0-14.0 km and 14.8-15.2 km sections which run parallel to Port Toll Road) <ul style="list-style-type: none"> ▪ In the section from 0.0 to 5.5 km, 2 lanes were increased to 4 lanes to accommodate expected increase in traffic volume by considering the outlook for future traffic demand. ▪ The overall length was changed due to changes in alignment by considering the shapes of the existing road and embankments.
(2)	<p>Feeder Roads</p> <ul style="list-style-type: none"> - Feeder Road 1 (1.3 km, 4 lanes) - Feeder Road 2 (2.6 km, 4 lanes) - Feeder Road 3 (3.0 km, 4 lanes) 	<p>Feeder Roads</p> <ul style="list-style-type: none"> - Feeder Road 1 (1.4 km, 4 lanes) <ul style="list-style-type: none"> ▪ Generally as planned. - Feeder Road 3 (1.2 km, 4 lanes) <ul style="list-style-type: none"> ▪ In order to avoid land acquisition difficulties and canal flow, and by considering the future extension of the rail line, the design was changed to a flyover while shortening the approach road to the main road. - Toll Road Parallel (0.5 km) <ul style="list-style-type: none"> ▪ Added the side road connecting the existing Port Toll Road and the main road of CCORR in the section where the two roads run parallel. ▪ Feeder Road 2 was removed due to the budgetary constraints of GOB, as other construction works were prioritized.
(3)	<p>Embankment</p>	<p>Embankment</p> <ul style="list-style-type: none"> - Wave-return Wall (5.6 km)

Item	Original plan	Actual outputs and reasons for changes
		<ul style="list-style-type: none"> • Added by CDA to protect the slope at the costal side of the main road from erosion and impact caused by waves and to enhance safety, especially for the section that is closer to the coastline. - Embankment Walkway (5.6 km) • Added by CDA to improve scenery and promote tourism.
(4)	Cross Regulators	Generally implemented as planned.
2.	Relocation of public utilities	
(1)	Relocation of transmission line in Feeder Roads, and other utilities	Generally implemented as planned.
3.	Development of resettlement sites	
(1)	3 locations (12.4 ha in total) - One for commercial site and two for resident sites.	2 locations (13.2 ha in total) <ul style="list-style-type: none"> • One for commercial site and one for resident site. • Two resettlement sites for residents were combined into one, ensuring the same amount of space of the two sites as originally planned.
Consulting services		
1.	Consultancy services	
(1)	Detailed design, supervision of tender procedure, supervision of construction works	Implemented as planned.
(2)	Assistance on capacity development for road maintenance works	Generally implemented as planned. <ul style="list-style-type: none"> • Among the capacity development of CDA, a maintenance manual was not prepared since the responsibility of the road maintenance would be handed over to RHD and there was no longer a need for CDA to prepare a manual.
2.	NGO's assistance	
(1)	Assistance on resettlement and capacity development	Implemented as planned.

Source: Prepared by the Evaluator based on the response to the questionnaire from CDA

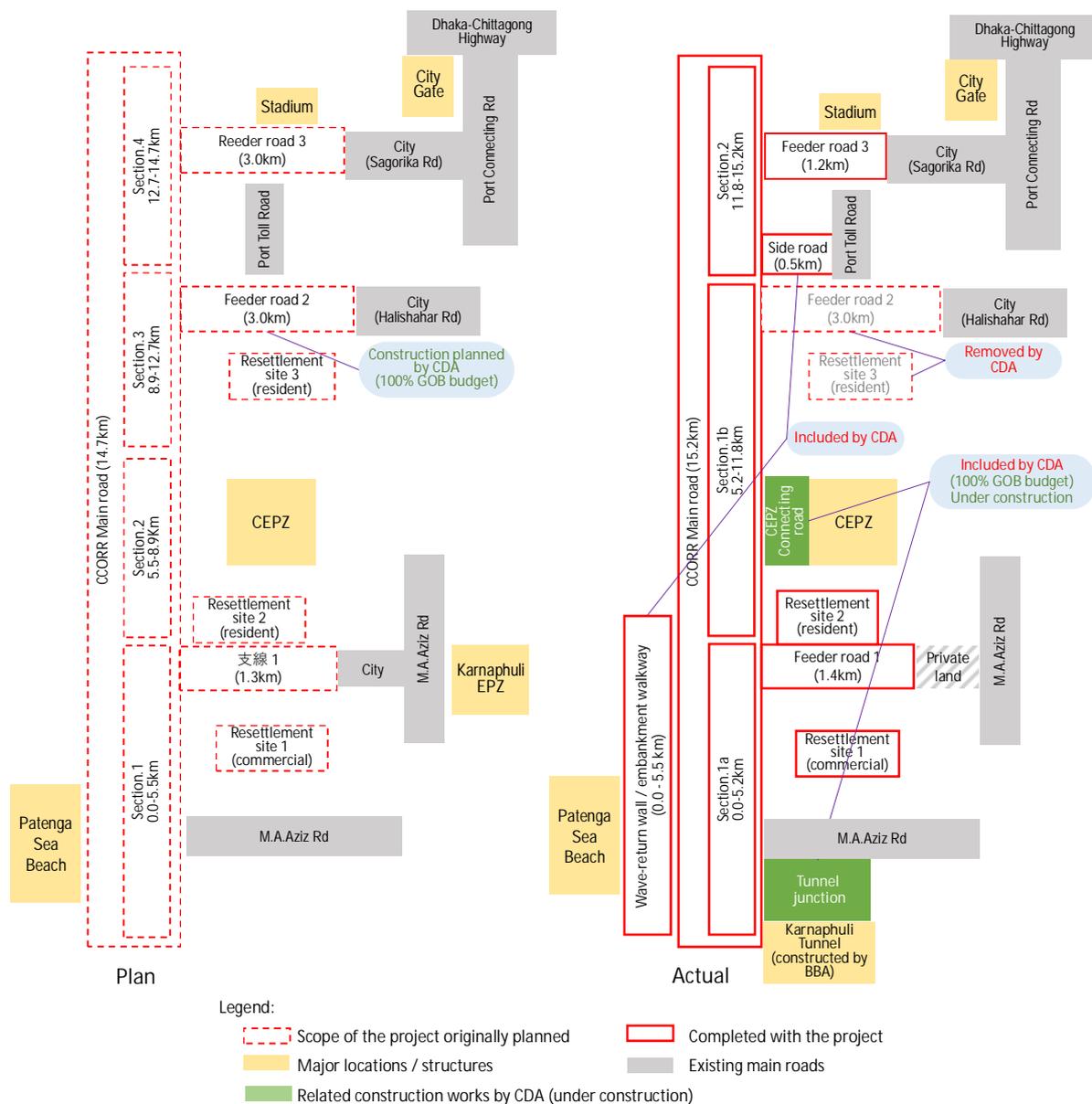
The location of the outputs of the civil works of this project (the construction of the cross regulators and the relocation of public utilities are omitted as they are scattered over the project site) are roughly as shown in the figure below.



