

# Internal Ex-Post Evaluation for Grant Aid Project

conducted by Laos Office: November, 2013

Country Name	The Project for the Construction of Hinheup Bridge
Lao PDR	

## I. Project Outline

Background	<p>National Road 13 (NR13) is the nation's most important north-south corridor, extending from the Chinese border in the north to Vientiane Municipality and then to the Cambodian border at the southern tip of the country, passing through all the major cities of the country. Improvement of NR13 to a 2-lane all-weather Class III road started in 1993 with funding from international donors and work on the southern portion was completed in 2001. The Japanese Government also contributed to this improvement by constructing approximately 70 permanent bridges under a grant aid scheme.</p> <p>The Hinheup Bridge which is located on the northern portion of NR13 was the last temporary bridge on NR13, and was opened to service approximately 100 years ago. In 1981, its superstructure was washed away by a flood. A Bailey type of bridge was constructed in the 1990s with UK funding. However, the bridge superstructure did not fulfill the requirements of national road: (1) The width of the bridge was narrow and did not allow two-way traffic. (2) The pedestrian structure was defective and lacked connecting bolts, compelling pedestrians to walk on the carriageway and exposing them to danger. (3) The low stiffness of the superstructure to its span length caused severe vibrations when heavy vehicles passed. (4) The piers and their foundations had been damaged by flooding, increased traffic, and weathering. Thus, the existing bridge structure was in danger of collapsing. The collapse of the bridge would result in Vientiane being effectively cut off from the major cities of the north, as there was no viable alternate route, and this would have highly adverse economic impacts on the northern region.</p>		
Objectives of the Project	To ensure smooth and safe traffic on the target section of the northern part of NR13 by constructing a new Hinheup Bridge, thereby contributing to the promotion of economic activities near the bridge site and in the northern area of the country.		
Outputs of the Project	<ol style="list-style-type: none"> <li>1. Project Site: the Hinheup Bridge on the northern part of NR13</li> <li>2. Japanese side <ul style="list-style-type: none"> <li>- Construction of a new Hinheup Bridge (Bridge length: 195m)</li> <li>- Approach roads to the new bridge from both banks (Total length: 755m)</li> <li>- Necessary facilities for both of the major structures (e.g., drainage, etc.)</li> </ul> </li> <li>3. Lao PDR (hereinafter referred to as Laos) side: <ul style="list-style-type: none"> <li>- Compensation for relocation of houses from construction sites and provision of new land for new settlers with required infrastructure.</li> <li>- Acquisition of construction sites and lands necessary to perform temporary works (PC girder manufacturing, stockpiling of materials and equipment, and repairing of equipment and materials such as formwork &amp; re-bars).</li> <li>- Removal or relocation of public utilities, such as electric cables, and telephone cables.</li> <li>- Installation of road signs along the new approach roads.</li> <li>- Provision of power distribution facilities for lighting on the new bridge.</li> </ul> </li> </ol>		
E/N Date	27 November, 2006 (D/D) 16 May, 2007	Completion Date	28 January, 2010
Project Cost	E/N Grant Limit: 968 million yen, Contract Amount: 722 million yen		
Implementing Agency	Department of Roads, Ministry of Public Works and Transport (DOR, MPWT) (After the project completion, facilities are transferred to the Department of Public Works and Transport (DPWT) of Vientiane Province)		
Contracted Agencies	A Joint venture of Oriental Consultants Co., Ltd. and Nippon Koei Co., Ltd., The Zenitaka Corporation		
Related Studies	Basic Design Study: March 2006 – September, 2006, Detailed Design Study: December, 2006 – June, 2007		
Related Projects (if any)	<p>Japan's Cooperation:</p> <ul style="list-style-type: none"> <li>- Project for Improvement of Bridges on NR13 (Grant Aid, 1994-2001)</li> <li>- The Capacity Development Project for Road Maintenance in Laos (Technical Cooperation, 2011-2016)</li> </ul> <p>Other Donors' Cooperation:</p> <ul style="list-style-type: none"> <li>- International Development Association: Reconstruction of NR13S (266km) (1997), Reconstruction of NR13S (2002), The second road maintenance and administration program (2009)</li> </ul>		

