1. Project Data:

<table>
<thead>
<tr>
<th>Country</th>
<th>Rwanda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project ID</td>
<td>P079414</td>
</tr>
<tr>
<td>Project Name</td>
<td>Rwanda Transport Sector Development Project</td>
</tr>
<tr>
<td>Project Costs (US$M):</td>
<td>69.0 83.5</td>
</tr>
<tr>
<td>L/C Number</td>
<td></td>
</tr>
<tr>
<td>Loan/Credit (US$M):</td>
<td>11.0 20.9</td>
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<tr>
<td>Sector Board</td>
<td>Transport</td>
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<tr>
<td>Cofinancing (US$M):</td>
<td>38.0 38.0</td>
</tr>
<tr>
<td>Cofinanciers</td>
<td>Africa Catalytic Growth Fund (ACGF)</td>
</tr>
<tr>
<td>Board Approval Date</td>
<td>08/28/2007</td>
</tr>
<tr>
<td>Closing Date</td>
<td>06/30/2012 12/31/2014</td>
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<tr>
<td>Sector(s)</td>
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<tr>
<td>Theme(s)</td>
<td>Trade facilitation and market access (33%); Administrative and civil service reform (17%); Infrastructure services for private sector development (17%); Rural services and infrastructure (17%); Conflict prevention and post-conflict reconstruction (16%)</td>
</tr>
</tbody>
</table>

Prepared by: Kavita Mathur
Reviewed by: John R. Eriksson Christopher David Nelson
ICR Review Coordinator: Group: IEGPS1

2. Project Objectives and Components:

a. Objectives:
The objectives of the project were to improve the quality of Rwanda's paved road network and to generate sustained employment in rural areas through road maintenance works (Project Appraisal Document p. 10 and Financing Agreement p. 5).

Following the Mid-Term Review (MTR) and Additional Financing (AF) the project was restructured. The project development objectives remained unchanged.

b. Were the project objectives/key associated outcome targets revised during implementation?
No

c. Components:
Original Components

Component 1: Paved Road Rehabilitation and Maintenance (appraisal cost US$62.4 million; actual cost US$77.5 million):
Rehabilitation of approximately 83 km of Kigali-Ruhengeri section of Kigali-Ruhengeri-Gisenyi road and maintenance of approximately 550 kilometers of paved trunk roads, including sections of Gatuna-Bugarama, Gitarama-Kibuye, and Rusumo-Gisenyi roads, through execution of multi-year output-based management contracts. This component would also provide technical assistance in support of rehabilitation and maintenance of these roads.

Component 2: Sector Governance and Policy Support (appraisal cost US$2.6 million; actual cost US$1.9 million):
(a) Under the Sector Governance Improvement sub-component, the project would provide technical assistance to the Road Agency (RA), the Road Maintenance Fund (RMF), the Vehicle Technical Inspection Center, the Rwanda Civil
Aviation Authority, and the National Public Transport Agency.

(b) The Transport Policy Implementation sub-component included:

(i) Stakeholder workshops and seminars relating to transport policy implementation and regional transport cooperation;

(ii) Provision of technical assistance to the Ministry of Infrastructure (MININFRA) in support of program development and carrying out of strategic studies for transport policy implementation;

(iii) Provision of technical assistance in support of development and implementation of road safety action plan, improvement of data collection, and establishment of accident database in the Planning, Policy, and Capacity Building Unit;

(iv) Development and implementation of transport sector HIV/AIDS prevention strategy; and

(v) Provision of technical assistance in support of establishment and training of Local Community Associations (LCAs) of roadside dwellers in labor-intensive road maintenance.

Component 3: Sector Analysis and Planning Support (appraisal cost US$2.2 million; actual cost US$2.9 million):

(a) Transport Planning and Monitoring Systems: (i) Provision of technical assistance to the Planning, Policies and Capacity Building Unit (PPCBU) in support of establishment of transport database and monitoring and evaluation systems relating to Project and Program performance, transport costs, transport industry standards, and other transport performance indicators; (ii) Transport data collection for planning and monitoring systems; (iii) Acquisition of information technology equipment and materials for monitoring and evaluation systems.

