

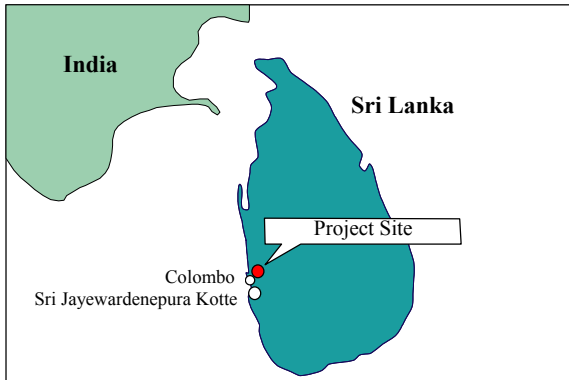
Sri Lanka

Sri Lanka - Japan Friendship Bridge Widening Project

Report Date: February 2003

Field Survey: November 2002

1. Project Profile and Japan's ODA Loan



Project location map



The New Sri Lanka - Japan Friendship Bridge constructed under the project

1.1 Background

Northern Colombo is an emerging commercial and industrial area. It is home to the Katunayake Export Processing Zone, the largest of its kind in Sri Lanka, and the Katunayake international airport, the only international airport in the country. It has attracted public attention as the most rapidly developing area in Greater Colombo. In northeast Colombo, meanwhile, there is the Biyagama Export Processing Zone, which forms a part of Greater Colombo and is expected to develop further in the future.

Roads linking the city of Colombo with these areas cross the Kelani River, which runs through the northern end of the city. Initially, the three bridges over the Kelani were the Sri Lanka - Japan Friendship Bridge (four lanes), Victoria Bridge (two lanes for one-way traffic to Colombo) and New Kelani Bridge (six lanes), which is located approximately 1 km upriver. These bridges alone were inadequate and traffic was becoming increasingly congested.

The traffic volume crossing the Kelani, which was 80,700 vehicles a day in 1993, was projected to increase at an annual rate of 4% in subsequent years and exceed the traffic capacity by 2001, thus further traffic congestion was expected. In addition, one of the major reasons for traffic congestion was the vehicle weight restriction which was applied on the 95-year-old superannuated Victoria Bridge. Therefore it was necessary to replace the bridge with a new one as soon as possible.

1.2 Objectives

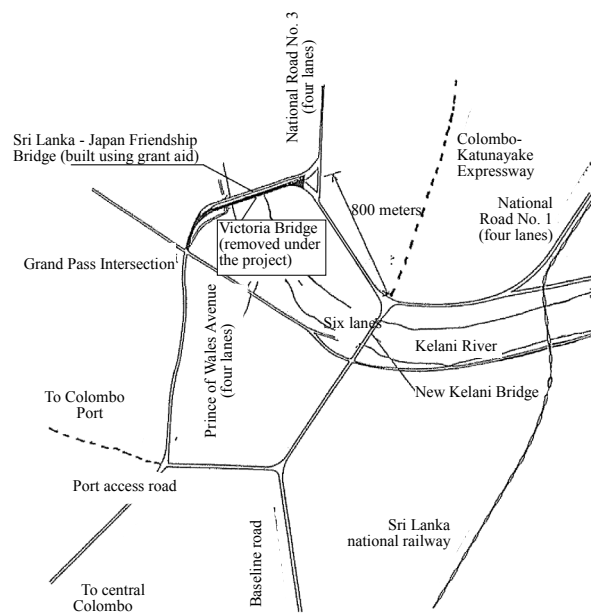
To remove the increasingly outdated Victoria Bridge spanning the Kelani, which runs through the northern end of the city of Colombo, and build a new bridge similar in type to the existing Sri Lanka - Japan Friendship Bridge, thereby responding to the increasing traffic of people and goods and resulting congestion between the northern/northeastern areas and the city.

1.3 Project Scope

The project consisted mainly of the following components:

- (1) Removal of the Victoria Bridge
Removal of the upper and lower structures of the bridge, etc.
- (2) Construction of a new two-lane bridge similar in type to the existing Sri Lanka - Japan Friendship Bridge at the site of the Victoria Bridge
Foundation work, construction of the upper and lower structures of the bridge, pavement, etc.
- (3) Repair of approach roads
Banking and pavement work, etc. (104 meters for the Peliyagoda side and 286 meters for the Colombo side for a total of 372 meters)
- (4) Improvement of the Grand Pass Intersection located to the south of the bridge
Ground leveling, including the removal of the roundabout^{*1}, installation of traffic signals, pavement work, etc.
- (5) Consulting services
Detailed design, project management, etc.