## II. Result of the Evaluation

### 1 Relevance

This project has been highly consistent with Lao development policies, such as “infrastructure development as a driving force for economic growth” and “emphasis on construction and repair of roads system in the local and urban areas in order to develop of road network in Laos” as set in the “Socio-Economic Development Strategy for 2010 and 2020 (established in 2001), the 7th

Five-year Socio Economic Development Plan (2011-2015)” and other documents, and development needs to improve the damaged Hinheup bridge which is located on the route from the Vientiane Capital to Vang Vieng and Luang Prabang on the NR13, the nation’s most important north-south corridor, as well as Japan’s ODA policy for prioritizing development of economic and social Infrastructure at the time of both ex-ante and ex-post evaluation.

Therefore, relevance of this project is high.

## 2 Effectiveness/Impact

The project has largely achieved its objectives, “to ensure smooth and safe traffic on the target section of the northern part of NR13 by constructing a new Hinheup Bridge”. The new bridge construction has produced intended effects such as elimination of waiting time and reduction in crossing time as there are 2 lanes and the bridge has become wider than the old bridge. The pedestrian safety has improved dramatically because the new bridge has become wider and has a side-walk for pedestrians. In addition, the number of vehicles to vehicle/motorbike accidents has decreased greatly, according to the residents nearby. This is because the width of the bridge was widened from one way to two ways.

As to impact, according to village headmen and shop owners, economic activities such as kiosks and restaurants near the bridge site have increased as a new large bus terminal nearby the bridge which was developed after the completion of the project attracts an increasing number of passengers and tourists to drop-by and shop or take a rest at the terminal. Currently, another parking space for large tourist buses is under construction to be the designated parking space by the provincial government for large tourist buses to take breaks, and therefore, more passengers are expected to use the shops and restaurants at the terminal. The increase in the loading capacity of the new bridge has contributed to facilitation of transport of passengers and goods between major cities which are growing in numbers, according to the truck and bus drivers. The negative impacts were mitigated by the effort of the project. 10 affected households were compensated 100% by cash on the basis of replacement cost with the appropriate resettlement procedure. Regarding the impact on natural environment, required Initial Environmental Evaluation was conducted and approval was obtained, and no negative impact was found. No issues in associate with the resettlement has occurred. In addition, the project has not removed the old bridge for the use of pedestrians, therefore there is no inconvenience for the local villagers as they have not cut off from the existing paths.

Therefore, effectiveness/impact of this project is high.

### Quantitative Effects

Indicator	Year 2006 (before the project) Actual value	Year 2010 (target year) Target value	Year 2010 (target year) Actual value	Year 2013 (ex-post evaluation year) Actual value
Indicator 1 Elimination of waiting time	- Waiting time: 0 - 2 minutes - No. of vehicles waiting: 0 – 5	0	0	0
Indicator 2 Reduction in crossing time	40 seconds to 2 minutes 40 seconds	14 seconds	10-14 seconds	10-14 seconds
Indicator 3 (supplement) Daily Traffic Volume	Motorbike: 1,051 Sedan: 494 Bus: 131 Truck: 530 Total: 2,206	n.a.	n.a.	Motorbike: 1,311 Sedan: 655 Bus: 561 Truck: 468 Total: 2,995*
Indicator 4 (supplement) Loading capacity	Weight limit of 10 tons	25 tons	25 – 30 tons	25 – 30 tons

Source: measured during a project site visit on July, 2013 and interview with the implementing agencies

\* The figures are estimated traffic volumes counted during the project site visit. The total traffic volume on the same section under the Public-Private Infrastructure Advisory Facility (PPIAF), “Moving Forward: Developing Highway PPPs in Lao PDR, 2013 is 2,870. Although the figures are slightly different, both sources indicate the same trend.