Source: Prepared by the Evaluator based on the Project Completion Report from the project consultant

Figure 2 Overview of project location

The following figure compares the planned and actual results of the civil works among the outputs of the project (the construction of the cross regulators and the relocation of public utilities are omitted as they are scattered over the project site).



Source: Prepared by the Evaluator based on an interview with CDA

Note: The figure differs from actual scale and actual locations.

Figure 3 Comparison of planned and actual performance of main components of the civil works

During the detailed design, which was carried out after the project commenced, the alignment of the main road and feeder roads, and the shape of grade separation of the interchange were changed due to the need to avoid land that would be difficult to acquire. In addition, based on the results of ground investigations, etc., a wave-return wall was added due to the need to strengthen the existing embankment and bulkhead to further improve the safety of the main road. Furthermore, the construction of a walkway along the embankment was added to improve the

scenery and promote tourism around Patenga Sea Beach in line with instruction from CDA. As described in “2.3 Constraints During the Evaluation Study,” Feeder Road 2, which was included in the original plan and was to be implemented 100% with GOB budget, was excluded from the scope of the project by CDA due to the budgetary constraints of GOB by prioritizing other related construction works such as the CEPZ connecting road. These changes were appropriate measures taken in consideration of the status of negotiations with landowners and land acquisition, the actual condition of the soil, and the prospects for future expansion of logistics around CCORR including CEPZ, and were considered to have been highly necessary.



Photo 1: Embankment walkway and wave-return wall added on the coastal side of the main road (about 2 km from the starting point) (Source: Evaluator)

CDA and JICA shared the revised plan after the detailed design. However, the documentation which shows the agreement between both sides could not be confirmed, and it was difficult to confirm the detailed revised plan such as the project costs and period. Therefore, the output, the project cost, and the project period were compared with the original plan for the purpose of this ex-post evaluation.

3.2.2 Project Inputs

(Refer to “Comparison of the Original and Actual Scope of the Project” on the last page for details.)

3.2.2.1 Project Cost

The actual project cost was 36,129 million yen, which significantly exceeded the planned 16,645 million yen (217% of the plan). A comparison of project costs at the time of appraisal and ex-post evaluation is shown in the table below. The ODA loan portion was within the original plan (99%). The increase in the project costs from the original plan was covered by GOB funds.

Table 2 Comparison of the planned and actual project cost

	Amount (million yen)		Ratio of actual amount to planned amount
	Plan	Actual	
JICA Portion (ODA Loan)	9,096	9,036	99%
GOB Portion	7,549	27,093	359%
Total	16,645	36,129	217%

Source: Prepared by the Evaluator based on the document provided by JICA and the response to the questionnaire from CDA

Notes: Based on the scope described in “2.3 Constraints During the Evaluation Study,” the planned amount included Feeder Road 2, which was planned with 100% GOB budget as part of the original scope of the project.

The actual amount is based on the Project Completion Report prepared by CDA, including the construction of the parallel road connecting to the Port Toll Road, but excluding Feeder Road 2 (although no cost was incurred).

The items with the largest increases and the main factors behind them are as follows:

(1) Construction costs (267% of the plan):

This increase was mainly due to the revision of the detailed design carried out during the project, which resulted in the change to a flyover on Feeder Road 3, the change to a grade-separated crossing at the interchange section, and the addition of wave-return walls and walkway parallel to the wave-return walls. Moreover, the cost increased due to an increased amount of fill required for the improvement of the soft ground, and the rise in prices of construction equipment, labour, etc., due to the prolonged project period.

(2) Land acquisition and resettlement costs (195% of the plan):

These costs increased due to an increase in the *Mouza rate*⁷ since the planning, an increase in the compensation rates due to the revision to government regulations on compensation, and an increase in the number of the project-affected persons.

3.2.2.2 Project Period

The project period was planned to be 72 months (March 2010 to February 2016), but the actual period was 145 months (March 2010 to June 2022). The three months from March to May 2020 have been excluded due to the external factor caused by the COVID-19 lockdown period (as described below), and significantly exceeded the plan (201% of the plan). This was mainly due to the time it took to acquire the land and the delays in construction progress due to the impact of the COVID-19 pandemic even after the lockdown was lifted. For reference, if the external factor is not considered, the actual period would have been 148 months (206% of the plan).

At the time of the commencement of the civil works for the project (March 2015), land was available only for about 5 km in the 7-12 km section. Construction progressed as planned for that section. However, negotiations for resettlement (eviction) with the landowners did not always go smoothly in other sections. Some landowners took the case to court, with some cases taking one to two years to resolve. As a result, there were significant delays in the start of construction on sections that included the land owned by these landowners, which had a significant impact on the construction period. Construction began after the land acquisition was completed for certain contiguous plots, but the sites that needed to be acquired were scattered and the timing of handover varied, making it difficult to proceed with construction as planned, which reduced the efficiency of the work and caused delays.

Land acquisition procedure involves the process of approval and payment at the Land Acquisition Office of DC Office, and it took longer than expected to obtain approval. To obtain

⁷ The official price of land at each location as determined by GOB.

approval from DC Office, landowners must submit necessary documents such as the title deeds for their land, but the landowners struggled to obtain proper title deeds and in some cases took a long time to do so. Furthermore, the funds required for DC Office to pay the compensation were not allocated in full at once by the government, so there were cases where DC Office was unable to prepare sufficient funds for payment due to the situation of the disbursement of the government budget, which led to delays in making payments of compensation to the affected persons. In order to facilitate the payment process by DC Office, CDA took measures to simplify and speed up the land acquisition process, such as by paying DC Office the funds expected to be required in advance, without waiting for the request from DC Office. In addition, in order to address similar concerns regarding land acquisition, the *CDA Ordinance* was amended in 2018 to allow CDA to directly purchase the land without going through the payment process at DC Office.

