Republic of El Salvador and Republic of Honduras

Ex-Post Evaluation of Japanese Grant Aid Project

Project for Construction of the Japan-Central America Friendship Bridge

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0. Summary

The Project was implemented with a view to making border crossing traffic between El Salvador and Honduras smoother by means of replacing the existing Goascorán Bridge with the new Japan-Central America Friendship Bridge. This border crossing point forms part of the Mesoamerican international road network connecting Central American countries with Mexico and is given strategic importance by the two countries. As the project meets the strong need for safe and smooth border crossing traffic as well as Japan's ODA policy, its relevance is high. The newly constructed Friendship Bridge (hereinafter referred to as "the New Bridge") is currently used for cargo traffic while the old Goascorán Bridge (hereinafter referred to as "the Old Bridge") is used for passenger traffic. While the overall bridge safety has been much improved, the danger associated with the Old Bridge which is still used by large buses has not been totally eliminated. Although the border crossing time appears to have been shortened, there is still room for improvement, particularly for cargo traffic as the congestion of cargo vehicles due to the border crossing procedure often reaches the bridge itself. The cross-border traffic volume has increased but has not reached the level planned under the Project. The number of people from Honduras visiting El Salvador has increased. However, significant impact of the New Bridge on physical distribution has not been confirmed. Based on the above, the Project has somewhat achieved its objectives and, therefore, its effectiveness and impact is fair. The New Bridge and its access roads were completed as planned and the actual project cost and project period were both within the plan. However, permanent border facilities have not yet been constructed by either El Salvador or Honduras at the time of the ex-post evaluation. Therefore, the efficiency of the Project is fair. Although no special problems are observed in regard to the operation and maintenance of the New Bridge, the Old Bridge lacks proper maintenance. The Road Fund of Honduras is facing significant limitations in terms of general bridge and road maintenance because of the tight financial situation. Accordingly, the sustainability of the Project is fair. In the light of the above, the Project is evaluated as partially satisfactory.

1. Project Description

Location Map

Japan-Central America Friendship Bridge

1.1 Background

Both the Republic of El Salvador (hereinafter referred to as "El Salvador") and the Republic of Honduras (hereinafter referred to as "Honduras") are located almost at the center of Central America and share a common border.

In the 2000's, both countries called for strengthening of their international competitiveness, national as well as regional development and poverty reduction as objectives of their respective national development plans, and put a special emphasis on the development of transport infrastructure to achieve these objectives. The Puebla Panama Plan which came into force in 2001, was particularly given the status of a higher policy[1] and the International Network of Mesoamerican Highways as part of this plan established six fundamental road networks for the region, including (i) the east-west Pacific corridor linking roads in Mexico and Central America and (ii) the north-south interoceanic logistics corridor (dry canal route) linking La Union Port in El Salvador to Cortes Port in Honduras for the construction of which the use of the yen loan facility was planned.

Goascorán Bridge over Goascorán River in the El Amatillo border area between El Salvador and Honduras, since its construction by the US in 1943 during the period of the Second World War as part of the Pan-American Highway, has been playing an important role in the development of trade, travel of tourists and human as well as physical exchanges in Central America in general and between the two countries in particular. The

[1] The Puebla Panama Plan is a wide area development plan incorporating nine states in Mexico and seven Central American countries and was jointly announced by the governments of these countries in June, 2001. The main targets include the development of infrastructure, such as electricity, road and communication networks in this huge bridge area as well as the promotion of trade and commerce and the development of education, public health, the environment and disaster prevention.

bridge commands strategic importance for international road traffic as it is at the junction of the two above-mentioned corridors. However, it had become a bottleneck for international road traffic because of its narrow width and considerable damage to the concrete slabs and beams due to its 60 years of age. Its lack of sufficient load bearing capacity to support heavy trailer trucks made the bridge dangerous.

Under these circumstances, the Governments of El Salvador and Honduras made a request to the Government of Japan for grant aid to construct a new bridge to replace the existing Goascorán Bridge. In response, JICA conducted the Preliminary Study in 2005 and the Basic Design Study in November, 2006. Based on these studies, the project was implemented from June, 2007 to July, 2009.

1.2 Project Outline

The Project aimed at replacing Goascorán Bridge at the border between El Salvador and Honduras with the Japan-Central America Friendship Bridge with a sufficient width and withstand load with a view to smoothing the road traffic between the two countries.

Grant Limit / Actual Grant Amount	Grant Limit: 1,300 million yen Actual Grant Amount: 1,297 million yen
Exchange of Notes Date	El Salvador: June,2007, Honduras: May, 2007
Executing Agency	El Salvador: Ministry of Public Works, Transport, Housing and Urban Development (MOPTVDU) Honduras: Ministry of Infrastructure and Public Services (INSEP)[2]
Project Completion Date	July, 2009
Main Contractor	Hazama Corporation
Main Consultant	Consortium of Central Consultants Inc. and Nippon Koei Co., Ltd.
Basic Design Study	February to November, 2006
Related Projects (if any)	The Study for Port Reactivation in La Union Province of the Republic of El Salvador (Japanese ODA Loan)

2. Outline of the Evaluation Study

2.1 External Evaluator

Takeshi Yoshida (Global Group 21 Japan)

[2] At the time of project implementation, the executing agency in Honduras was the Ministry of Public Works, Transportation and Housing (SOPTRAVI). This ministry has been reorganized as the Ministry of Infrastructure and Public Services (INSEP) following a change of the administration in 2014.