Sketch map of the project area



¹ "Roundabout" refers to a road junction at which traffic moves in one direction around a central island. It functions as an intersection without requiring traffic lights.

1.4 Borrower/Executing Agency

The Democratic Socialist Republic of Sri Lanka/Road Development Authority (RDA)

1.5 Outline of Loan Agreement

Loan Amount	2,929 million yen
Loan Disbursed Amount	2,164 million yen
Exchange of Notes	June 1993
Loan Agreement	August 1993
Terms and Conditions	
-Interest Rate	2.6%
-Repayment Period (Grace Period)	30 years (10 years)
-Procurement	General untied
Final Disbursement Date	January 2002

2. Results and Evaluation

2.1 Relevance

As described above, the project aimed at responding to the increasing traffic of people and goods between the northern/northeastern areas and the city and the resulting congestion.

At the time of appraisal (1993), it was predicted that the traffic for the three trans-Kelani bridges combined would exceed the traffic capacity in about eight years if new measures were not taken. In addition, it had already been recommended that the very old Victoria Bridge should be replaced with a new one as soon as possible, and the Sri Lankan government gave top priority to a Victoria Bridge Rebuilding Plan ^{*2} in its Five-Year Road Development Plan.

From a macroeconomic viewpoint as well, transport sector in Sri Lanka was an important sector, accounting for 11.5% of gross domestic product (GDP), and the road and railway sector represented 13.6% of public investments made during the period from 1991 to 1993^{*3}. Furthermore, in the chapter on transport infrastructure in the Public Investment Plan (1995-1999) prepared by the Ministry of Finance and Planning, the importance of establishing an efficient transport system in order to meet increased demand arising from economic growth is mentioned.

According to the Road Development Authority (RDA), the executing agency, the project was considered important to realizing and extending the development plans for the Katunayake Export Processing Zone, Peliyagoda Regional Development Plan and Biyagama Export Processing Zone, which were also mentioned in the appraisal report for the project. This was because the trans-Kelani traffic prior to project implementation faced problems such as small capacity^{*4} and slow speed^{*5}.

² The danger of the old Victoria Bridge was pointed out in the 1986 study backed by the British government. Based on the study the Victoria Bridge Rebuilding Plan was implemented using grant aid from the Japanese government prior to the current project (the plan was completed in 1992). However, the Victoria Bridge was eventually not replaced, and the Sri Lanka - Japan Friendship Bridge was built next to the Victoria Bridge with the latter left as is. The official name of the new bridge built under this project is the New Sri Lanka - Japan Friendship Bridge.

³ Data is from the Ministry of Finance and Planning's Public Investment Plan for 1995-1999. The percentage of 11.5% GDP represents the total figure for the transport and communications sectors.

⁴ The total capacity of the three trans-Kelani bridges (number of vehicles that can cross the bridges in one day) was estimated to be 117,500 per day in 1992, and the actual traffic volume at that time totaled 80,700 vehicles. RDA predicted that the actual traffic volume would exceed the capacity around 2000, about eight years later.

⁵ For the very old Victoria Bridge, vehicle weight restrictions had been imposed since 1987, allowing only passenger cars and lighter vehicles to cross the bridge. Larger-size vehicles used both of the two lanes, causing traffic congestion. These were considered to be factors slowing traffic on the bridge.

These problems hindered the flow of goods into and from the export processing zones and development plan area mentioned above, obstructing development of those areas.

Moreover, in particular, the project was extremely important for the Colombo-Katunayake Expressway Project, one of the three road projects for Greater Colombo (the other two were The Third Bridge Construction Plan and Ring Road Plan), which would provide access to the northern area. As a result of the project, it was anticipated that the traffic burden on the New Kelani Bridge would be lightened, making traffic on the above-mentioned expressway smooth.

Given its importance and local needs, the relevance of the project was evaluated highly at the time of appraisal, and the project continues to be relevant today.

2.2 Efficiency

2.2.1 Project Scope

According to RDA, the project was implemented in two phases: Phase 1 and Phase 2. The scope of each phase is as described below.

Phase 1

Widening of the existing Friendship Bridge, built under the grant aid project, to increase the number of lanes from two to three

Phase 2

Removal of the Victoria Bridge and the construction of a new two-lane Friendship Bridge at the site of the old bridge

Initially, the scope of the project did not encompass the widening of the existing Friendship Bridge, and Phase 1 was added later. In Phase 2, the number of lanes for the New Friendship Bridge was changed from the initial two to three. In other words, the New Friendship Bridge was planned as a four-lane bridge (two lanes in each direction) but was actually constructed as a six-lane bridge (three lanes in each direction). Two major factors are cited as the reasons for this change.