The COVID-19 pandemic resulted in a nationwide lockdown imposed by GOB for about three months from March to May 2020⁸. During the lockdown period, the construction site was completely closed. The construction site was reopened in June 2020, but construction was not fully operational immediately after reopening, only resuming gradually. Although it is difficult to specify the time period affected by the COVID-19 pandemic, according to CDA, the consultant and the contractor, this might have led to a delay of one to one and a half years in addition to the government lockdown period.

In addition to the above, in May 2019, a cyclone damaged part of the embankment under construction. Repairs to that damaged part also took time and caused delays.

3.2.3 Results of Calculations for Internal Rates of Return (Reference only)

At the time of the appraisal, the Economic Internal Rate of Return (hereinafter referred to as “EIRR”) of the project was calculated to be 23.9%, by setting the reduction of congestion in Chattogram City and the reduction of cyclone damage as a “benefit,” and the project cost and operation and maintenance cost as “costs,” with a project life of 20 years. Due to the fact that a detailed calculation basis for the benefits and data on traffic volume, etc. was not available at the time of ex-post evaluation, analysis of the internal rate of return was not possible. In addition, because the project scope was changed from the initial plan, it was difficult to obtain accurate information on the costs and benefits corresponding to the modified scope covered in the ex-post evaluation. For this reason, it was not possible to recalculate the EIRR at the time of the ex-post evaluation.

As described above, both the project cost and the project period significantly exceeded the

⁸ GOB declared general holidays from March 26 to April 4, 2020 as a substantial lockdown measure, and extended it until May 30, 2020. That period of general holidays was judged to be an external factor. (Source: Public Holiday Archive at Ministry of Public Administration) (https://mopa.gov.bd/sites/default/files/files/mopa.gov.bd/public_holiday/484ae20c_4557_4c4e_9f3b_58844529a01e/reg4-2020-137.pdf)

plan. Therefore, efficiency of the project is low.

3.3 Effectiveness and Impacts⁹ (Rating: ③)

3.3.1 Effectiveness

3.3.1.1 Quantitative Effects (Operation and Effect Indicators)

As the operation and effect indicators, “annual average daily traffic volume,” “required time and average running speed,” and “number of impassable days” were set for the project. As described in “2.3 Constraints During the Evaluation Study,” the coverage of the evaluation is based on the scope defined as the portion where the ODA Loan was utilised and completed. The subject of these indicators is considered to be the main road of CCORR¹⁰. Among the indicators, “required time and average running speed” were evaluated after revision as described below.

The table below shows the baseline and target values of each indicator at the time of appraisal, and the baseline and actual values obtained from the data provided by CDA and from the interviews by the Evaluator at the time of ex-post evaluation.

Table 3 Targets and actual results of the Operation and Effect Indicators

Indicator	Plan at the time of appraisal		Response to questionnaire from CDA			(For reference purpose only) Interview with the Traffic Police by the Evaluator	
	Baseline (2009)	Target (2018) (After 2 years from the completion of civil works)	Baseline (Actual result: around 2010)	Target (2021)	Actual result (2024)	Baseline (Actual result: around 2010)	Actual result (2024)
Annual average daily traffic (vehicles per day) *³							
Coastal Road (14.7 km)	n/a	19,200 (47%)* ³	n/a	19,200 (47%)* ³	38,704 (48%)* ³	n/a	30,000-35,000 (about 47%)* ³
Existing road (M.A.Aziz Road)	33,958	21,700 (53%)* ³	33,958	21,700 (53%)* ³	41,241 (52%)* ³	50,000 (100%)	40,000-45,000 (about 53%)* ³
Total	33,958	40,900 (100%)* ³	33,958	40,900 (100%)* ³	79,945 (100%)* ³	50,000 (100%)	70,000-80,000 (100%)* ³
Average travel time (minutes) (average in both directions)							
Existing road (Starting point to City: 17.4 km)	Morning: 32 Afternoon: 35 Evening: 40	28* ¹	Morning: 105* ² Afternoon: 90* ² Evening: 120* ²	80* ²	60	Morning: 60 Afternoon: 80 Evening: 90-120	Morning: 40 Afternoon: n/a Evening: 60* ⁴
Average travel speed (km/h) (average in both directions)							

⁹ When providing the sub-rating, Effectiveness and Impacts are to be considered together.

¹⁰ The status of the feeder roads connecting to the main road can affect these indicators. However, it is difficult to analyse the effect of the status of connection of each feeder road, and the extent of the effect of the feeder roads was not mentioned at the time of appraisal. Since the main use of CCORR is expected to be travel between the starting point and the ending point of the main road, the necessity of changing the indicators according to the status of connection of the feeder roads was judged to be small. The evaluation was conducted by considering the indicators as indicators related to traffic and driving on the main road as a whole.

Indicator	Plan at the time of appraisal		Response to questionnaire from CDA			(For reference purpose only) Interview with the Traffic Police by the Evaluator	
	Baseline (2009)	Target (2018) (After 2 years from the completion of civil works)	Baseline (Actual result: around 2010)	Target (2021)	Actual result (2024)	Baseline (Actual result: around 2010)	Actual result (2024)
Existing road (Starting point to City: 17.4 km)	Morning: 32.2 Afternoon: 29.8 Evening: 26.0	42.4* ¹	Morning: 9.9*² Afternoon: 11.6*² Evening: 8.7*²	13.0*²	17.4	17.4 13.0 8.7-11.6	26.1 n/a 17.4
Traffic stoppages due to natural disasters (days per year)							
Coastal Road (14.7 km)	n/a	0	n/a	n/a	0	n/a	0

Source: Response to the questionnaire from CDA, interview result with the Traffic Police by the Evaluator

Note *1: Assuming that the “average travel time” and “average travel speed” cover the same 17.4 km section, the “Targets” in the “Plan at the time of appraisal” do not match. (If travel time is 28.0 minutes, the travel speed should be 37.3 km/h. If travel speed is 42.4 km/h, the travel time should be 24.6 minutes.) Therefore, it is considered that there is a deficiency in setting these targets at the time of appraisal.

Note *2: The “Baseline” and “Target” for “average travel time” and “average travel speed” in the “Response from CDA” shows the values revised by CDA when CDA responded to the questionnaire at the time of the ex-post evaluation, because the baseline and target values set at the time of appraisal were questionable.