2.2 Duration of the Evaluation Study

The ex-post evaluation study for the Project was conducted over the following periods.

Duration of the Study:	September, 2013 to October, 2014
Duration of the Field Survey:	11th November to 7th December, 2013, and 16th to 29th March, 2014

3. Results of the Evaluation（Overall Rating：C[3]）

3.1 Relevance（Rating：③[4]）

3.1.1 Relevance to the Development Plan of El Salvador and Honduras

As already mentioned in 1.1 Background, the construction of a Mesoamerican international road network connecting Central American countries with Mexico was a priority policy in both El Salvador and Honduras at the time of the ex-ante evaluation.

In Honduras, the Strategic Transportation Plan was formulated in 2004 in which the Pacific Corridor, including the Project, was considered to be one of the future trunk corridors in Central America along with the Atlantic Corridor and Interoceanic Corridor because of a foreseen large demand for these corridors. In El Salvador, the National Development Plan was formulated in 2002. The planned development of the eastern area prioritized (i) the development of La Union Port as a key industrial and logistics base and (ii) the development of trunk roads in the area. As these policies are still maintained at the time of the ex-post evaluation, the Project is relevant to the development policies of the two countries.

[3] A: Highly satisfactory, B: Satisfactory; C: Partially satisfactory; D: Unsatisfactory

[4] ③: High, ②: Fair; ①: Low

Fig. 1 Location of the project site in the Mesoamerican international road network (based on reference materials provided by JICA)

3.1.2 Relevance to the Development Needs of El Salvador and Honduras

As already mentioned in 1.1 Background, there was a strong need at the time of the ex-ante evaluation for replacement of the Old Bridge which was highly deteriorated despite its critical position on an international trunk route in order to achieve safe and smooth border crossing traffic. The importance of this bridge and the necessary for safe and smooth border crossing traffic are unchanged at the time of the ex-post evaluation, making the Project relevant to the development needs of the two countries.

Since the completion of the New Bridge, the Old Bridge has been exclusively used for vehicles other than cargo vehicles (buses, passenger vehicles and light vehicles) as well as pedestrians. With the use of both the New Bridge and the Old Bridge, the congestion at this border crossing point has been greatly reduced. Even though the risks associated with the Old Bridge have been reduced due to the diversion of heavy vehicles to the New Bridge, sufficient attention must be paid to the maintenance of the Old Bridge for its safe use.[5]

[5] For the current state of use of the New and Old Bridges, refer to 3.2 Effectiveness. For the state of their maintenance, refer to 3.5 Sustainability in this report.

The scope of the Project included the construction of such border crossing facilities as immigration, customs and quarantine facilities with funding by El Salvador and Honduras. The delay of this construction work has meant the delayed opening of the New Bridge and the current border crossing procedure using temporary facilities has room for improvement (refer to 3.2 Effectiveness).

3.1.3 Relevance to Japan's ODA Policy

The Consultation Meeting on Economic Policies with El Salvador held in July, 2007 confirmed such priority policy objectives as (i) vitalization of the economy and expansion of job opportunities, (ii) social development, (iii) environmental conservation for sustainable development and (iv) establishment and strengthening of democracy. The integration of Central America was called for as a priority theme.

In regard to Honduras, a consultation meeting arranged by Japan's ODA Task Force for Honduras established such priority objectives as (i) consolidation of basic education, (ii) improvement of health care and clean water supply, (iii) development of rural areas, (iv) strengthening of the international competitiveness, (v) safety of citizens and (vi) disaster prevention. The establishment of basic infrastructure for socioeconomic growth was included as a basic policy for Japan's ODA for Honduras and assistance for the Pueblo Panama Plan, including the improvement of roads for Central American integration, was clearly indicated.

This Project has been highly relevant to the development plan and development needs of both El Salvador and Honduras as well as Japan's ODA policy and, therefore, its relevance is high.

3.2 Effectiveness[6] (Rating : ②)

Although the New Bridge was completed in July, 2009 under the Project, a coup d'etat occurred in Honduras at almost the same time, closing the border.[7] Because of this border closure and the incompletion of the border crossing facilities, opening of the New Bridge was delayed until September, 2010.

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6 For rating of the effectiveness, the impacts are taken into consideration.

7 In June, 2009, there was a severe conflict between then President Zelaya who was trying to rewrite the Constitution to be re-elected and the Congress and Supreme Court which opposed him. On the orders of the Supreme Court, the Honduran Army ousted the president and sent him out of the country. In response to this, Micheletti was appointed as a president. However, most Central and South American countries subsequently did not approve it, isolating Honduras in the international community.

The objective of the Project was to achieve safe and smooth border crossing traffic at El Amatillo. In this section, effectiveness of the Project is analyzed from the viewpoint of the (i) border crossing time, (ii) cross border traffic volume and (iii) safety of the bridge. At the time of the ex-ante evaluation, the assumption was that only the New Bridge would be used after its completion. However, as the concurrent use of the Old Bridge assists the achievement of the positive effects of the Project, the project effects of the combined use of the two bridges are evaluated.

