

評価調査結果要約表

1. Outline of the Project		
Country : Ethiopia Issue/Sector : Transport Division in charge : JICA Ethiopia		Project title : The Capacity Development Project on Bridge Management Cooperation scheme : Technical Cooperation
Period of Cooperation	(R/D) : Jan,2007–Dec, 2010	Partner Country's Implementing Organization : Ethiopian Roads Authority
1-1. Background of the Project		
<p>Ethiopia is a mostly agricultural country with 84% of the population living in rural area. Since road transport accounts for 90-95% of inter-urban freight and passenger movements, it is considered essential to improve the road network in order to achieve the socio-economic development and food security of the country.</p> <p>In view of above, ERA through the Government of Ethiopia (GOE) requested the Government of Japan (GOJ) to dispatch the experts on the bridge maintenance in 1999. Between 1999 and 2006 three experts were dispatched and assisted the ERA in the compilation of “Bridge Inspection Manual” and the development of “Bridge Management System (ERA-BMS)”. In 2003, in cognizant of the importance of the bridge asset management and prioritization for maintenance, ERA newly established the Bridge Management Branch (BMB) under the Network Management Division (NMD), which is responsible for the maintenance of federal road network.</p> <p>The “Capacity Development Project on Bridge Management” was launched in January 2007 as a four-year technical cooperation project in order to develop and expand what had been achieved by three Japanese experts. The Record of Discussion (R/D) was signed between ERA and JICA on January 11th, 2007. Upon its signing, the Project was officially launched.</p>		
1-2. Project Overview		
(1) Overall Goal		
Appropriate maintenance and rehabilitation of bridges are implemented, which contributes to the improvement of service level of Ethiopian road network.		
(2) Project Purpose		
Capacity of bridge management in Ethiopia improves.		
(3) Outputs		
<ol style="list-style-type: none"> 1) Concept of “Bridge management cycle” is widely understood, and technology in inspection, evaluation, priority assessment and selection of measures improves. 2) ERA-BMS is effectively used for bridge management. 3) Capacity of contracting-out and supervision of bridge rehabilitation is improved. 4) Technology and skills of bridge rehabilitation are upgraded. 		

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(4) Inputs

Japanese side :

(a) Experts

The Japanese side dispatched four (4) long-term experts and five (5) short-term experts in the field of bridge maintenance and rehabilitation over the cooperation period. The total MM for the long-term experts will be 77 MM by the end of the Project (Dec. 2010). For the short-term experts, the total MM by the time of the terminal evaluation study is nine (9) MM.

(b) Training of Ethiopian Counterpart Personnel in Japan and Malaysia

Six (6) CP and two (2) CP were trained in Japan and Malaysia respectively by the time of the terminal evaluation study.

(c) Provision of Equipment

Various equipment was provided by JICA for the effective and smooth implementation of the Project with a total cost of ETB 1,149,199 (approximately equivalent to USD 85,799.50¹).

(d) Operational Cost

The total operational cost supported by the Japanese side by March 2010, the end of Japanese fiscal year of 2009, was ETB 1,662,720.03 (approximately equivalent to USD 124,139.17).

Ethiopian Side :

(a) Assignment of Counterpart Personnel

A total of eight (8) CP have been assigned from ERA Headquarter for the Project.

(b) Local Cost

2. Evaluation Team

Members of Evaluation Team	<p>Ethiopian side:</p> <p>a) Mr. Bekele Negussie (Leader) Manager, Planning and Programming Division, ERA</p> <p>b) Ms. Zeineba Assefa (Member) Senior Engineer, Planning and Programming Division, ERA</p> <p>Japanese Side (JICA Evaluation Team):</p> <p>a) Mr. Shuntaro Kawahara (Leader)</p>
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¹ 1USD = ETB13.394 (JICA official rate of July 2010)

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	Senior Advisor to the Director General, Economic Infrastructure Department, JICA b) Mr. Hideki Ito (Evaluation Design) Assistant Director, Transportation and ICT Division II, Economic Infrastructure Department, JICA c) Ms. Momoko Suzuki (Cooperation Planning) Representative of Ethiopia office, JICA d) Ms. Yoko Harada (Evaluation Analysis) Researcher, Global Link Management Co., Ltd.	
Period of Evaluation	28/ June/ 2010 ~ 14/Jul / 2010	Type of Evaluation : Terminal
3. Outline of Evaluation Result		
3-1. Achievement of the Project		
(1) Output of the Project		
<i>Output 1: Concept of “Bridge management cycle” is widely understood, and technology in inspection, evaluation, priority assessment and selection of measures improves.</i>		
<ul style="list-style-type: none"> • The bridge inspection activity was not carried out as expected due to the severe shortage of trained engineers in DEDs. In view of this, the Bridge Management Support Service (BMSS) was introduced by ERA and three consulting firms signed the three-year contract in July 2009 to undertake bridge management activities including bridge inspection, evaluation and prioritization under the supervision of respective DED. Up to the time of the terminal evaluation study, the consulting firms completed the first year inspection as agreed. • As of June 2010, 150 bridges were identified for the rehabilitation or replacement starting EFY 2003. For EFY 2003 ETB 96 million was allocated to the bridge replacement from the government budget. 		
<i>Output 2: ERA-BMS is effectively used for bridge management.</i>		
<ul style="list-style-type: none"> • The ERA-BMS was introduced by Long-term Expert to all DEDs and RRAs for their use. • The update of ERA-BMS data with the results of the regular inspection has been conducted by the BMSS consultants at the DED every year. As regards the ERA-BMS at BMB, it is planned to be updated only with the results of the major inspection which are conducted in every three year. • The data concerning new bridges have been put into the ERA-BMS at DED offices. 		
<i>Output 3: Capacity of contracting-out and supervision of bridge rehabilitation is improved.</i>		
<ul style="list-style-type: none"> • “Formulation of technical specification form for bridge rehabilitation” was completed in 2009 and has been used in the training by ERA. • As the bridge rehabilitation and replacement plan, bridges have been identified already and necessary budget has been secured, the tender is expected to be advertised within a month. 		
<i>Output 4: Technology and skills of bridge rehabilitation are upgraded.</i>		