One factor was that the river-crossing traffic volume for the Sri Lanka - Japan Friendship Bridge was growing at an annual rate of 6%, larger than the 4% predicted at the time of appraisal, and it was evident that the number of lanes would have to be increased in the not very distant future. The other was that if the number of lanes for the New Friendship Bridge was to be increased from two to three in the future^{*6}, the total construction cost would be considerably larger than to build a three-lane bridge from the very beginning^{*7}.

Therefore, the change of the scope of the project is considered fully relevant. The series of changes made to the scope of the project can be shown as follows:

⁶ At the time of appraisal, in 1993, the Sri Lankan government had a plan for increasing the number of lanes for the Ring Road, including the Sri Lanka - Japan Friendship Bridge and New Kelani Bridge, as well as their respective access roads, to six (Ring Road Plan).

⁷ According to the RDA, the additional cost of increasing the number of lanes from two to three in the construction process is approximately 31 million Sri Lankan rupees, but changing the completed two-lane bridge into a three-lane one would incur an additional 150-200 million rupees. The recalculated IRR for "two two-lane bridges" is 9.5%, and 15.3% for "two three-lane bridges".

[At appraisal]

There were the following two bridges, except for the New Kelani Bridge.

- The existing Sri Lanka - Japan Friendship Bridge built under the grant aid project: two lanes in each direction
- Victoria Bridge: two-lanes (one-way traffic). Vehicle weight restrictions imposed to allow only light vehicles to pass



[Phase 1] *initially not included in the scope of the project

- Existing Sri Lanka - Japan Friendship Bridge: the number of lanes to be increased from two to three.



[Phase 2] *included in the initial scope of the project

- Victoria Bridge: to be removed, and the New Sri Lanka - Japan Friendship Bridge to be built.



[Final outcome] (changes from the planned scope are underlined)

- The existing Sri Lanka - Japan Friendship Bridge: the number of lanes was increased from two to three.
- Victoria Bridge: was removed, and the New Sri Lanka - Japan Friendship Bridge with three lanes in each direction was built.



[Planned scope]

- The existing Sri Lanka - Japan Friendship Bridge: to remain with two lanes (with the possibility of widening it in the future).
- Victoria Bridge: to be removed, and a new bridge with two lanes in each direction (New Sri Lanka - Japan Friendship Bridge) to be built.

2.2.2 Implementation Schedule

The New Sri Lanka - Japan Friendship Bridge was completed about two years and two months later than the initial schedule.

First, the plan was delayed by around six months before detailed designs began after consultants were selected. Second, the delay had expanded to two years and five months by the time construction work started after contracts were signed (for details, refer to the section “Comparison of Original and Actual Scope” at the end of this report).

The reason was that after bidding it took a very long time to obtain the Cabinet’s approval for construction costs and other matters.

Construction work itself progressed almost as scheduled, however (strictly speaking, the construction period was shortened by three months), and the delay did not particularly affect the functions of the bridge. The approval of contracts had nothing to do with the construction work itself and was outside the scope of the project consulting services (project management). Therefore it was considered difficult to avoid the delay.

2.2.3 Project Cost

The actual cost for the foreign currency portion was only 80% of the initially planned project costs. According to the RDA, this was because the actual contract price was lower than estimated at appraisal. The actual local currency portion did not differ from the initial plan so much.

For this reason, despite the change of the scope of the project (increase in the number of lanes), the project resulted in a cost under run overall. Moreover, the total project cost in Japanese yen was

further lowered by the ongoing appreciation of the yen^{*8}.

2.2.4 Performance of Consultants and Constructors^{*9}

The consultants for the project came from a Japanese company and were highly rated. According to the RDA, these consultants were very diligent and systematic in their problem-solving procedures, and were also excellent in taking leadership. Overall, the project progressed smoothly, and the executing agency owes much of this to the consultants. It is also noted that there was no particular problem with the performance of constructors.

Based on the above analyses, it can be said that overall, the input effectively produced the desired outcome of this project, though there were delays in the process from consultant selection to the commencement of construction work.

2.3 Effectiveness

2.3.1 Response to Trans-Kelani Traffic

(a) Statistical data and on-site inspections

The changes in the trans-Kelani traffic volume in recent years are as shown below (Table 1).