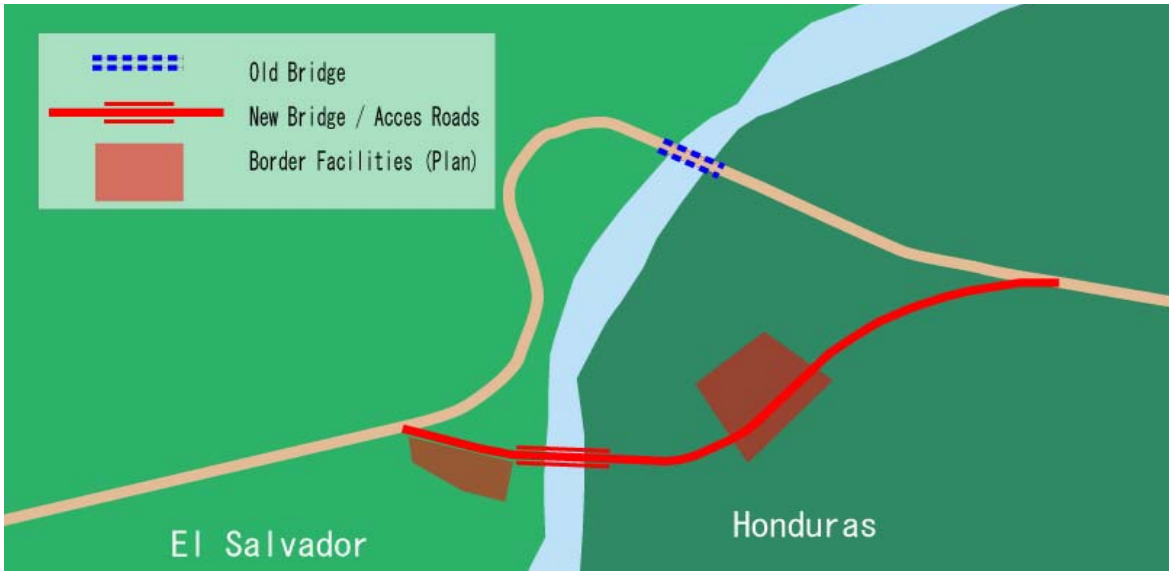


Fig. 2 Layout of the New Bridge, Old Bridge and border crossing facilities at El Amatillo

3.2.1 Quantitative Effects (Operation and Effect Indicators)

3.2.1.1 Border Crossing Time

Prior to the Project, the average actual vehicle velocity on the Old Bridge was estimated to be around 20 km/hour. Even though the planned average velocity on the New Bridge is 50 km/hour, drug control activities on the El Salvador side can made border crossing take a long time. As the traffic congestion can stretch beyond the bridges, the travelling speed towards El Salvador at this border crossing point can be very slow. However, most of the border crossing time is due to the border crossing procedure involving immigration, customs and quarantine rather than the actual travelling time on the bridge.

As part of the ex-post evaluation, the border crossing time was surveyed with some 5% (25 vehicles heading towards El Salvador and 27 vehicles heading towards Honduras) of cargo vehicles crossing this border.[8] The average time was found to be 2.9 hours for

[8] This survey checked the time required to pass between the check point near the customs on the El

vehicles heading towards El Salvador (west-bound) and 5.2 hours for vehicles heading towards Honduras (east-bound).Interviews with cargo vehicle drivers on changes of the border crossing time before and after the Project found that some 80% of drivers believe that the border crossing time has been shortened by the Project. Based on their replies, the actual border crossing time is inferred to have been reduced by half. Drivers reported that the construction of the New Bridge has resulted in such benefits as fuel saving, shortening of the travelling time and improved safety. Meanwhile, many drivers pointed out that the too-lengthy drug control procedure on entering El Salvador should be shortened. Some drivers also want the customs and quarantine clearance processes to be improved and shortened. Meanwhile, freight company owners in the two countries recognize the massive shortening of the border crossing time at El Amatillo as shown in Table 1.

Table 1 Changes of Border Crossing Time
(Average Time of Replies by Freight Companies)

(Unit: minutes)

	Immigration	Customs	Quarantine	Border Police (Including Drug Control)
Before Project	135	200	100	155
After Project	20	25	15	25

Source: Interview results with freight company owners (7 companies in El Salvador and 6 companies in Honduras)

A vehicle and driver survey was also conducted with passenger cars and buses using the Old Bridge. Many users replied that the cross border time on the Old Bridge had been significantly shortened compared to the past when they often had to wait a long time for cargo vehicles to pass through the customs and quarantine points. According to drivers the border crossing time for passenger vehicles was halved by the opening of the New Bridge.