(b) Capacity Building: (i) Financing of the services of an international university and a local university to provide long-term in-country training to professional staff of the road agencies, local entrepreneurs, and unemployed graduates, leading to Masters’ degrees in Road Engineering and Management and Transport Economics and Planning; (ii) Financing of a local consultant to provide management support to the in country training program.

Component 4: Project and Program Management Support (appraisal cost US$1.2 million; actual cost US$1.2 million):

(i) Financing of Operating Costs of the Planning, Policies and Capacity Building Unit, the Transport Projects and Program Management Unit (CGPT), and the Road Agency (RA) following its establishment;

(ii) Provision of technical assistance to Infrastructure Planning, Policies and Capacity Building Unit, Transport Projects Management Unit, the RA, and the RMF in support of Project and Program technical audits; and

(iii) Training of Project and Program management staff in accounting and financial management, procurement and contract management, and budget preparation and disbursement

Revised Components

Component 1: Paved Road Rehabilitation and Maintenance: The maintenance of the Huye-Kitabi road was dropped, as the rehabilitation was financed through other financing arrangements undertaken by the government.

Component 2: Sector Governance and Policy Support. (Component remained unchanged).

Components 3 and 4: Sector Analysis and Planning Support: Following activities were added: (i) human capital development through training on road management tools; (ii) preparation of design and specifications manuals for roads and bridges; (iii) introduction and customization of road management tools including Roads Economic Decision Model (RED), Highway Development and Management Model (HDM) and Road Network Evaluation Tool; (iv) provision of technical assistance (TA), training and Information technology equipment for RMF was reallocated from Component 4 to Component 3, while RMF was expected to conduct technical audit of maintenance contracts from its own resources.

d. Comments on Project Cost, Financing, Borrower Contribution, and Dates:

Project Cost: The actual project cost was US$83.5 million compared to the appraisal estimate of US$69 million.

Financing: At appraisal the project was financed through two sources: (a) an IDA credit (49680) of US$11 million; (b) a grant of US$38 million from Africa Catalytic Growth Fund (ACGF).

On December 20, 2011, Additional Financing (H3310) in the amount of US$11 million was provided to cover the financing gap due to cost overrun of the contract for the rehabilitation of Kigali-Ruhengeri road. During implementation, the government requested that Kigali-Ruhengeri road be widened from 6.2m to 7m. The total actual contract price was US$45.78 million for both works and supervision against US$38 million at appraisal. The additional cost was related to widening of the road, including slide protection, raising the level of side drains, provision of culverts, sealing and widening of shoulders. The other cause of the cost overrun was inflation (due to delayed implementation). The ICR does not provide figures for the inflation rate.
An undisbursed amount of US$0.4 million was cancelled in May 2015 from the IDA Grant (H3310) and Credit (49680). US$15,385.11 was refunded from the designated account by the Client.

**Borrower contribution**: The actual government contribution was US$24 million compared to the appraisal commitment of US$20.0 million.

**Dates**: First, the closing date of the project was extended by eighteen months from June 2012 to December 2013 in order to complete various activities under original project and the widening of Kigali-Ruhengeri road under the Additional Financing (see section 5). The project was further extended by one year to December 2014.

### 3. Relevance of Objectives & Design

#### a. Relevance of Objectives:

**Rated substantial.**

The project objectives remained relevant to the Country Partnership Strategy FY14-18 which identified high transport costs and an insufficient logistics system as a major constraint to Rwanda's internal trade and competitiveness of exports.

The project was designed in response to the government's request for much needed assistance to the country which was coming out of a devastating civil war and genocide, both of which affected production and infrastructure, including transport. This project was part of the government's five-year transport improvement program which was integral to the government's Economic Development and Poverty Reduction Strategy (EDPRS). The objectives of the program as defined in the government's transport policy matrix were to: (i) improve transport links internally and internationally; (ii) reduce and keep transport costs under control; (iii) improve the institutional framework and strengthen the capacity of partners involved in the sector; (iv) improve road safety; and (v) achieve sustainable financing for road maintenance.