Table 1: Changes in the Trans-Kelani Traffic Volume^{*10} (Unit: Vehicles)

Year		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Vehicle traffic volume											
New Kelani Bridge	Forecast*	61,568	64,031	66,592	69,256	72,026	74,907	77,903	81,019	84,260	87,630
	Actual	-	60,518	-	55,242	-	-	45,340	-	-	80,320
Victoria + Sri Lanka - Japan Friendship Bridges ^{*11}	Forecast	22,360	23,254	24,185	25,152	26,158	27,204	28,293	29,425	30,601	31,826
	Actual	27,390	31,040	34,855	35,200	35,500	35,805	36,100	36,500	36,720	37,111
Total for three bridges	Forecast	83,928	87,285	90,777	94,408	98,184	102,111	106,960	110,444	114,861	119,456
	Actual	-	91,558	-	90,442	-	-	81,440	-	-	117,431

* Forecasts for each bridge were calculated in 1992

Source: RDA

As a result, the actual traffic volume growth is very close to the forecast. For example, the total traffic volume for the three bridges in 2002, forecast at the 1993 appraisal, was 119,456 vehicles, while the actual result was 117,431 vehicles^{*12}. This indicates that the project has allowed the volume of trans-Kelani traffic to continue to grow. The traffic volumes by the modes of transport are as follows (Table 2).

⁸ A secondary effect was also generated. According to the RDA, construction materials salvaged from the removed Victoria Bridge were recycled to construct another bridge (not across the Kelani River). This saved approx. 6 million rupees in the total cost of 20 million rupees for the construction of this new bridge.

⁹ Four companies were involved in the construction work in total: one foreign affiliate and on local company for phase 1 and 2 respectively.

¹⁰ Blank spaces indicate "unknown because no survey was conducted".

¹¹ The Victoria Bridge was removed in 1999. The new bridge with three lanes for each way (New Sri Lanka - Japan Friendship Bridge built under the project) was completed in 2000. In the same year, the number of lanes for the existing Sri Lanka - Japan Friendship Bridge (built under the grant aid project) was increased from two to three.

¹² The actual traffic volume for each bridge differs from forecasts. The actual traffic volumes for both the New and Old Friendship Bridges are greater than the forecasts. The possible major reasons for this are that the number of lanes for the Old and New Friendship Bridges, which was increased from the initially planned four to six, increased capacity, and that because a problem with the New Kelani Bridge (a bus stop near the exit of the bridge on the side of the city of Colombo was hindering the flow of traffic) was not fully recognized in advance, the traffic volume projections for the bridge were overestimated. In addition, the RDA believes that the Baseline Road Improvement and Extension Project implemented from 1996 to 2000 contributed to reducing the traffic volume for the New Kelani Bridge.

Table 2: Traffic Volumes by the Mode of Transport (Unit: Vehicles)

Mode of transport	Passenger car	Truck	Bus	Medium-sized bus	Motor bicycle	Total
2000 (Forecast)	27,250	37,895	3,451	13,475	28,373	110,444
2002 (Actual)	59,616	30,601	7,159	4,320	15,375	117,431

* Forecasts were calculated in 1992. Actual results are based on RDA surveys.

Source: RDA

Figures for different years are compared, but even if the two-year difference is taken into consideration, the growth in the numbers of passenger cars and buses has been remarkable, while the numbers of medium-sized buses and motorcycles have grown slowly. Some observers take the view that behind this is the fact that, since import duties for the so-called “passenger vans” were substantially reduced, more of them have been purchased, prompting a shift from medium-sized buses and motorcycles.

The project was implemented to respond to the growth in traffic volume described above (it was presumed that if no measures were taken, the traffic volume would exceed the traffic capacity, constituting a serious hindrance to traffic). On-site inspections of the New Sri Lanka - Japan Friendship Bridge at 8:00 a.m. on weekdays (the time period when traffic is believed to reach its peak) during the survey indicated that traffic was extremely smooth though it was the peak hour. It was confirmed, from not only statistical figures but also the actual condition of traffic, that the project has served to cope with the growing traffic of people and goods.

Under the project, pedestrian roads^{*13} were introduced. This is a benefit not found in the Victoria Bridge, benefiting pedestrians in terms of both convenience and safety.

(b) Improvement of the Grand Pass Intersection

The improvement of the Grand Pass Intersection located to the south of the bridge was another major component of the project, and with respect to this, the effects described below were observed^{*14}.

Prior to project implementation, this intersection took the form of a “roundabout”, causing serious traffic congestion during the peak hours because the traffic volume exceeded its capacity. Moreover, it was essential that two policemen were stationed there at all times to ease traffic congestion.

After the project was completed, the traffic capacity of the intersection increased and a traffic signal system was also introduced, eliminating the problem described above. An inspection made at peak hours indicated that the traffic around the Grand Pass Intersection was very smooth. It seems that the improvement of the intersection has had positive effects on trans-Kelani traffic in general.