## 3 Efficiency

The outputs of the project were produced as planned, and both the project cost and the project period were mostly within the plan (ratio against the plan: 75%, 105%). Therefore, efficiency of this project is fair.

## 4 Sustainability

The operation and maintenance of the facilities constructed by the project have been carried out by the DPWT of Vientiane Province. The project has no problem in the institutional aspects as the institutional structure is sustained what it was considered desirable at the time of ex-ante evaluation. The number of staff assigned to the operation and maintenance unit is sufficient, and the DOR supports DPWT by providing technical guidance and support when required.

DPWT has a capacity in operation and maintenance for Double Bituminous Surface Treatment (DBST) surfaced roads, however, technical capacity lacks in the operation and maintenance of asphalt pavement roads. Also technical capacity in bridge maintenance is not very high. These are being addressed by on-going technical cooperation project: Project for Improvement of the Road Management Capability. It is expected that the technical capacity of DPWT improves under the technical cooperation project.

The maintenance budget of the facilities is allocated from the Road Maintenance Fund (RMF), which comprises of a fuel levy, toll charges, overloading fines, and donor support. RMF is said to cover only 40% of what is actually needed across the country and the budget of DPWT is insufficient because the requested amount from DPWT cannot be fully allocated. Nevertheless, a simple maintenance such as cleaning and grass-cutting are conducted regularly through community-based contract, and additional funding for maintenance works can be made when there is a need (in 2013, it was painting). However,

it is uncertain whether a prompt budget allocation will be made when there is any damage to the bridge.

Regarding the current status of operation and maintenance, so far there has been no big damage on the facilities. DPWT carries out periodic inspection every three months in accordance with community-based contract for a simple operation and maintenance (cleaning, grass-cutting and reporting any damage), however, the number of items for regular inspection was limited compared with what was desirable at the time of ex-ante evaluation. In addition, in 2012-13, DPWT made painting works by requesting additional budget. According to DPWT, it will request a budget for repair when damages are found. However, future prospects for O&M are uncertain due to budget constraint.

Thus, as this project faces concerns on the technical and financial aspects as well as the current status of operation and maintenance, sustainability of the effects of this project is fair.

#### 5 Summary of the Evaluation

The project has largely achieved its objectives, “to ensure smooth and safe traffic on the target section of the northern part of NR13”, as the project has produced intended effects such as elimination of waiting time and reduction in crossing time. Positive impacts were identified in terms of expansion of economic activities nearby the bridge and facilitation in the transport of passengers and goods between major cities.

As for sustainability, there are some issues in technical and financial aspects as well as the current status of operation and maintenance. DPWT needs to improve capacity on the operation and maintenance of asphalt pavement road and bridge maintenance, though the capacity is expected to be enhanced through the on-going technical cooperation project. There is uncertainty in securing financial resources for the future operation and maintenance activities, although the current physical condition of the facilities is good.

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

### III. Recommendations & Lessons Learned

#### Recommendations to implementing agency:

1. It is highly recommended for DPWT of Vientiane Province to obtain capacity in asphalt pavement and bridge maintenance through the on-going technical cooperation project. Given the budget constraints of RMF, regular monitoring of damages or wear and tear of the bridge at an early stage is encouraged in addition to the current regular inspection, in order to apply promptly for additional budget to take counter-measures.

#### Lessons learned for JICA:

1. Financial sustainability of the road and bridge maintenance needs to be carefully examined at the time of planning and it is important to make the facilities maintenance free as much as possible.
2. Implementing a technical cooperation project along or after a construction project could be examined at the planning stage, as it can complement well to strengthen the sustainability aspect.



The new Hinheup bridge



The old bridge



The nearby market at bus terminal