#### b. Relevance of Design:

**Rated substantial.**

The statement of objectives was clear, straightforward and measurable. Most of the activities foreseen in Components 1 (paved roads rehabilitation and maintenance), 2 (sector governance and policy support), and 3 (sector analysis and planning support) were relevant to, and logically linked with, the achievement of the objective to improve the quality of Rwanda's paved road network and to generate sustained employment in rural areas through road maintenance works.

The project design included the development of institutional and road maintenance capacities and relevant global priorities such as road safety and combating HIV/AIDS. The project provided support towards the formation of the Rwanda Transport Development Agency which was aimed at ensuring sustainable management and monitoring of transport sector activities.

The engagement of Local Community Associations for the maintenance of the national road network provided employment opportunities for road side communities.

### 4. Achievement of Objectives (Efficacy):

**Improve the quality of Rwanda's paved road network through road maintenance works**: rated **substantial**.

**Outputs**

- Rehabilitation of Kigali-Ruhengeri road was completed on September 18, 2012. Some construction defects were observed and the ICR reports (p. 23) that the defects were addressed during the defects liability period.
- Three multi-year maintenance contracts with a total length of 277 km were completed in November 2014.
- Establishment and training of 283 Local Community Associations (LCAs). LCAs were assigned the responsibility of routine maintenance of the national road network.
- Performance agreements between Ministry of Infrastructure (MININFRA) and Rwanda Transport Development Agency (RTDA); and MININFRA and Road Maintenance Fund (RMF) were signed.
- The project facilitated the passing of Roads Act (2011) and the RTDA Act (2011).
- A Transport Master Plan was prepared.
- A sector level HIV/AIDS prevention strategy was prepared.
- A road database was established for the RTDA and was being used in the planning, programming and
management of interventions on the national road network.

- The project contributed to the long term in-country training in transportation which was delivered by Kigali Institute of Science and Technology (KIST). 52 students (compared to the target of 50) completed master’s degrees of which 30 students were in Highway Engineering and Management and 22 students in Transportation Studies. The graduates of the program were working in both the public and private sector.

- RTDA regularly organized refresher courses in road routine maintenance, environmental protection and protection against HIV/AIDS and sexual transmitted diseases. These training's were organized through supervision mission contracts for different on-going road projects. The ICR reported that at project closure, such training was being carried out for the recently completed Kigali-Gatuna road project under the financing of the European Union (EU).

Outcomes

- The project established a system for sustainable financing of road maintenance through the provision of technical assistance to the Road Maintenance Fund (RMF). The Government of Rwanda through the RMF contributed over US$24 million towards the maintenance of the paved road network under the project, exceeding the commitment amount of US$20 million.

- The project improved the management and operational efficiency in sector institutions through the establishment of management information and statistical systems, and targeted training.

- At project closure 62 percent of the paved road network was in good condition compared to the target of 50 percent.

- A beneficiary assessment survey was conducted after implementation and reported that the project investment resulted in the improvement in wealth of the population in the project area, increase in number of education facilities and enrolment rates, increase in price of land and housing, and improved access to credit facilities and other employment opportunities inter alia.

Generate sustained employment in rural areas through road maintenance works: rated high.

Outputs

Under the project 283 cooperatives of road side dwellers were created by MININFRA. These cooperatives comprised of a total manpower of 11,322 people. Road side rural dwellers were trained in labor intensive road maintenance works through two local consulting firms. The staff from MININFRA held meetings with the Ministry of Local Government and district authorities and urged them to use LCAs in their road development programs. Since 2012, 119 LCAs were used in conducting routine maintenance in 26 districts on a section of the road network of 2,962 km including components financed by the Bank such as the periodic maintenance of the Kagitumba-Kayonza-Rusumo (208 km) and Gitarama-Kibuye (78km) roads.

Outcomes

The engagement of Local Community Associations(LCAs), local communities and micro enterprises on 801 km of the national road network resulted in providing employment opportunities to 3,041 (51.5% men, and 48.5% women) road side dwellers exceeding the target (3,000). The LCAs have developed capacity to carry out routine road maintenance in a sustainable way.