Note *3: The ratio of traffic volume of the existing road and CCORR was calculated on the assumption that the definition of the “Target” for “annual average daily traffic” as the ratio of traffic volume distributed between the existing road and CCORR.

Note *4: Regarding the “average travel time” in “(For reference purpose only) Interview with the Traffic Police by the Evaluator,” it was recorded as 55 minutes in actual driving by the Evaluator. (Measurement was taken on Thursday at 4 p.m., just before the peak hour. The result is consistent with CDA’s response and the interview result with the Traffic Police, which stated 60 minutes. Although the exact route of the existing road is not sure, the starting point was set at Patenga Sea Beach (the intersection of the main road of CCORR and M.A. Aziz Road was adopted), and the measurement was carried out on the route that passed through M.A. Aziz Road, the Port Connecting Road, and Dhaka-Chittagong Highway to the City Gate as the ending point, by referring to the description in the SAPROF report.)

(1) Operation and Effect Indicators: “Annual average daily traffic”

CDA and the Traffic Police do not measure traffic volume on a regular basis or at fixed points, and there is no published data available on “annual average daily traffic.” Therefore, the evaluation was made based on the information provided by CDA and the Traffic Police.

As for the definition of the indicator of “annual average daily traffic,” no clear rationale could be obtained during the ex-post evaluation. At the time of appraisal, the baseline was 33,958 vehicles per day on the existing road (M.A. Aziz Road), and the target value was set as 21,700 vehicles per day on the main road (of CCORR) and 19,200 vehicles per day on the existing road, for a total of about 40,900 vehicles per day. On the other hand, the actual value at the time of the ex-post evaluation was approximately 39,000 vehicles per day on the main road and 41,000 vehicles per day on the existing road, for a total of approximately 80,000 vehicles per day. If a mere decrease in traffic volume on the existing road was assumed as the target value, it can be said that the increase in total traffic volume was not considered, and that the target value did not

reflect the actual situation. Therefore, this indicator is interpreted as to measure whether the traffic volume is distributed by promoting the use of CCORR as the alternative of the existing road, and the comparison was made between the ratio of the traffic volume of CCORR and the existing road based on the information provided by CDA and the Traffic Police by referencing the ratio of traffic volumes on both roads in the target values that were originally set¹¹. As a result of the comparison of the ratio of the traffic volumes of the original target values, it can be said that the traffic volume distribution target has been achieved at the time of the ex-post evaluation, since CCORR is handling traffic volumes close to the ratio assumed in the original target values.

(2) Operation and Effect Indicators: Revised “average travel time” and “average travel speed”

CDA and the Traffic Police do not measure “travel time” or “travel speed” on a regular basis or at fixed points, and there is no publicly available data. Therefore, the evaluation was made based on the information provided by CDA and the Traffic Police by referencing the baseline and target values set at the time of the appraisal. The baseline was set based on the results of measurements taken by the SAPROF study team (June 2008), and the target values were set as the reduction of the time required and the increase in the average travel speed from the baseline.

Since CDA and the Traffic Police did not conduct measurements or surveys on traffic volume, CDA did not have any particular doubts about the baseline and the target values at the time of the appraisal. However, at the time of the ex-post evaluation, CDA, the Traffic Police, and many road users commented that the average travel time (average travel speed) on the existing road at the time of the baseline measurement was far from the actual situation. Therefore, the baseline at the time of the appraisal was treated as a reference as an indicator of quantitative effects, and the evaluation was based on the information provided by CDA and the Traffic Police, which is considered to be more in line with the actual situation¹². As a result, “average travel time” and “average travel speed” are judged to have improved at the time of the ex-post evaluation.

(3) Operation and Effect Indicators: “Traffic stoppages due to natural disasters”

Regarding “traffic stoppages due to natural disasters”, previously, the coastal road was closed

¹¹ The basis for the calculation of the degree of distribution (ratio) between the existing road and CCORR (main road) for the “annual average daily traffic” originally set was not mentioned at the time of appraisal, and details could not be confirmed during the ex-post evaluation. At the time of the ex-post evaluation, CDA also could not provide a clear explanation of the basis for the distribution ratio. In the Pilot Study, the traffic capacity was estimated as 32,000 vehicles per day on the existing road of M. A. Aziz Road, and 16,000 vehicles per day on the newly constructed main road (it was planned with 2 lanes at the time of the Pilot Study). In this project, the main road was constructed with 4 lanes, so the traffic capacity can be estimated to be double, at 32,000 vehicles per day. It is therefore judged that the traffic capacity of the existing road and the main road will be similar, and that the distribution ratio of the traffic volume will be similar. Therefore, the ratio based on the original target value can be deemed appropriate.

¹² According to the Pilot Study report (2008), measured travel speed showed that there were many locations in Chattogram City where the average speed was below 10 km/h. M.A.Aziz Road, which constitutes the existing road, was measured as 10-20 km/h, and the Port Connecting Road was measured as less than 30 km/h. Although it is difficult to verify the measurement methods used in the Pilot Study and SAPROF, the baseline value based on the SAPROF measurement result (26-32 km/h) was faster than the travel speed measurement results in the Pilot Study. In this regard, the data and comments from the CDA and the Traffic Police obtained during the ex-post evaluation are considered to be closer to the results of the travel speed measurements in the Pilot Study, and thus more reflective of the actual situation.

for three to four months during the rainy season once every few years. No road closures have occurred in CCORR due to weather conditions or natural disasters so far since its opening. Therefore, it can be said that the positive effect on “traffic stoppages due to natural disasters” has been achieved.

3.3.1.2 Qualitative Effects (Other Effects)

As qualitative effects, the mitigation of traffic congestion to promote logistics and the protection from natural disasters such as cyclones, which were mentioned at the time of project appraisal, were evaluated. The revitalization of the regional economy, which was also mentioned, is evaluated as an impact.

Below are the qualitative effects in terms of the mitigation of traffic congestion and the protection from natural disasters.

(1) Improvement of road functions: Structural aspects

The road constructed under the project is highly appreciated by road users for its driveability (structural aspect), visibility, scenery, and ease of driving. In addition, safety measures such as speed signs and speed breakers were installed on the road constructed under the project. CCORR has expanded width with two lanes on each side from the coastal road, which used to have one lane on each side, improving safety and reducing accidents between trucks and other vehicles, according to the Traffic Police.