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- A series of training on the bridge rehabilitation and the on-site training thereof have been organized since 2007. The on-site demonstration training was organized at the Awash Bridge in December 2009 with the participation of relevant staff from BMB, DEDs, RRAs and the private firms.
- Short-term experts are planned to be dispatched after September 2010 who organize the trainings to develop the capacity of ERA engineers as well as private consultants and contractors.

(2) Project Purpose

- As the bridge rehabilitation and replacement plan, bridges have been identified already and necessary budget has been secured, the tender is expected to be advertised within a month.
- It was learnt that for EFY 2003 ETB 96 million was allocated to the bridge replacement from the government budget while ETB 23 million would be secured from the Road Fund for the bridge rehabilitation. If necessary, additional budget will be allocated from the fund given by the Road Fund.
- In order to attain the Project Purpose, it is necessary for BMB CP to experience a whole cycle of the bridge management and be equipped with adequate knowledge and skills to carry out the assignments. (That takes Ethiopian two fiscal years)
- The organizational restructuring in ERA is to be introduced in July 2010. The organizational restructuring in ERA is to be introduced in July 2010 where it is uncertain that the Project output would be continued and bridge management activities in EFY2003 would be steadily carried out. Therefore monitoring by long-term expert is inevitable for sustain the output of the Project.

(3) Implementation Process

- Most of the activities planned in PDM have been implemented as scheduled although the implementation of some activities was delayed due to the difficulties to recruit pertinent short-term experts on time as well as the severe shortage of trained engineers in DEDs.
- ERA introduced BMSS in which ERA contracts out the bridge management activities to the consulting firms and supervise them. Once the BMSS was in effect, the inspection and subsequent activities have been smoothly carried out by the consultants in collaboration with bridge engineers in DEDs, resulting in the timely production of Output 1.
- The technical capability of BMB CP has been notably enhanced. In the case of DEDs, bridge engineers and other concerned staff have become well understood the concept of the bridge management cycle and capable for supervisory tasks over the inspection and other activities carried out by the BMSS consulting firms. In view of high attrition rate of DED engineers, DEDs in collaboration with BMB needs to set up a mechanism that necessary knowledge and skills to carry out the assigned bridge management activities are systematically maintained in the institution.

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3-2. Summary of Evaluation Results

(1) Relevance

The RSDP III (2007 – 2010), which is now under implementation, approved about ETB 135 million for bridge works.

JICA regards the attainment of food security as one of the most important areas of cooperation in Ethiopia. In the light of this, the improvement of the road network and the rehabilitation and maintenance of the bridges has been strongly advocated with an aim to provide rural population with better accessibility to markets as well as social services.

The Project objectives are still consistent with the Ethiopian policy.

(2) Effectiveness

The Project Purpose is likely to be achieved

High attrition rate of junior engineers, who are in charge of bridge inspection, caused the stagnation of the Project activities. In view of this, the BMSS was introduced and put into effect in July 2009. If the BMSS consulting firms duly undertake their responsibilities under the supervision of BMB and DEDs, it is highly likely for the Project Purpose to be achieved.

(3) Efficiency

Some activities are not identified and listed in the PDM/PO although these activities are essential to produce the intended outputs and, subsequently, to achieve the Project Purpose. In reality, these activities were implemented by the Project without being listed in PDM/PO. PDM and PO could have been modified with the incorporation of core activities necessary to produce outputs so that the Project could have made a better use of PDM and PO on its daily operation.

In general, the Japanese inputs were appropriate in quality, quantity and timeliness. But some short-term experts were not dispatched as scheduled due to the difficulties to recruit engineers with appropriate skills and qualifications. This caused some delay in the production of Outputs. The types and quantities of the provided equipment were mostly adequate. In addition, no delay was observed in the procurement.