5. Efficiency:

At appraisal, cost-benefit analyses for paved rehabilitation work for Kigali-Ruhengeri and Ruhengeri-Rubavu (Gisenyi) links were conducted using the Highway Development and Management (HDM) model. The ex-ante ERR was 13.5 percent.

The project experienced both cost and time overruns. The project cost increased by 28.9% due to widening of the Kigali - Ruhengeri road, which was requested by the government and financed through Additional Financing. The other cause of the cost overrun was inflation (due to delayed implementation). The closing date of the project was extended by 2.5 years.

An ex-post economic analysis was conducted using traffic data of 2010 and 2013. The calculation of vehicle operating costs was done using the HDM-4 model. The ex-post ERR was 30.8 percent. The ex-post ERR is much higher than the ex-ante ERR, despite cost and time overruns due to much higher benefits resulting from the widening of the road. At appraisal, traffic growth rate was assumed at 4.8 percent. However, actual growth rate during 2005 to 2010 before the commencement of the project was significantly higher, i.e. 7.2 percent. Moreover, the traffic growth rate between 2010 and 2013 was 13.3 percent, which is almost 3 times higher than the predicted traffic growth at the time of appraisal, i.e. 2006.

The efficiency of the project is rated substantial.
a. If available, enter the Economic Rate of Return (ERR)/Financial Rate of Return (FRR) at appraisal and the re-estimated value at evaluation:

<table>
<thead>
<tr>
<th>Rate Available?</th>
<th>Point Value</th>
<th>Coverage/Scope*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appraisal</td>
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<td>13.5%</td>
</tr>
<tr>
<td>ICR estimate</td>
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<td>30.8%</td>
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</table>

* Refers to percent of total project cost for which ERR/FRR was calculated.

6. Outcome:
The objectives and design of the project were substantially relevant. The efficacy of the objective to improve the quality of Rwanda’s paved road network through road maintenance works is rated substantial. The efficacy of the objective to generate sustained employment in rural areas through road maintenance works is rated high. However the project efficiency is rated substantial due to cost and time overruns. The project outcome is rated satisfactory.

a. Outcome Rating: Satisfactory

7. Rationale for Risk to Development Outcome Rating:

Government Commitment: To reduce deterioration of roads due to overloading, the government is planning to adopt the law on axle load control and the traffic on the paved road network will be subject to weight controls.

Institutional Capacity: Although, the project assisted in enhancing the capacity of the staff of MININFRA and RTDA, there are still some challenges. By project closure, RTDA was having difficulty of retaining trained staff. A Special Project Implementation Unit (SPIU) was established in July 2014 to support all externally funded projects until the issue of staffing is resolved.

Local Capacity: The project has created cooperatives of roadside dwellers (LCAs) to carry out routine maintenance works.

Financial: The project established the Road Maintenance Fund (RMF) which provided over US$24 million of funding for the maintenance of the paved road network.

Landslides: Major landslides occurred along the completed road and RTDA carried out repair works. Slides could still be a major challenge along the rehabilitated road. The landslide problem is a natural challenge that has to be dealt with through the programmed maintenance budget.

The risk to development outcome rating is assessed as moderate.

a. Risk to Development Outcome Rating: Moderate

8. Assessment of Bank Performance:

a. Quality at entry:

The project was jointly prepared by the Africa Catalytic Growth Fund (ACGF) and International Development Association (IDA). The project was in line with both the Country Assessment Evaluation (CAE) conducted by the Independent Evaluation Group (IEG) in 2003 and the Implementation Completion and Results Report (ICR) of the previous Bank supported operation, the Rwanda Transport Sector Project (RTSP), which recommended that future IDA support should focus on rebuilding Rwanda’s depleted institutional and road maintenance capacities. The ICR proposed continued support by external donors in reducing the backlog of road maintenance and rehabilitation works. It further recommended the increased use of labor-based construction approaches in order to promote employment, particularly in rural areas.

The overall project risk at appraisal was assessed as high and the Bank put in place adequate mitigation measures including institutional and capacity building activities, the establishment of a RTDA, project management support by external consultants and monitoring of projects by international firms including an independent technical auditor. The project design made the establishment of FM systems as a condition of effectiveness and the recruitment of an environmental specialist and procurement team to reinforce the Transport Project Implementation Unit (CGPT).