(2) Improvement of road functions: Ensuring road transportation

In terms of mobility (transportation aspect), the road constructed under the project has been highly appreciated by road users as contributing to improved convenience by facilitating transportation, particularly between the northern part of Chattogram City and the port and the airport in the southern part of the City. According to interviews with road users and neighbourhood residents¹³, access between the airport and the City centre had always been congested in the past because there was only one route. However, CCORR currently functions as an alternative road, significantly reducing access time and contributing to the easing of traffic congestion in the City.

At the time of the ex-post evaluation, CEPZ has only one gate for vehicles to connect to the road at the city side, and all large vehicles such as trucks of the companies in CEPZ have to pass through the gate to travel on the road at the city side. CDA is constructing a connecting road that will allow direct access from CCORR to CEPZ. When the connecting road is completed, vehicles used by companies in CEPZ will be distributed to the CCORR side and the city side. This is expected to further contribute to reducing traffic congestion in the City.

¹³ As a qualitative survey, the Evaluator conducted in-person interviews with 14 private business operators along CCORR and in Chattogram City centre, and 12 residents and general road users along CCORR. The interviews were mainly about the safety of driving and road surface conditions on CCORR, and the effectiveness of easing traffic congestion and reducing access times in Chattogram City.

According to the Traffic Police, CCORR is also used by emergency and police vehicles to avoid traffic congestion in the City, thus contributing to maintaining safety and security in the City.

3.3.2 Impacts

3.3.2.1 Intended Impacts

The impact of the project is stated as “contributing to the economic development of the Chattogram region as well as the country as a whole.” In this ex-post evaluation, the status of the emergence of impacts related to “revitalization of the local economy,” which is expected from the outputs and outcomes of the project, was evaluated.

(1) Volumes and costs of logistics

According to interviews with logistics companies and other companies, CCORR contributes to savings in vehicle fuel costs, reduced damage to vehicles, and reduced maintenance costs thanks to its good road quality and surface conditions. The use of CCORR also reduced travel time in and out of Chattogram City, contributing to regular operation. Around the CCORR area, truck depots have also expanded in recent years, facilitating smooth logistics and thus promoting economic activity.

(2) Promotion of regional development

The scenery around Patenga Sea Beach, near the starting point of CCORR, has been improved by the construction of embankment walkways and planting of trees. This has resulted in an increase in the number of tourists and visitors from local residents and from around the country, and in the number of shops for tourists as well. In addition, the area around CCORR, particularly the land located in the south of Feeder Road 3, had not been developed due to the inconvenience of access. However, the construction of CCORR has improved access, which has led to development in the surrounding area and an increase in land prices.

3.3.2.2 Other Positive and Negative Impacts

1) Impacts on the Environment

According to the *Japan Bank for International Cooperation Guidelines for Confirmation of Environmental and Social Considerations* (established in April 2002), this project was classified as Category A because of its characteristics (involving large-scale land acquisition and relocation of residents) and its location in a sensitive area.

The Environmental Impact Assessment Report on the project was approved by the Department of Environment in July 2009. An Environmental Management Plan (hereinafter referred to as “EMP”) was prepared by CDA for the project, and environmental monitoring was conducted based on the EMP. During the construction period, experts on environmental measures were assigned to both the construction company and the consultant, and environmental measures were

implemented. In accordance with the EMP, quantitative evaluations were carried out, including measurements of the surrounding air and noise, inspections of groundwater, surface water, and wastewater. Other measures such as dust control, waste management, and drain cleanings were also conducted.

In terms of the natural environment, about 20,000 trees were cut down during the construction. CDA plans to plant about 120,000 trees by 2027 in cooperation with the Forest Department of the Ministry of Environment, Forest and Climate Change. By the time of the ex-post evaluation, about 60,000 trees had already been planted along the CCORR. The area along the coastal road was previously unmanaged wooded area, but at the time of the ex-post evaluation, various tree species have been continuously planted in consideration of the environment, and the scenery and environment have improved as a result of this.

Based on the above, no particular environmental issues have arisen as a result of the project.

2) Resettlement and Land Acquisition

The following table shows the plan and actual results of the resettlement of residents and land acquisition in the project. RAP was developed at the time of the appraisal (2009) and was updated after the commencement of the project (2013). During that period, the number of affected households and their families increased.

Table 4 Comparison of plan and actual results of the resettlement

Item	Plan (RAP) (2009)	Actual results (2017)
Area of land to acquire (Ha)	107.97	n/a
Of which, land to purchase (Ha)	34.57	37.265
Number of project-affected households	2,253	2,823
Number of project-affected persons	12,664	15,139

Source: Response to the questionnaire from CDA

Under the project, the process of resettlement (eviction) of residents and acquisition of land was properly implemented in accordance with the laws and regulations of Bangladesh. In the event of a resettlement of a resident, communication with the residents and the affected persons was made from the planning stage, and it was made known that the prescribed compensation would be paid in accordance with the procedures established by the government, and that it would be possible to acquire a plot of land in the resettlement site at the cost prescribed by the government. With regard to the payment of compensation, CDA, DC Office and the NGO worked together to assess the amount of compensation for each household and individual and to make the payment. Although the land preparation for the resettlement site for residential area was completed, no residents have moved into the resettlement site and about 60 households are in the process of negotiation with CDA at the time of the ex-post evaluation. The negotiation has not

reached an agreement, and no resident has yet formally signed a contract with CDA to move in.
[Major opinions from persons affected by the resettlement]

According to interviews with persons affected by the resettlement¹⁴, there were no problems with the procedures of issuance of IDs and the payments of the compensation to the affected persons. When the ID was issued and the compensation was paid in 2016, it was explained that it would be possible to move into the resettlement site in a few months. However, mainly due to the delay in the acquisition of the land for the development of the resettlement site for residential area, more than one year had elapsed before the site became available for moving in. During that period, they were burdened with expenses such as rent at other residential areas. Some affected persons have been requesting CDA to allow them to provide the plot of land of the resettlement site for free, which has made the negotiations with CDA difficult. It is recognised that the resettlement site itself has become a safer place than before by being protected from cyclones with CCORR.
[Current situation of affected persons moving into the resettlement site]

The land preparation for the resettlement site for the residential area was completed in 2018. In addition to the plots for residents, plots for public facilities, such as mosques, schools and hospitals, have been allotted within the resettlement site, and the construction of public facilities is planned by CDA after residents move in. The affected persons who wish to move in to the resettlement site can live there at any time if they agree with CDA through contract (price) negotiations and pay CDA for the plot of land.