This shortening of the border crossing time can be mainly attributed to the separation of traffic, i.e. passenger traffic using the Old Bridge and cargo traffic using the New Bridge, reducing both the physical as well as procedural congestion. At the time of the ex-post evaluation, border-cross is not particularly efficient as the border facilities serving the New Bridge is temporary and the small facilities on the Honduras side cannot fully

Salvador side and the customs and quarantine check point on the Honduras side. Because of the limited time, the survey was conducted for only one day and the passing time of vehicles which had not crossed the border by 21:00 was not measured. Because of this, the actual border crossing time on average is likely to be longer than that reported here. As drug control activities by El Salvador can take place without advance notice, the actual time can significantly fluctuate from one day to another.

accommodate the necessary border control officers, and part of the border crossing procedure still takes place at the existing facilities which primarily serve the Old Bridge. At present, both countries have been preparing for the construction of permanent border facilities as well as the standardization and improved efficiency of the border crossing procedure with the assistance of the Inter-American Development Bank.[9] Once these plans are realized, further shortening of the border crossing time is likely to become a reality.

Large truck awaiting drug inspection on the New Bridge

Check point at the access road to the New Bridge on the El Salvador side

Immigration and customs facilities for passenger cars and buses on the El Salvador side (attached to the Old Bridge)

Immigration and customs facilities for passenger cars and buses on the Honduras side (attached to the Old Bridge)

9 With the assistance of the Inter-American Development Bank, the construction of permanent border facilities in Honduras and the design work for permanent border facilities in El Salvador are due to start in 2014. This assistance includes technical assistance and the construction of facilities to standardize and improve the efficiency of the border crossing procedure and the information and communication system in both countries. On the El Salvador side, X-ray scanners are installed at the customs and border facilities serving the Old Bridge for the purpose of drug control.

3.2.1.2 Cross Border Traffic Volume

When the actual cross border traffic volume at El Amatillo is compared between 2006 (at the time of the basic design) and 2013, there is an overall increase of 17% mainly due to the increase of passenger cars and trailers (Table 2). The number of passenger cars increased by 72%. In contrast, the number of cargo vehicles was almost steady even though there was a trend of an increasing size of the vehicles.

Table 2 Changes in Cross-Bridge Traffic Volume (Cross border Traffic Volume)

(Unit: Vehicles/day)

	2006	2013	Rate of Increase (2006～2013)	Annual Average Rate of Increase
Passenger Vehicles				
Car	213	374	76%	8.4%
Bus	24	34	42%	5.1%
Sub-Total	237	408	72%	8.1%
Cargo Vehicles				
Small Truck	209	151	-28%	-4.6%
Large Truck	158	26	-84%	-23.0%
Trailer	541	757	40%	4.9%
Sub-Total	908	934	3%	0.4%
Total	1,145	1,342	17%	2.3%

Source: The Basic Design Study for 2006 figures (28th February, 2006).
The Ex-Post Evaluation Study (Traffic Volume Survey) for 2013 figures (27th November, 2013).

Note: All the vehicles used the old bridge in 2006. In 2013, the passenger vehicles used the old bridge and all cargo vehicles used the new bridge.

The basic design study forecasted an increase of the traffic volume at the El Amatillo border crossing point at an annual rate of 4% until 2009 when La Union Port would begin to be operated and an increase of 40% in 2003 from the level in 2006 because of an additional 178 vehicles/day travelling to and from Port La Union (an annual increase rate of 9% for the first six years and 4% thereafter). In reality, the annual increase rate was a modest 2.3% between 2006 and 2013, failing to live up to the planned figure. The traffic volume checked by the MOPTVDU in 2010 on the trunk road at El Amatillo village on the El Salvador side was below the forecast volume at the time of the basic design study (Table 3).[10]

As indicated by these figures, the cross border traffic volume has not increased as much as forecasted at the time of the ex-ante evaluation. The main reasons are probably (i) the

[10] As some vehicles return before reaching the border crossing point, the traffic volume on the trunk road is higher than the cross border traffic volume.

decline of cross border exchanges between El Salvador and Honduras due to the coup d'etat in Honduras in 2009 and (ii) the non-realization of the forecast level of cargo traffic at the time of the basic design study as La Union Port has not yet become fully functional.

Table 3 Comparison between Forecast and Real Traffic Volumes on the Trunk Road on the El Salvadorian Side

(Unit: Vehicles/day)

	2010 Forecast	2010 Actual
Passenger Vehicles		
Car	2,191	1,982
Bus	328	230
Sub-Total	2,519	2,212
Cargo Vehicles		
Small Truck	328	134
Large Truck	182	61
Trailer	621	594
Sub-Total	1,131	789
Total	3,651	3,001

Source: The forecast figures are those of MOPTVDU used for the Basic Design Study. The actual figures are those actually counted by MOTVDU.

3.2.2 Qualitative Effects

3.2.2.1 Safety of the Bridge

While the withstand load of the Old Bridge is 24.5 tons, a few hundred of large trucks weighing 25 tons and trailers weighing 37 tons have been using the bridge per day, resulting in a dangerous situation at the time of the ex-ante evaluation. In contrast, the withstand load of the design New Bridge is 40.8 tons, providing sufficient safety for cross border traffic involving many heavy vehicles.