(c) Consulting services

Consultants played an important role in this project, as mentioned in 2.2.4. Consulting services provided under the project included the training of two RDA personnel overseas^{*15}. Training was

¹³ A two-meter-wide sidewalk, about 15 cm higher than the road, was built on each side of the bridge.

¹⁴ It seems that no statistical survey has been conducted concerning the traffic volume for the intersection, and statistical data could not be obtained.

¹⁵ When the survey was conducted, the trainees were playing an active role in the RDA, one serving as deputy director at the bridge design division and the other as deputy director in the construction and operation/maintenance division.

provided in Tokyo and Osaka, Japan, for two months, and consisted chiefly of the utilization of computer software for designing box girder bridges and inspection of such bridges. These two trainees are engaged in bridge design and construction even today and stated during the interview that the training was useful.

2.3.2 Recalculation of Economic Internal Rate of Return (EIRR)

(a) Initial calculation

EIRR at the time of appraisal was 10.9%, but the verification of the initial IRR calculation process during the recent survey revealed that there were several problems, including underestimated temporal costs. For this reason, corrections were made with the result that EIRR prior to project was 17.1%.

(b) Recalculation

Based on the initial calculation method, EIRR was recalculated for the results of the project. The initial calculation was made on the assumption that the New and Old Sri Lanka - Japan Friendship Bridges had two lanes, but the number of lanes was actually increased to three, and therefore, the calculation process was corrected.

As a result, recalculated EIRR was 15.3%. EIRR was (re)calculated to obtain the net benefits of the project (reductions in driving costs and temporal expenses), by comparing a scenario in which the project was implemented against a scenario in which the project had not been implemented. The figure of 15.3% means that cost and expense benefits were evident. Actual figures should have been used for the past traffic volumes, but past figures are available only for part of the period surveyed, and the actual figures for 2002 are very close to the initial forecasts. Therefore, in the recalculation process, for convenience's sake, the initially forecast traffic volumes were used for the past traffic volumes as well.

The initial calculation assumed that the economy would grow at an annual rate of around 4% (actually, Sri Lanka achieved economic growth at an average annual rate of around 5% in the 1990s), but the country posted negative growth^{*16} in 2001. In the recalculation, however, the initial forecasts were used for the future traffic volumes partly because the Asian Development Bank (ADB) predicted^{*17} that the growth in real GDP would recover to 3.5% in 2002.

If the foregoing is all taken into consideration, we may state that the project has fully achieved its objectives.

2.4 Impact

2.4.1 Impact on Traffic

Since it was difficult to measure the efficiency of river-crossing traffic quantitatively, interviews with the related organizations and entities were conducted in order to understand the project effects in qualitative terms. The following replies were obtained.

- In the past, there were constant complaints from residents about river-crossing traffic (traffic

¹⁶ According to an announcement by the Central Bank of Sri Lanka, GDP grew at a rate of -1.4% in 2001.

¹⁷ Country Strategy and Program Update, July 2002

congestion), but such complaints are no longer received today. The Grand Pass Intersection also contributes to eliminating traffic congestion. New buildings have been built around the intersection, improving the view of the surrounding areas (Engineering Department, Colombo Municipal Council).

- Access to the city from the airport has become easy, enabling container trucks to transport goods between industrial complexes in Katunayake and Biyagama more swiftly than before. In the past, since vehicles ran in both directions on one bridge, they came into physical contact with one another and accidents occurred more frequently than today. It seems, however, that accidents have decreased recently. There are no longer complaints from citizens about air pollution (Peliyagoda Urban Council).
- Recently, no traffic accidents have been observed on the bridge. The effect of the project on container companies is that the number of containers services increased (in the past, it took 2-2.5 hours to go from the Colombo Port to Katunayaka during the peak hours, but recently it has come to take only about 1.5 hours). Decreases in the fuel consumed should naturally have positive effects on the profitability of these companies (Container Carriers Association).
- Decreased traffic congestion has brought savings in time and fuel. The effects of the project on areas other than the neighborhood of the bridge include decreased traffic congestion on the portion of the Kandy Road (the road leading to the eastern tourist city of Kandy) that extends for 5-6 km from the bridge. Similarly, the congestion length was eliminated by 1 km on the road heading to the airport. The frequency of traffic accidents seems to have decreased. The number of buses in operation (though not the number of bus service providers) has increased in western Colombo. This is probably because the improvements in traffic conditions have made bus services more attractive (Private Bus Companies Association).

It is inferred from these remarks that the New and Old Friendship Bridges have tangible and intangible impacts on the efficiency of the river-crossing traffic that links the city of Colombo and various areas in Greater Colombo.