[Responses and future actions by CDA]

In order to encourage the affected persons who apply for moving in, CDA has implemented measures to reduce the burden on the affected persons by covering the cost of electricity, water, and other installation work that would normally be borne by the applicants. CDA has already arranged and budgeted for installation of utilities of electricity and water through Bangladesh Power Development Board and Chattogram Water Supply and Sewerage Authority respectively as soon as official tenants are confirmed. CDA also accepts payment in instalments for purchasing a plot of land in the resettlement site. CDA provides opportunities for vocational training and job placement for the affected persons who need to maintain and restore their livelihoods, and responds to individual requests for consultation from the affected persons.

3) Gender Equality, Marginalized People, Social Systems and Norms, People's Well-being and Human Rights

No particular negative impacts were identified as a result of the project.

¹⁴ As a qualitative survey, the Evaluator directly visited along the CCORR and the resettlement site and conducted interviews with 8 affected persons, asking about CDA's project-related information-sharing and compensation payment procedures, and whether they had any complaints or positive or negative impacts from the project.

4) Unintended Positive / Negative Impacts

Positive impacts other than “3.3.2.1 Intended Impacts” include “Promotion of development and economic activities in surrounding areas.”

During the project, Bangabandhu Sheikh Mujibur Alnakhli Tunnel (hereinafter referred to as “Karnaphuli Tunnel”) was constructed. The construction of CCORR facilitated some aspects of the tunnel construction. CDA communicated with Bangladesh Bridge Authority (hereinafter referred to as “BBA”) and RHD and carried out the construction by modifying the shape of the connecting section and roundabout with CCORR and widening the connecting road. The connection of the tunnel with CCORR improved access between Chattogram City centre (the west bank of Karhaphuli River) and the southern part of the City (the east bank of the river), contributing to the development of Chattogram City toward realisation of its “1-City, 2-Town” concept¹⁵. In addition, the connection of CCORR to Kamaphuli Tunnel has facilitated the use of CCORR for trucks and other vehicles traveling between Chattogram and Dhaka or Cox’s Bazar to bypass Chattogram City, contributing to easing traffic congestion in the City centre and improving access between these regions. It can be said that CCORR has also contributed to reducing regional disparities through the promotion of interregional logistics. Chittagong Port Authority (hereinafter referred to as “CPA”) is planning to build a new bay terminal of Chittagong Port along CCORR, and CCORR is recognised as an essential road for construction work and transportation after the opening of the new terminal. It can therefore be said that CCORR contributes to promoting the development in the surrounding area.

Although the “average travel time” and “average travel speed” among the operation and effect indicators set at the time of the project appraisal will be treated as a reference only, according to interviews with CDA, relevant stakeholders and road users, CCORR is being promoted for use as an alternative road to the existing roads in Chattogram City, and is fully functioning as an embankment, contributing to reduced traffic congestion in the City while facilitating smooth logistics within and between regions, and contributing to the development of the surrounding areas.

Based on the above, this project has mostly achieved its objectives. Therefore, effectiveness and impacts of the project are high.

3.4 Sustainability (Rating: ③)

3.4.1 Policy and System

¹⁵ The concept is to promote the integrated development of the town in the south of Chattogram (the east bank of the Karnaphuli River) centred on Anwara district where the Chinese Economic and Industrial Zone and the Korean Export Processing Zone are located, in addition to the development of the town of the current centre of Chattogram City (the west bank of the Karnaphuli River) where CEPZ and the Karnaphuli Export Processing Zone are located, in order to promote the industrialisation of the City as a whole and to expand trade and commerce.

As described in “Relevance” above, the national policy for the transportation sector in the PP2041 of Bangladesh emphasises the development of transportation and communication infrastructure for sustainable growth, which includes improving the national highway network and ensuring connectivity among regions, special economic zones and ports. In the *Eighth Five-Year Plan*, the strategy for the transportation sector is to expand the road network, improve the quality of road infrastructure, and ensure the performance of roads for vehicles. The policies for road infrastructure development in the development plan and road network development in the transport sector continue to be emphasised.

Therefore, the importance of road infrastructure development in the road sector is high, and its sustainability in terms of policy and system is high.

3.4.2 Institutional/Organizational Aspect

According to the original plan, after completion of the project, the road portion of CCORR was to be operated and maintained by CDA and the embankment portion by Bangladesh Water Development Board (hereinafter referred to as “BWDB”). In December 2022, an agreement was reached between the Minister of Housing and Public Works (which supervises CDA), the Minister of Road Transport and Bridges (which supervises RHD and BBA), and the Minister of Water Resources (which supervises BWDB) stating that RHD, instead of CDA, will be in charge of operation and maintenance (hereinafter referred to as “O&M”) of the road portion of the project. This is because integrated management with neighbouring roads managed by RHD enables efficient O&M, and the utilisation of the road portion of this project is positioned as part of the future road network development at the national level by RHD.

According to CDA, the handover to RHD and BWDB is scheduled after the completion of the construction works (around July 2027 if the construction works proceed as planned) that CDA is separately implementing as different packages (construction of the connecting road with CEPZ and improvement work of the tunnel junction).

Until the handover takes place, CDA is responsible for O&M of CCORR. The staff of CDA assigned to the Project Implementation Unit, which was the implementation structure of the project (hereinafter referred to as “PIU”), are continuously in charge of O&M. At the time of the ex-post evaluation, seven staff are assigned in CDA. Under the supervision of these staff, O&M work is being conducted by giving instructions to the contractor as necessary during the separate construction work being carried out by CDA. With regard to the resettlement, the process of moving into resettlement sites is continuing, and three staff of the Social and Environment Division of CDA, different from the O&M staff, assigned to the PIU continue to be in charge of this process. Even after the handover of O&M to RHD and BWDB, the same staff members of CDA continue to carry out procedures and negotiations with the affected persons for relocating to the resettlement site and respond to complaints from the affected persons.

According to RHD, RHD Chattogram Division is ready to take over O&M of the road portion of the project once CDA officially hands it over. In RHD, the Planning and Maintenance Wing is responsible for road maintenance, while the Technical Services Wing is responsible for the environmental and social considerations. The Division has the officers in charge of respective Wings, and has a sufficient number of staff (56 members) and the necessary equipment. The Division already maintains and manages a total of about 570 km of national roads under its jurisdiction. Even if CCORR is added to the scope of O&M, the Division can carry out the O&M together with the Karnaphuli Tunnel road, Port Toll Road, and other national roads under its jurisdiction, since the addition of CCORR will not significantly increase their workload and it can be handled under the existing structure. Therefore, there is no particular concern regarding the organisational aspect of O&M of the road portion of CCORR at RHD.