At the customs on the El Salvador side of the New Bridge, a truck scale is installed in the cargo inspection area to weigh trucks when judged necessary. As no similar facility exists on the Honduras side, it is difficult to enforce effective weight control.[11]

Some 20 buses weighing approximately 17 tons each still use the Old Bridge every day. Even though this weight is within the original design withstand load of 24.5 tons, the

[11] At the time of the ex-post evaluation, El Salvador is in possession of several mobile scales to conduct spot weight inspection on trunk roads to enforce weight control and those found to violate the weight regulations are fined. There is no vehicle weight inspection station in Honduras on trunk roads although their introduction in the coming years is planned.

safety of the Old Bridge is a concern unless its maintenance is properly conducted (refer to 3.5 Sustainability).

3.3 Impacts

3.3.1 Intended Impacts

At the time of the ex-ante evaluation, the Project was expected to contribute to (i) the improved safety of pedestrians crossing the bridge and (ii) the facilitation of physical distribution, exchanges and friendship between the two countries as well as Central American countries.

(1) Impact on Traffic Accident Prevention and Pedestrian Safety

The workshops[12] held with local residents during the field survey found that many local residents now have an increased sense of safety as the tangled traffic involving pedestrians and large trucks on the Old Bridge no longer existed. On the other hand, some opinions expressed were that the check point area along the New Bridge on the El Salvador side where many large trucks were jammed together on the access road was dangerous as primary school pupils had to cross the road between these trucks to reach their school. In response, the MOPTVDU and FONDO VIAL expressed their intention to introduce traffic safety measures, including a pedestrian crossing, at the workshop. The number of people killed on the national road has decreased while the number of traffic accidents and people injured have actually increased. In short, there has not been much overall difference.

Table 4 Number of Traffic Accidents on El Amatillo Road

	2006 to 2008	2010 to 2012
Number of Accidents	5	7
Number of Fatalities	4	1
Number of Injuries	4	11

Source: MOPTVDU

(2) Impact on Physical Distribution

The trading volume across the El Amatillo border is shown in Table 5. Although the overall volume declined in 2010 after the coup d'etat, the figure for 2012 was an 8% increase on 2006.

[12] The workshops during the field survey took place at Goascorán (27 participants) and Nacaome (11 participants) and at Pasaquina (57 participants) and El Amatillo (36 participants) in El Salvador.

The impact of the Project on physical distribution appears to be modest as the cross border traffic volume has not reached the predicted level at the time of the ex-ante evaluation. As La Union Port is not yet fully functional, its impact on physical distribution at this border crossing point has not yet materialized.

Table 5 Trading Volume on El Amatillo Border Crossing Point

(Unit: '000 tons/year)

	2006	2008	2010	2012
Honduras → El Salvador	417	373	318	389
El Salvador → Honduras	388	445	332	480
Total	805	818	650	869

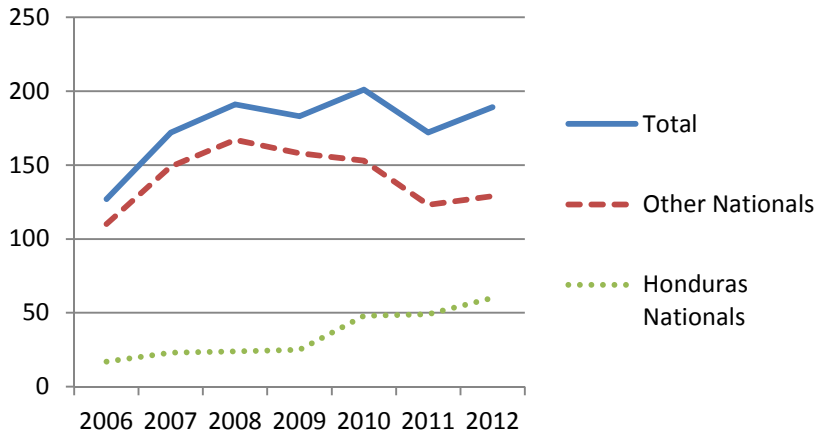
Source: SOPTRAVI

(3) Impact on Exchanges between El Salvador and Honduras

The number of people crossing the border since 2010 when the New Bridge was opened has slightly increased among Honduras nationals (Fig. 3).[13] The number of other nationalities crossing the border has actually decreased in the same period. As a result, the opening of the New Bridge has not had any significant impact on exchanges between the two countries. The workshops held in villages on both sides of the border found that cross border exchanges for shopping and the use of medical facilities increased due to the smoother cross border procedure. Particularly noticeable is the use of the better medical facilities in El Salvador by Honduras nationals.

Fig. 3 Changes of Number of People Crossing the El Amatillo Border

(Unit: '000 persons)



Source: Honduran Institute of Tourism

[13] Specific data for El Salvador nationals was not obtained.

La Union Port in El Salvador

Small shops near the border (El Salvador side)

3.3.2 Other Impacts

(1) Impacts on the Natural Environment

Impacts on the natural environment by construction of the bridge, access road and river protection were assessed through the preliminary study and the basic design study and measures to mitigate such impacts were examined. Such measures were taken at the time of construction and operation. No large negative impacts on natural environment were reported. Pre-identified possible impacts of the Project included; sediment collapse of access road, changes in direction and speed of winds, change of water route due to bridge pears, change of landscape. As a mitigation measures such changes in basic design were made as; reduction of embankment height, reduction of center span and bridge type. As a result, no significant negative impacts on natural environment have been confirmed.