The main shortcoming of the project was inadequate geological investigations ex ante, leading to suboptimal
designs, as evidenced by frequent landslides during implementation. The project could have provided tools to the implementing agency to identify and mitigate these risks, particularly at the design stage.

| Quality-at-Entry Rating: | Moderately Satisfactory |

b. Quality of supervision:

The ICR notes (p. 18) that regular implementation support missions were conducted and the Bank team provided technical, fiduciary and safeguards support to the client during project implementation. The project experienced substantial procurement delays at the start of the project. The Bank team was responsive and exerted extra effort to improve procurement by providing "procurement technical assistance" to RTDA from 2013 to the close of the project. The Bank team commissioned external consultants to conduct independent technical and safeguards audits.

| Quality of Supervision Rating: | Satisfactory |
| Overall Bank Performance Rating: | Moderately Satisfactory |

9. Assessment of Borrower Performance:

a. Government Performance:

The government was committed to the project and ensuring that the paved road network was in good condition. At appraisal the government committed US$20 million and by project closure it had contributed US$24 million through the Road Maintenance Fund. To better manage the roads sector, the government enacted the Road Act in 2011. It also established the RTDA in 2011 as an agency responsible for the development of transport infrastructure projects.

| Government Performance Rating | Satisfactory |

b. Implementing Agency Performance:

The capacity of MININFRA with regards to procurement, and contract management was low. This resulted in significant delays early on during project implementation. In 2011, the RTDA was established with support from the additional financing. RTDA also suffered from limitations in procurement capacity and was unable to hire appropriate procurement capacity after its establishment, resulting in delay in procurement and implementation of the project. A procurement specialist was recruited towards project closure to assist with the remaining procurement activities. The establishment of the Special Project Implementation Unit (SPIU) improved the capacity of RTDA, by attracting experienced staff with improved remuneration packages. There were delays in some instances in submission of audit reports as well as inaccurate preparation of some Interim Financial Reports (IFRs).

| Implementing Agency Performance Rating | Moderately Satisfactory |
| Overall Borrower Performance Rating: | Moderately Satisfactory |

10. M&E Design, Implementation, & Utilization:

a. M&E Design:

The outcome indicators were appropriate for measuring the project objectives. The indicators were: (i) improvements in the road network condition, and (ii) permanent employment generation. The project design included data collection in the form of surveys at three intervals during implementation that is, at the beginning of the project, prior to the MTR, and in the last year of the project. The first survey together with data collected during project preparation, were to improve the baseline data for the project. The second survey was to facilitate the MTR, while the third was to provide material for end-of-project assessments, including for the ICR. The project also included provision to help establish an M&E system within MININFRA. Given the weak capacity of MININFRA at the time of project preparation, it was agreed that data collection was to be administered by external consultants.

b. M&E Implementation:
The ICR reports (p.71) that the surveys were carried out and the data helped the project to monitor all core and intermediate indicators with respect to its periodical or annual targets. At the time of additional financing, the following core indicators were added: (i) share of rural population with access to an all-season road, and (ii) direct project beneficiaries.

During implementation, a beneficiary survey was conducted by RTDA. Six questionnaire surveys were undertaken to assess impacts on beneficiaries by all four components of the project. A stratified random sampling technique was employed for the questionnaire surveys. In order to maintain normal distribution, a sufficient number of samples were collected from each stratum, i.e. at least 30 samples for each vehicle type were collected. In total 270 interviews were conducted in the study.

c. M&E Utilization:

The ICR reports (p. 11) that RTDA is using the road database that was set up under the project for planning, programming and management of the national road network.

M&E Quality Rating: Substantial

11. Other Issues

a. Safeguards:

Environmental Category at appraisal: B.

At appraisal, Environmental Assessment (OP/BP 4.0 1) policy was triggered because rehabilitation works could affect trees and vegetation along the road to be rehabilitated. The Environmental and Social Impact Assessment was prepared and disclosed in-country on January 15, 2006 and submitted to InfoShop on January 14, 2006.