2.4.2 Impact on the Local Economy

The higher goal of the project set at appraisal was to revitalize the local economy by achieving greater efficiency in transport between the city of Colombo and the northern and northeastern parts of Greater Colombo. It is difficult to directly measure how much the improved traffic efficiency contributed to the revitalization of the local economy in each area.

In the interviews conducted in the Katunayake and Biyagama Export Processing Zones as well as in the Peliyagoda Regional Development Area to which the project was expected to contribute, nearly half of the businesses replied that productivity increased due to improved traffic conditions. Therefore, it is presumed that the project made certain contributions to businesses operating in the industrial complexes and development area^{*18}.

¹⁸ Interviews were held with a total of ten businesses operating in the Katunayake, Biyagama and Peliyagoda districts.

2.4.3 Negative Socioeconomic Impact

The project did not involve any land acquisition or the relocation of local residents. No negative effects of the project on the local society and economy have been reported to date.

2.4.4 Environmental Impacts

Although there is no statistical evidence because the RDA has not carried out environmental monitoring, residents living near the bridge replied in the interview that, “as traffic congestion was reduced, drivers use their horns less frequently, which lowers noise pollution,” and “exhaust gas emissions from vehicles have decreased due to the realization of smooth traffic.” No other negative environmental impacts have been reported to date.

2.4.5 Other Impacts

The project used a construction method of incorporating the pipelines for telephones, electricity, water and other utilities into a section beneath the bridge. This method, which is less costly than the previous methods, gained attention and another new bridge has been constructed using this method^{*19}. This is the noteworthy impact of the project in terms of technology transfer.

2.5 Sustainability

2.5.1 Present Condition of Facilities

(a) Bridge

Partly because little time has passed since the bridge was completed in September 2000, the overall bridge is in a good condition. Specifically, the abutments of the bridge, bearings, piers, expansion joints, pedestrian sidewalks and other components have no cracks and are all in a satisfactory condition. With respect to the upper structure of the bridge, although cracks occurred in the bridge girders during the construction work, this problem was solved by taking appropriate measures.

(b) Road

The road on the upper part of the bridge is in a very good condition, and practically no small cracks, even, are found on the road surface. The results of the recent survey confirmed, however, that the drain ditches built along the road were filled with sand and trash and that some of the lights were broken. With respect to the approach roads at both ends of the bridge, there was no problem on the Grand Pass Intersection side, while small cave-ins were found on the other (north) side.

2.5.2 Issues to Be Addressed in Facility Operations and Maintenance

The RDA cited the following activities as being necessary to appropriately operate and maintain the Sri Lanka - Japan Friendship Bridge.

- Removal of sand from the drain ditches (once every two to four days)
- Maintenance of the road surface (cleaning and rework for markings)
- Maintenance and inspection of lighting facilities and traffic signals
- Annual general inspections and development of future repair plans based thereon

According to the RDA, activities other than the inspection of lighting facilities are actually being

¹⁹ A similar method was used for the bridge spanning the Mahaweli River in the Hebarawa district of Uva Province.

carried out. The operation and maintenance of lighting facilities was formerly undertaken by the city government but was transferred to the RDA later. The fact is, however, that the RDA does not have sufficient budgeted funds and personnel to perform this duty.

Although the RDA generally has sufficient capacities and techniques to maintain the bridge, it cannot secure the required budget. Therefore, the frequency of the above-mentioned activities remains at around 70% of the desired level. This situation leads to the problems indicated in 2.5.1 “Present Condition of Facilities”.

Normally, roads in the city of Colombo are maintained by the Colombo Municipal Council, but a representative of the council explained that it has no authority to maintain the roads at the project site because the RDA has not yet transferred its jurisdiction over the site.

2.5.3 Operation and Maintenance

(1) Organization structure and technical capabilities

As originally planned, operations and maintenance are undertaken by the RDA.

The organizational structure of the RDA has not undergone major changes since the implementation of the project, and the number of its personnel has remained almost the same, at about 2,200, since around 1990. Its Maintenance, Management and Construction Division has not undergone any particular changes, either.

The RDA has some 400 engineers, 450 technicians and 600 skilled workers at its maintenance and planning divisions. According to them, technical capabilities and the number of personnel for maintenance work are sufficient, except for the maintenance and inspection of lighting facilities and traffic signals mentioned above.

According to the ADB, it seems that the RDA has structural problems^{*20} and has initiated its efforts for organizational reforms, but that there has been no specific move toward such reforms^{*21}.