While, at the workshop with residents of Pasaquina, the introduction of bridge footings under the Project slightly changed to a water route[14], occasionally causing flooding at the part of the road section descending to the river on the right bank side. However, such partial flooding occurs two or three times a year and there has not been any damage warranting repair work so far.

Workshop at Goascorán

(2) Land Acquisition and Resettlement

As a result of land acquisition and resettlement for the construction of the New Bridge and its access roads, nine landowners

[14] A water route means a river channel where river water flows during ordinary times.

in El Salvador and 16 landowners in Honduras were compensated in accordance with the relevant domestic laws in each country. No significant problems were encountered in this process and the construction work was not affected.

In the case of land acquisition by the Honduras authorities for the construction of border facilities after the operation of the New Bridge, a long time was required to complete the work as the lack of cooperation by the local mayor led to resistance by some landowners in order to achieve a better deal for their land.

(3) Unintended Positive/Negative Impact

There are many small shops and restaurants on both sides of the Old Bridge which serve tourists, drivers and others. At the workshops with local residents, it was reported that because of the smoother traffic since the opening of the New Bridge, drivers and passengers simply pass through the border area without stopping. Moreover, cargo vehicle drivers crossing the New Bridge do not often patronize those shops, etc. around the Old Bridge, resulting in the business decline of local shops, etc. At present, shops and restaurants are prohibited from operating within 250 m of the access road on both sides of the New Bridge. Local residents hope that this restriction will be lifted to allow shops, etc. near the New Bridge so that the shopping and dining of drivers and passengers crossing the New Bridge will economically benefit the local area. At the workshops, it was reported that land prices near the bridges almost trebled after the opening of the New Bridge. However, as most of the owners of small shops are not landowners, they have not benefitted from this.

The analysis results of the effectiveness and impacts of the Project indicate that even though the traffic safety for vehicles crossing the bridges has generally improved, the use of the Old Bridge by buses with the maximum total weight of 16.8 tons means that the danger associated with the Old Bridge has not been totally eliminated due to the lack of sufficient load bearing guarantee, in turn caused by insufficient maintenance, even though the weight of the passing buses is below the design withstand load of 24.5 tons for the Old Bridge. The parallel use of the New and Old Bridges appears to have reduced the border crossing time for both passenger vehicles and cargo vehicles. However, the congestion of cargo vehicles crossing the New Bridge due to the border crossing procedure sometimes reaches the bridge itself. There is, therefore, room for improvement as far as the border crossing time is concerned. While the cross border traffic volume has increased since the opening of the New Bridge, it has not reached the planned figure. While the number of Honduran people visiting El Salvador has increased, no major impact on physical distribution has been confirmed.

Based on the above, the Project has somewhat achieved its objectives. Therefore, its effectiveness and impact is fair.

3.4 Efficiency（Rating：②）

3.4.1 Project Outputs

The planned and actual outputs of the Project are shown in Table 6. The construction of the bridge, access roads and river protection by the Japanese side was completed almost as planned. While the construction of the border facilities by the two countries by the time of the completion of the Japanese work in July, 2009 was planned, only temporary facilities had been completed one year after the completion of the New Bridge. Even though the New Bridge has been in operation since the completion of these temporary facilities, no permanent facilities have been constructed so far.[15]

Table 6　Planned and Actual Outputs of the Project

Planned	Actual
< Work by the Japanese Side > ① Bridge: Total length: 170 m Total width: 13.3 m (Two lanes and sidewalks) ② Access road: Width: 14.1 m (Two lanes) - El Salvador side: 395 m long - Honduras side: 1,156 m long ③ River protection: Gabions - El Salvador side: 290 m - Honduras side: 1,214 m ＜Work by Two Recipient Countries＞ - Construction of new border facilities - Incidental works (temporary yard; electricity supply; telephone; water supply)	< Work by the Japanese Side > ① As planned ② As planned ③ Almost as planned Honduras side: 1,213 ㎡ ＜Work by Two Recipient Countries＞ - The new border facilities are temporary facilities. - The incidental works were completed as planned.

Source: JICA materials and results of interviews with the implementing agencies in the two recipient countries.

[15] At the time of the field visit, the border facilities on the Honduras side consist of nine containers housing offices, etc. On the El Salvador side, a new temporary check point has been established and the border crossing procedure takes place at the existing facilities.

At the consultation meeting between JICA and the two countries during the preliminary study in 2005, these two countries were required to prepare their own border facility construction plans by the time of the basic design study with the necessary domestic arrangements for these facilities and for the contents of the plans to be check during the basic design study.[16] In reality, however, the work to prepare the said plan by each country was not completed by the time of the basic design study. Consequently, the basic design study was conducted without reference to these plans.

Subsequently, a plan emerged in the process of examining a suitable border facility plan for the construction of integrated border facilities for the two countries in one place on the Honduras side. While this was agreed once by the both countries, they are currently proceeding with the construction of their own border facilities.[17]

3.4.2 Project Inputs

3.4.2.1 Project Cost

The planned Japanese portion of the project cost was 1,300 million yen and the actual cost of 1,297 million yen was almost identical to the planned cost. No comparison of the project cost for the two countries is conducted in this report because of uncertainty concerning the planned cost of the border facilities (at the time of the ex-ante evaluation) and the current lack of any permanent facilities.