According to BWDB, Chattogram O&M Division 1 of Chattogram O&M Circle in South-Eastern Zone is ready to take over O&M of the embankment portion of the project as planned once CDA officially hands it over. The Division has about 40 experienced staff and the necessary equipment. To date, it has been operating and maintaining the embankment located in the south of CCORR. Even if the embankment portion of CCORR is included in the scope of O&M, the Division is capable of managing it. Therefore, there is no particular concern regarding the organisational aspect of O&M of the embankment portion of CCORR at BWDB.

The O&M work of CCORR constructed under the project has been conducted as temporary measures within other construction packages by CDA for the time being. However, a change in the responsible body of O&M is planned, and both RHD and BWDB, which will be responsible for O&M of road and embankment respectively in the future, have sufficient organisational structure. There are no particular concerns regarding the sustainability of organisational/institutional aspects.

3.4.3 Technical Aspect

As mentioned above, RHD Chattogram Division, which will be in charge of O&M of the road portion of the project, has experience in the maintenance of roads under its jurisdiction. The Division conducts daily inspections and repairs on the road as necessary when damages are identified. The road surface condition is maintained in good condition, so it can be said that the maintenance is being properly conducted by the Division. The Division has necessary personnel and equipment, so there are no concerns regarding technical aspects. RHD has extensive experience in supervising the construction of large-scale repairs and other work that is outsourced to other companies. RHD also has its own training centre and laboratory, and is equipped with a human resources development system.

BWDB, which will be responsible for O&M of the embankment portion, has been operating and maintaining the embankment of the south side of CCORR, and conducting site visits for

inspections and minor repairs as appropriate. BWDB has experience in procuring contractors for major repairs and supervising the implementation and execution of construction and other work. BWDB also has an Engineering Academy, which provides its staff with various training programs ranging from 2 to 7 months, and is continuously developing human resources within BWDB.

Based on the above, both RHD and BWDB have sufficient experience of O&M, and there are no particular concerns regarding the technical aspect.

3.4.4 Financial Aspect

The budget allocated by GOB to RHD, which will be responsible for O&M of the road portion of CCORR, has increased in recent years, although it temporarily decreased in FY2022 due to the COVID-19 pandemic. Of the total RHD budget, the road maintenance budget allocated to RHD Chattogram Division is approximately 690 million taka per year to carry out O&M covering the total length of 570 km. Even if CCORR is added to the current scope of O&M, it can be handled within the current budget¹⁶. Therefore, there is no concern about the financial aspect of O&M by RHD.

With regard to the financial status of BWDB, the amount of budget allocated by GOB to BWDB has been increasing in recent years¹⁷. Notably, the annual maintenance budget allocated to Chattogram O&M Division 1, which will be responsible for O&M of the embankment portion of CCORR, is approximately 80 million taka. Even if inspections and minor repairs of the embankment of CCORR are added to the current scope of daily O&M, it can be handled within the current budget¹⁸. Since CCORR had just been constructed, large-scale repairs are not expected by BWDB for the time being. However, if emergency repairs or major repairs are expected, they will be budgeted separately by GOB and will be implemented under GOB support. Therefore, at the time of the ex-post evaluation, even if CCORR is added to the existing scope of BWDB, there is no particular concern because it will not increase the burden significantly.

Based on the above, both RHD and BWDB have budgets for O&M, and there are no particular concerns regarding the financial aspect.

3.4.5 Environmental and Social Aspect

During the project, environmental monitoring was conducted in accordance with EMP. CDA conducted the periodic testing of air quality, surface water, groundwater, sewage, noise, etc. Mitigation measures such as waste management, dust control by watering, and clearing of drains had been implemented, and no major problems were reported. Regarding the natural environment, CDA has been working with the Forest Department to plant about 20,000 trees each year, for a

¹⁶ Based on interview with RHD Chattogram Division.

¹⁷ Based on BWDB Annual Report (<https://pani.bwdb.gov.bd/en/annual-reports>).

¹⁸ Based on interview with BWDB.

total of 120,000 trees. To date, about 60,000 trees were planted with consideration given to the diversity of trees. The trees are functioning as windbreaks, and the landscape with the trees are also evaluated to have improved through interviews with the road users. Based on the above, no impact of particular environmental concern was observed.

3.4.6 Preventative Measures to Risks

At the time of the ex-post evaluation, no particular elevated risks affecting the functions of roads and embankments were identified.

3.4.7 Status of Operation and Maintenance

There is no major damage to the main road, feeder roads, or embankment constructed with the project, and there are no particular problems with O&M by CDA at the time of the ex-post evaluation. However, as a result of the site visits and observations, the following four issues were identified around CCORR, which are considered necessary to be addressed by CDA to grasp the current condition and to improve the situation through future O&M work.

(i) Shops on the embankment walkway on the coastal side

The embankment walkway at Patenga Sea Beach located at the starting point of CCORR is lined with shops, but it is not intended to be used as a commercial area as it is owned by BWDB. CDA has been encouraging the shops to move out of the walkway and instructing them to do business at the resettlement site for commercial area developed by the project. CDA is planning to develop a parking area in the subsequent Phase 2 project, which is planned to be implemented under the GOB budget, and will keep encouraging the shops and other businesses to relocate to the commercial spaces to be established within the parking area.



Photo 2: Shops on the embankment walkway at Patenga Sea Beach (Source: Evaluator)

(ii) Management of cross regulators and canals

Some residents along CCORR have pointed out that flooding during heavy rains became worse after the construction of CCORR. The residents have already reported this to CDA, and CDA is aware of the situation. In the detailed design of the project, 11 cross regulators with flap gates were designed to prevent flooding from the sea while allowing smooth drainage from the inland side upon consultation with BWDB, and these were constructed as planned. At the time of the ex-post evaluation, four of them are not fully functioning as drainage channels from the inland side because they require the construction of a connecting canal across the existing road (Port Toll Road) owned by RHD that runs parallel to CCORR, and this canal will be constructed to coincide with the widening work of the existing road by RHD. CDA and RHD Chattogram Division

concluded an MOU in May 2021 for RHD to complete the canal. It is expected that the construction will be completed as early as possible.