(2) Finance

The RDA has predicted that it will be necessary to annually spend at least 300,000 rupees on the operations and maintenance of roads and bridges in the future, and expects that expenditures of this level will continue in the years to come. Its financial statements for 1999 to 2001 indicate, however, that it suffered an ordinary loss for three consecutive years. For this reason, its cumulative deficits grew, reaching over 1,500 million rupees in 2001. The authority had cumulative deficits even at the time of project appraisal, in 1993, but the ratio of such deficits to net worth was only around 25%. In 2001, however, the absolute amount of cumulative deficits grew to about nine times the 1991 level or to the amount equivalent to about 50% of net worth.

For this reason, the RDA is suffering chronic losses^{*22}, and the fact is that the authority is making up for these losses mainly through capital injections by the government (see Tables 4 and 5). However, the amount of deficits for 2001 declined to around nine million rupees, and the amount of capital injected by the government fell accordingly.

In conclusion, as long as there is no major change in government policies and the support system is maintained in the future, it is expected that maintenance expenditures will stay at their current

²⁰ Problems such as the lack of long-term plans, weak management capabilities and high cost structure in project implementation are pointed out.

²¹ The RDA personnel responsible for the project suggested that the authority might be privatized in the future, but the ADB ruled out such a possibility.

²² In the ADB's opinion, one of the major reasons for the RDA's high cost structure is that the RDA places most of the orders for projects it implements with the Road Construction and Development Corp., which is placed under its control.

level in the future. As described earlier, however, the RDA currently tends to lack maintenance budgets, and it is desirable that relatively larger budgets should be allocated to the authority.

Table 4: Changes in RDA's Assets, Liabilities and Equity Capital (Unit: million rupees)

	1987	1988	1989	1990	1991	1999	2000	2001
Assets	874	887	873	920	1,292	5,903	5,786	6,301
Current assets	665	372	381	585	943	3,982	4,259	4,589
Fixed assets	219	515	492	334	349	1,921	1,527	1,713
Liabilities	623	397	231	334	591	2,769	2,579	3,242
Current liabilities	623	397	231	334	591	2,694	2,461	3,147
Fixed liabilities						75	118	95
Equity Capital	251	490	642	585	701	3,134	3,208	3,060
Capital	1	1	1	1	1	1	1	1
Capital injection by the government	0	82	99	77	191	3,719	4,035	3,896
Transferred assets	229	529	688	685	685	685	685	685
Losses/profits brought forward	21	-122	-146	-178	-176	-1,271	-1,513	-1,522

Source: JBIC appraisal materials and RDA

Table 5: Changes in RDA's Profits/Losses (Unit: million rupees)

	1987	1988	1989	1990	1991	1999	2000	2001
Total revenues	1,371	849	895	1,442	1,726	6,716	6,717	8,693
Road construction revenues	1,164	687	757	1,314	1,562	4,677	6,560	8,431

Total expenses	1,344	891	910	1,446	1,662	6,958	6,959	8,702
Operation/repair expenses	198	202	210	202	201	248	165	305
Depreciation expenses	42	96	127	107	100	306	223	285
Road construction expenses	1,003	891	910	1,045	1,246	4,038	5,788	7,454
Pre-tax profits	27	-42	-15	-4	64	-243	-242	-9

Source: JBIC and RDA

In summary, the bridges and roads built under the project are fully performing the functions that they are expected to, and there are practically no physical problems at moment. In addition, the organization and personnel that maintain these facilities are in good – though not in perfect – order, and the minimum required maintenance work is being performed. The executing agency is suffering chronic losses, but budgets for work related to the project have been secured, though not fully. As long as there is no change in the government's support structure, one may state that, overall, the project has a sufficient level of sustainability.

3. Lessons Learned

Information on high-performance contractors should be accumulated for future projects.

One of the reasons the project was successfully implemented while minimizing its effects on trans-Kelani traffic during construction, and also responded flexibly to planning changes, is the overall high ability of the consultants and constructors involved.

In this survey, any special project management methods unique to this project were not extracted. In the future, however, it is suggested that not only the names of consulting firms and constructors that are highly rated overall but also the names of their personnel in charge of the project involved should be recorded so that they can be used, for example, when calling for bids in the future.

4. Recommendations

(To RDA)

As RDA itself admits, its maintenance work for the project bridges and roads has not necessarily reached a perfect level, and it is desired that it should perform more carefully thought-out work. One way to achieve this goal would be to transfer its jurisdiction over the roads to the city of Colombo as soon as possible, as in the case of other roads, or at least consider the possibility of doing so.