3.4.2.2 Project Period

The Project was originally planned to take 26.5 months to complete from the tender in July, 2007. In reality, 25 months were required to complete the Project which was within the planned period as it was completed in July, 2009.

The original plan for the border facilities to be constructed by the two countries was for their construction to be completed by the time of the completion of the New Bridge and its access roads. In reality, temporary facilities were constructed approximately one year

16 As described in the reference materials provided by JICA.

17 Interviews with the executing agency (INSEP) and customs office in Honduras found that in 2008, it was found that the facility plan proposed by the customs office would be difficult to integrate into the already completed detailed design for the access road. In the process of seeking an alternative, the idea of constructed integrated border facilities on the Honduras side to allow the completion of the border crossing procedure of the two countries emerged. The executing agency in El Salvador (MOPTVDU) accepted this plan and the executing agencies in the two countries reached an agreement in June, 2009. The subsequent coup d'etat in Honduras led to the temporary closure of the border and the deterioration of diplomatic relations between the two countries meant that no further discussions were possible for a year. At the time of ex-post evaluation, each country plans to construct their own boarder facilities. There is now a prospect that in Honduras the construction of new border facilities will commence in 2014, and in El Salvador, it has been decided that new border facilities will be constructed with the assistance of the USAID and the design process will start by the end of 2014.

after the completion of the New Bridge and its access roads and the construction of permanent facilities has been delayed until 2014 or thereafter.

In short, while the Japanese work was completed as planned, the construction of the border facilities by El Salvador and Honduras has been delayed to the extent that only temporary facilities are in place today. Although both the project cost and project period were within the plan, the project period for the facilities to be constructed by the two recipient countries has exceeded the planned period and, therefore, the efficiency of the Project is fair.

3.5 Sustainability（Rating：②）

As the effects of the Project are materializing through the concurrent use of the New Bridge and Old Bridge and the parallel use of the New and Old Bridges is expected to continue in the future, evaluation of the project sustainability features both bridges.

3.5.1 Institutional Aspect of Operation and Maintenance

The Road Fund was established in El Salvador in 2001 and in Honduras in 2000 and the operation and maintenance of the trunk road network is entrusted to private companies in each country.[18]

In El Salvador, the national trunk road network is divided into 17 areas and the FOVIAL contracts out the routine maintenance of bridges and roads to private companies. The quality of this maintenance is checked by separately contracted private sector engineers who inspect road and bridge structures to determine any need for further maintenance work. For the purpose of conducting such maintenance work as repair of the road surface and/or shoulders and river protection separately from routine maintenance work, the country is divided into five zones and a private company is contracted to conduct the work in each zone.

In Honduras, a small company mostly employing local people is established for each 25 km of trunk road to conduct routine maintenance with a contract with the FONDVIAL. This work is supervised by separately contracted private sector engineers who also check the condition of bridges and roads and report any need for repair work. For the purpose of conducting repair work, the country is divided into 17 – 18 zones and a private company is contracted in each zone. Up to 2013, bridge repair work was contracted

[18] This road fund is called the FOVIAL in El Salvador and FONDVIAL in Honduras.

separately from road repair work. However, the commencement of a new contract regime which incorporates the repair of both bridges and roads is planned in 2014.

In the case of the New Bridge and Old Bridge at El Amatillo, the western half from the central point and the eastern part are under the jurisdiction of El Salvador and Honduras respectively. The routine maintenance of these two bridges is conducted in accordance with this jurisdictional division. When the Old Bridge requires repair work, suitably coordinated work covering the entire bridge is alternatively conducted by the two countries.[19] As the operation and maintenance system is clearly established for the two bridges, there are no special problems in this aspect.

3.5.2 Technical Aspect of Operation and Maintenance

In both countries, inspection surveys, planning, design and work supervision as part of bridge and road maintenance are entrusted to a consulting firm while the actual maintenance and repair work is entrusted to a construction company. Both the FONDVIAL and FOVIAL conduct a competitive tender for the selection of contractors and assess the technical capability of any tenderer from multiple viewpoints. According to them, more than 10 companies usually bid for a contract in any zone and a company with a high level of technical capability is selected. Accordingly, there appears to be no problems concerning the technical aspect of operation and maintenance.

3.5.3 Financial Aspect of Operation and Maintenance

Both the FONDO VIAL and FOVIAL are mainly funded by a tax on petrol. An interview with the FOVIAL found that its funding is stable. The FOVIAL receives part of the driving license renewal fees and traffic fines in addition to its petrol tax revenue and its operation is independent from government finance.

In Honduras, the FONDO VIAL is supposed to receive some 40% of the petrol tax revenue by law but the scale of its actual funding has been much lower due to the tight government financial situation, resulting in insufficient funding for the FONDO VIAL. An interview with the FONDO VIAL found that insufficient funding has led to insufficient routine maintenance, including the cleaning of gutters, developing a vicious cycle in which insufficient road maintenance leads to an increase of the required repair work, in turn pressing the available funds. As described later, the repair of the Old Bridge

[19] This coordination is conducted as required even though no documents or written agreement exists which specify the contents of coordination. No repair of the New Bridge has been necessary so far.

has been less than ideal because of a shortage of funds.