(4) Impact

The prospect to achieve the overall goal is positive. Once the bridge management cycle is institutionalized and continuously practiced in ERA, it is likely that the bridge maintenance and rehabilitation will be steadily implemented within its financial and technical capacity, contributing to the improvement of service level of Ethiopian road network.

In cognizant of importance of the bridge inventory, ERA took its own initiative to request the budget to the Road Fund and formulated the project for RRAs bridge inventory inspection in 2008. Owing to it, the nationwide inventory including both federal and regional bridges was completed and the data was entered into the ERA-BMS software, which has been helping RRAs to own the bridge asset database.

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(5) Sustainability

The Project is well in line with the relevant policies of Ethiopia. Therefore, the government support on the bridge maintenance is likely to be continued.

The organizational restructuring in ERA is to be introduced in July 2010. Following the six months of trial period, the restructuring is planned to officially put into effect. At the time of the terminal evaluation study, it was learnt that BMB would be maintained as “Bridge Management Team” while the function of 10 DEDs would be realigned into five Regional Offices under Network Management Team.

Since the Project started, BMB has been taking a good initiative in the implementation of the bridge management cycle and gradually building up its capacity on the subject. It is expected that BMB will be further capacitated in the continuous implementation of management cycle on condition that the BMB mandate remains the same and the trained personnel are retained after the organizational restructuring.

Although the activities have been smoothly carried out after introduction of BMSS due to a serious problem to undertake the bridge management activities, quite a few numbers of trained engineers were assigned to carry out the supervision of the performance of the BMSS Consultant.

Since the BMSS will be effective until 2012, the daily bridge management activities are unlikely to be seriously affected by the restructuring. It should be, however, closely watched how the restructuring impacts on the daily operation of the new Regional Offices as well as their satellite offices, in particular on the shortage of engineers.

Since ETB 96 million was allocated to the bridge replacement from the government budget while ETB 23 million would be secured from the Road Fund for the bridge rehabilitation in EFY 2003, and ERA expressed its intention to allocate the budget necessary to contract out the bridge asset management and maintenance activities in future, bridge management activities are likely to continue.

The technical capacity of BMB CP has considerably improved through the participation in the training and the operation of daily activities. The technical capacity of trained bridge engineers in DEDs seems adequate to carry out the present activities as long as the BMSS consultants continuously mobilize sufficient number of their engineers to undertake the assigned activities as they have been. Taking into consideration high attrition rate of bridge engineers, DED in collaboration with BMB should design a concrete mechanism in which the technical transfer is continuously carried out from senior staff or consultants to junior staff. Further, the impacts of the organizational restructuring should be closely monitored and, if required, necessary measures should be immediately put into place to sustain and develop the technical capacity of bridge engineers. RRAs engineers participated in the CDBM training for their capacity development and it seems essential for them to be continuously invited to the relevant training organized by ERA and provided with prepared manuals so as to keep their capacity intact.

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3-3. Conclusion

The Project started with an aim to assist ERA to adopt the bridge management cycle, with which bridges are properly maintained and service level of road network is improved. Although the shortage of trained engineers had initially stagnated the progress of the Project activities, after the introduction of BMSS, the activities were steadily carried out and the execution of the rehabilitation and replacement works are likely to be steadily implemented. However ERA does not seem to be capable to carry out the whole cycle of bridge management from securing necessary budget to actual works without help from JICA experts. In order to attain the sustainability after the Project, the further support for monitoring and review of the of bridge management activities progress to reflect on the following year's planning is necessary.

Taking into consideration the outcomes of the terminal evaluation study, the Joint Evaluation Team concludes that the Project should be extended by one and half a year, until the end of June 2012, which covers Ethiopian two fiscal years, so that the experiences of rehabilitation works in EFY 2003 can be utilized to modify Bridge Management Cycle in EFY 2004 and succeeding years.

In order to assure the achievement of the Project Purpose and its sustainability after the Project completion, the Evaluation Team has prepared the recommendations to be implemented by ERA.

3-4. Recommendations

- (1) Extension of the Project period
- (2) Monitoring on new organizational structure
- (3) Assignment of bridge engineers in new Regional Office
- (4) Enhancement of collaboration between BMB and new Regional Offices
- (5) Immediate start of tender process
- (6) Technical sustainability
- (7) Provision of support for RRA

3-5. Lessons learnt

- (1) Dissemination of ERA-BMS to other African countries

The in-house developed ERA-BMS software was technically and financially assisted by the Project, making available bridge asset database in the country. It is simple to operate, revise and upgrade and highly applicable. Therefore, the dissemination of the software to other African countries is worth considering with the initiative of ERA and JICA.

- (2) Project management with flexibility

Initially, the inspection activity was planned to be carried out by DED engineers. Once ERA recognized significant delay in the inspection activities resulted from shortage of DED engineers, ERA initiated BMSS and contracted out the bridge management

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activities to the consulting firms. Since then, the Project has made a good progress and considerably made up delays. In addition, the consultants have been of great help for those DED junior engineers to enhance their technical capacity in carrying out the bridge management activities along with senior consultants. The Project approach should be flexibly modified reflecting the conditions on the ground.

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