Comparison of Original and Actual Scope

Item	Plan	Actual
1. Project Scope	(1) Removal of the Victoria Bridge (2) Construction at the site of the Victoria Bridge of a new bridge with two lanes in each direction, similar in type to the existing Friendship Bridge (3) Repair of approach roads (4) Improvement of the Grand Pass Intersection located to the south of the bridge (5) Consulting services	(1) As planned (2) Construction of the new bridge with the number of lanes in each direction increased to three (the number of lanes for the existing Friendship Bridge was also increased to three) (3) As planned (4) As planned (5) As planned
2. Implementation Schedule		
Consultant selection	Jun. 1993 – Mar. 1994	Feb. 1994 – Mar. 1994
Detailed design	Apr. 1994 – Jan. 1995	Oct. 1994 – Sep. 1995
Construction completion	Nov. 1995 – Jul. 1998	Apr. 1998 – Sep. 2000
3. Project Cost		
Foreign currency	2,492 million yen	1,983 million yen
Local currency	954 million yen	358 million yen
Total	3,446 million yen	2,341 million yen
ODA loan portion	2,929 million yen	2,164 million yen
Exchange rate	1 rupee = 2.79 yen (as of July 1993)	1 rupee = 1.67 yen (as of September 2000)

Third Party Evaluator's Opinion on Japan-Sri Lanka Friendship Bridge Widening Project

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Relevance

The project bears significant relevance to the development strategy of the country, and also to the sectoral objectives. The need for a better access across Kelani river has long been recognised, and this project has catered to this requirement to a very large extent. The decision to change the project scope to increase the number of lanes of the existing Friendship Bridge from two lanes to three lanes, and to construct a new bridge with three lanes (instead of two lanes) is very relevant in view of rapidly increasing traffic volumes in Colombo-Katunayake and Colombo-Kandy corridors. The rationale of this decision is evidenced by the improvement of the EIRR of the project (from approximately 9% to over 15%).

The project's relevance is enhanced by the fact that the access road to the Mattakkuliya bridge* (further down-stream of the river) is not yet developed, though the bridge is now complete. Had that been done, the Japan-Friendship bridges would have had to share their present traffic volumes with Mattakkuliya bridge. On the other hand, the relevance of this project could have been much more prominent had the Colombo-Katunayake Expressway been developed.

An analysis of the relevance of a project of this nature is subjective to a given sectoral development scenario. For instance, had the railway system been sufficiently developed, more corridor traffic volumes could have been attracted by the railway, possibly leading to a different degree of relevance of this project towards achieving the stated "traffic management" goals.

Impact

The report says that the objectives of the project include removal of the Victoria Bridge, and construction of a new bridge, in response to increasing traffic and resulting congestion. In view of this, it could be said that the project has achieved its overall goals. The traffic flow is now smoother, with lesser travel time and lesser or no "on-the-bridge" accidents, improved fuel efficiency, etc, which are clearly felt by the travelling public even in the absence of any statistical evidence. The overall impact, measured by way of EIRR (or ENPV), indicate that the net beneficial impact of the project is quite significant.

In terms of overall impact (measured by EIRR), any saving in capital investment would have further enhanced the project's viability. For instance, the New Mattakkuliya Bridge (approx 2300 sq.m.) cost the economy only Rs 320 Mn, while the "local currency component" alone approaches Rs 250 Mn in the Friendship bridge widening project (approx 2860 sq.m). The impact of the foreign currency component of this project in terms of "creating effective demand" within the local economy cannot be estimated in the absence of information as to how this capital investment was spent.

To estimate the beneficial social and environmental impacts, the appreciation of land value in Peliyagoda and beyond could possibly have been used as a proxy. Reduced air pollution per passenger kilometre transported, reduced or no accidents, are clear beneficial impacts. However, the attraction of more vehicles to this area could lead to additional loads of emission. While the improvement of environment brought about by the new structures and buildings is appreciated, the historical value of the old architecture and the need to preserve them appear to have been ignored during the design phase. Otherwise, one would possibly have considered preserving the Victoria Bridge, a more than 100 year old landmark monument of this country.

* Mattakkuliya Bridge is the fourth Trans-Kelani road bridge located further downstream of the other three road bridges (the New Kelani Bridge, first Sri Lanka-Japan Friendship Bridge, and the new SL-J Friendship Bridge which replaced the old Victoria Bridge). It is learnt that the construction of this bridge (11 m wide and 210 m long) has been completed by 2001, though the access to this bridge are not sufficiently developed. No specific mention regarding this fourth Trans-Kelani Bridge could be found in the ex-post evaluation report on Sri Lanka – Japan Friendship Bridge Widening Project.

JBIC View

Regarding the Victoria Bridge:

The dangers of deterioration and structural weakness of the Victoria Bridge was indicated in the report as far back as 1986. At the time of JBIC appraisal in 1993, there was investigation on the reuse of this bridge elsewhere, but this option was deemed in appropriate due to safety concerns.