3.5.4 Current Status of Operation and Maintenance

The routine maintenance of the New Bridge, including cleaning of the gutters, etc. and weeding of the shoulders of the access roads, is conducted by the FONDO VIAL and FOVIAL in their respective countries. The field survey by the present evaluator did not find any damage of note to the New Bridge and its access roads except that listed below. As the New Bridge is only four years old, there are no structural problems, making any repair work currently unnecessary.

- Part of the guardrail on one of the access roads is damaged.
- Some of the metal gutter drain gratings on the bridge section have been stolen.
- Some hairline cracks can be seen on the bridge road surface.[20]

Although routine maintenance work is conducted for the Old Bridge, the bridge road surface has some damage. In addition, some parts of the concrete slabs and beams as well as the steel truss appear to require repair, suggesting insufficient maintenance.

Damaged road surface of the Old Bridge

Truss member (rusted) and concrete slab (exposed reinforcing bars) of the Old Bridge

According to the FONDO VIAL in Honduras, repainting of the Old Bridge in 2011 was planned. However, the available funds were exhausted by removing rust from the steel, leaving no funds to pay a contractor with the result that the planned painting was not conducted. In 2012, the FOVIAL in El Salvador conducted repair of the bridge road surface. However, the site survey by the evaluator found some damage to the same road

[20] At the time of the ex-post evaluation, both the FOVIAL and FONDVIAL have a policy of dealing with these cracks as part of any future repair work.

surface, making the extent of the repair work conducted in 2012 questionable. Because the road surface is now uneven, there is concern in regard to the adverse impact of vibration caused by large buses on the bridge structure. No repair work was conducted in 2013.

To summarize, there are no major problems regarding the operation and maintenance of the New Bridge. In contrast, the Old Bridge on which large buses travel even today lacks adequate maintenance, posting some danger. The FONDO VIAL is experiencing limitations for road and bridge maintenance because of insufficient funding. Some minor problems can be observed in terms of finance for the facilities related to the project and, therefore, the sustainability of the Project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The Project was implemented with a view to making border crossing traffic between El Salvador and Honduras smoother by means of replacing the existing Goascorán Bridge with the new Japan-Central America Friendship Bridge. This border crossing point forms part of the Mesoamerican international road network connecting Central American countries with Mexico and is given strategic importance by the two countries. As the project meets the strong need for safe and smooth border crossing traffic as well as Japan's ODA policy, its relevance is high. The New Bridge is currently used for cargo traffic while the Old Bridge is used for passenger traffic. While the overall bridge safety has been much improved, the danger associated with the Old Bridge which is still used by large buses has not been totally eliminated. Although the border crossing time appears to have been shortened, there is still room for improvement, particularly for cargo traffic as the congestion of cargo vehicles due to the border crossing procedure often reaches the bridge itself. The cross-border traffic volume has increased but has not reached the level planned under the Project. The number of people from Honduras visiting El Salvador has increased. However, significant impact of the New Bridge on physical distribution has not been confirmed. Based on the above, the Project has somewhat achieved its objectives and, therefore, its effectiveness and impact is fair. The New Bridge and its access roads were completed as planned and the actual project cost and project period were both within the plan. However, permanent border facilities have not yet been constructed by either El Salvador or Honduras at the time of the ex-post evaluation. Therefore, the efficiency of the Project is fair. Although no special problems are observed in regard to the operation and maintenance of the New Bridge, the Old Bridge lacks proper maintenance. The Road Fund of Honduras is facing significant limitations in

terms of general bridge and road maintenance because of the tight financial situation. Accordingly, the sustainability of the Project is fair. In the light of the above, the Project is evaluated as partially satisfactory.

4.2 Recommndations

4.2.1 Recommendations to the Executing Agencies

- The customs office in each country must urgently realize the standardization and improved efficiency of the border crossing procedure and relevant information system so that the effect of a shorter border crossing time of the Project can be fully achieved.

- The executing agencies in the two countries must secure the safety of the Old Bridge by means of formulating and implementing an appropriate maintenance system through mutual consultation.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

Improvement of border facilities and border crossing system by a border bridge construction project

The physical improvement of border crossing by the construction of a new bridge cannot fully achieve the intended effect of smoothing border crossing traffic unless border facilities and a border crossing system, including fully equipped customs, are improved at the same time. In the case of the present project, the delayed improvement of the border facilities is one cause of the delayed opening of the New Bridge, limiting the full achievement of the project effect. Moreover, as the access roads were designed and constructed without a finalized border facility construction plan, the scope of the arrangements between these roads and the border facilities was somewhat restricted, resulting in a further delay of the construction of border facilities.

This lesson illustrates the importance of conducting a concrete examination of the border facilities and border crossing system to be introduced when a border bridge construction project is planned. These facilities, etc. should be included in the scope of a project and

their feasibility should be verified. The planning of a bridge, its access roads and border facilities as integral facilities is highly desirable. If individual planning and detailed design is necessary, the individual plans should be fully coordinated.