(iii) Measures against illegal dumping

Illegally dumped garbage and sediment were found on the side of the road near the Feeder Road 3 interchange. CDA is aware of the situation. According to CDA, it has faced similar situations in the past and had conducted large-scale cleanups twice as part of O&M. CDA intends to strengthen patrols in the future.



Photo 3: Road side near Feeder Road 3
(Source: Evaluator)

(iv) Traffic safety measures

Traffic accidents between vehicles and pedestrians crossing the main road at places other than zebra crossings have occurred on CCORR. Another issue is the excessive speed of traveling vehicles. Some of the speed breakers that were originally installed were removed under the guidance of the Traffic Police in order to ensure the safety of passage for trucks and other vehicles. In addition, on the main road around the depot of trucks near the starting point of CCORR, one lane is almost completely blocked by the trucks parking on the road, which is obstructing traffic. Although the Traffic Police have given instructions, the problem has not been resolved. CDA is planning to construct a service road to improve access to the coastal side for local residents and a parking area where vehicles and drivers can park and rest, in the subsequent Phase 2 project, which is planned to be implement under the GOB budget.



Photo 4: Partially removed speed breakers
(Source: Evaluator)

Slight issues have been observed in the institutional/organisational aspects including the current status of operation and maintenance, but there are good prospects for improvement/resolution. Therefore, sustainability of the project effects is high.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The objectives of this project are to alleviate traffic congestion for promoting logistics and to mitigate damage from natural disasters such as cyclones by constructing a ring road with an embankment function in Chattogram City, which is the second-largest city in Bangladesh and is expected to play an important role in the future development of the country, as it has the largest export processing zone, the largest port facilities, and an international airport, thereby contributing to the economic development of the Chattogram region as well as the country as a whole.

The project was consistent with the development policy and met the development needs of

Bangladesh at both the time of the appraisal and the ex-post evaluation. Although there was no specific collaboration/coordination with other JICA projects or assistance from other donors, the project was consistent with Japan's ODA policy at the time of appraisal. Therefore, its relevance and coherence are high. Regarding the output, although changes were made to the original plan during the detailed design and one of the feeder roads was excluded, the output was produced appropriately in light of the project objectives. The project cost increased significantly mainly due to the changes in design, and the project period also increased mainly due to the land acquisition. Both the project cost and period significantly exceeded the plan, so the efficiency of the project is low. Regarding the effectiveness of the project, the effect of alleviating traffic congestion in the City by distributing traffic volume and the bank protection function are seen to have been achieved largely as planned. The ring road constructed by the project is utilised as an alternative route to bypass Chattogram City, and helps to facilitate logistics across the regions towards Dhaka and Cox's Bazar. It also contributes to the development of the regional economy by improving connectivity between the northern part of the City where the export processing zones are located, and the southern part where the special economic zones are located, through its connection to the Kamaphuli Tunnel. Therefore, the effectiveness and impact of the project are high. Slight issues have been observed in the institutional/organisational aspects including the current status of operation and maintenance, but there are good prospects for improvement/resolution. Therefore, sustainability of the project effects is high.

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

4.2 Recommendations

4.2.1 Recommendations to the Executing Agency

(1) Prompt handover of operation and maintenance

CDA needs to promptly hand over the O&M to RHD and BWDB. At the time of handover, CDA needs to communicate the issues of the situation of O&M ((i) shops on the embankment walkway on the coastal side, (ii) management of cross regulators and canals, (iii) measures against illegal dumping, (iv) traffic safety measures). CDA plans the handover as soon as the works of other packages under construction are completed. However, in order to ensure a smooth handover, it is necessary for CDA to immediately start sharing the current situation and discussing measures to be taken in the future with RHD, BWDB, and the Traffic Police, etc., as necessary.

(2) Improvement of road safety

Regarding "(iv) traffic safety measures" above, measures are needed to reduce traffic accidents on CCORR, reduce the number of trucks parked on the main road obstructing smooth traffic, and raise awareness among pedestrians, residents, drivers, and owners and users of nearby depots to comply with traffic rules such as zebra crossing signs. CDA is required to facilitate the implementation of these measures in consultation with the Traffic Police and relevant

stakeholders.

(3) Continuous monitoring

CDA is required to continue negotiations with the affected persons who have applied to be relocated to the resettlement site. CDA needs to promptly specify the details of support in preparation for the case where livelihood restoration support will be needed for the affected persons in future. CDA also needs to inform the affected persons of that support and plan to implement continuous monitoring.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

Sharing of recognition by relevant organisations of the scope of the project and the definition of the indicators

It became clear that the scope of the project implemented differs from the scope of the project in the broad concept defined by the executing agency. In addition, at the time of the ex-post evaluation, the executing agency questioned the baseline and target value of the indicators originally set at the time of appraisal, saying that they were far from the actual situation at that time.

In order to avoid discrepancy in understanding of the project scope or setting of indicators that are far from the actual situation, it is necessary to share understanding and build consensus in writing between the executing agency and JICA, and there is also a need to ensure sufficient involvement of the executing agency when defining and modifying the project scope, defining the indicators, and setting and revising the baseline and target values.

(End)

Comparison of the Original and Actual Scope of the Project

Item	Plan	Actual
1. Project Outputs	1) Road construction Main road (14.7 km) 3 Feeder roads 2) Development of resettlement 3 sites (12.7 ha in total) 3) Consulting services (Detailed design, supervision of tender procedure, supervision of construction works, and capacity development of the executing agency)	1) Road construction Main road (15.2 km) 2 Feeder roads and 1 parallel road 2) Development of resettlement 2 sites (13.2 ha in total) 3) Consulting services (Generally implemented as planned.)
2. Project Period	March 2010 - February 2016 (72 months)	March 2020 - June 2022 (145 months) (excluding 3 months due to the external factor) (For reference: 148 months without considering the external factor)
3. Project Cost Amount Paid in Foreign Currency Amount Paid in Local Currency Total ODA Loan Portion Exchange Rate	854 million yen 15,790 million yen (11,872 million taka) 16,645 million yen 9,096 million yen 1 taka = 1.33 yen (As of March 2010)	2,830 million yen 33,299 million yen (26,574 million taka) 36,129 million yen 9,036 million yen 1 taka = 1.30 yen (Average between January 2011 and December 2022)
4. Final Disbursement	September 2022	