At the time of Additional Financing (AF), Physical Cultural Resources (OP 4.11) safeguard policy was triggered. The Environmental Impact Assessment for the Kigali-Ruhengeri road was updated to ensure that the civil works would carefully avoid existing cultural assets, such as burial and archeological sites. Guidelines for “chance finding of culturally important archeological objects” procedure was integrated into the contracts for construction and road maintenance consultants. These included development of a cultural property management plan if physical cultural resources were found.

The rehabilitation and maintenance works were expected to be carried out along existing road alignment, therefore the additional financing did not involve land acquisition/involuntary resettlement (as was the case in the original project).

An environmental Specialist was hired by the implementing agency to monitor potentially adverse environmental and social impacts of project operations. The specialist monitored environmental and social safeguards compliance for all road investment operations in the sector. The contractor for the roads projects followed the Environment and Social Management Plan (ESMP). An Environmental Audit was conducted and it did not discover any major issues during project implementation.

The ICR reports (p. 11) that the implementation of the ESMP was satisfactory and the overall safeguards compliance rating for the project as satisfactory.

b. Fiduciary Compliance:

Financial Management: The ICR p.12 reports that financial management procedures and arrangements met the Bank’s minimum requirements for project FM as per OP/BP 10.02. The financial statements of the project were audited and the auditor reports were unqualified. The reports also mentioned that the designated account statements presented a true and fair view in accordance with IDA and ACGF Grants requirements. However, the ICR reports (p. 19) that there were delays in some instances in submission of audit reports as well as inaccurate preparation of some IFRs.

Procurement: The ICR p.12 reports that all aspects of procurement procedures were managed professionally during implementation. An assessment of the capacity of the implementing agencies involved in procurement for the project was carried out at appraisal. The procurement capacity of the newly established RTDA was weak. RTDA inherited a backlog of delayed procurement of the consultancy services. It was unable to hire procurement staff which hampered progress of the activities under the project. During implementation (from 2013 to project closure), the project provided technical assistance to RTDA on procurement. A procurement specialist was finally engaged in 2013 to assist with the remaining procurement activities and to provide on-the-job training.
c. Unintended Impacts (positive or negative):
None.

d. Other:
None.

<table>
<thead>
<tr>
<th>12. Ratings:</th>
<th>ICR</th>
<th>IEG Review</th>
<th>Reason for Disagreement/Comments</th>
</tr>
</thead>
<tbody>
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<td>Outcome:</td>
<td>Moderately Satisfactory</td>
<td>Satisfactory</td>
<td>Project achievement on both objectives was high and substantial for a very relevant project. In addition, the additional financing and time overruns were justified by the project's returns with regards to efficiency.</td>
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<tr>
<td>Risk to Development Outcome:</td>
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<td>Moderate</td>
<td></td>
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<tr>
<td>Bank Performance:</td>
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<td>Borrower Performance:</td>
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<tr>
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NOTES:
- When insufficient information is provided by the Bank for IEG to arrive at a clear rating, IEG will downgrade the relevant ratings as warranted beginning July 1, 2006.
- The “Reason for Disagreement/Comments” column could cross-reference other sections of the ICR Review, as appropriate.

13. Lessons:
The key lessons learned from this project are:
- Institutional reforms conducted in parallel to project implementation can cause delays. The operationalization of the new institutions require longer time as the development of human capital to an acceptable and stable stage is a continuous process.
- Local Community Associations (LCAs) can be engaged in road maintenance. The project experience showed that LCAs were employed by districts along the national road network to conduct routine maintenance.
- Applying innovative and cost saving methods, including contracting road rehabilitation works under Output and Performance-Based Road Contracting (OPRC) and/or contracting maintenance works for many years is an option that should be practiced to ensure continued maintenance of the classified roads.

14. Assessment Recommended? ⓜ Yes ⓜ No

15. Comments on Quality of ICR:
The ICR is candid and provides useful information to assess project performance. The quality of evidence and the quality of analysis is satisfactory. There are some inconsistencies in the text regarding the financial management of the project. The ICR p.12 reports that financial management procedures and arrangements met the Bank’s minimum requirements for project FM. However, the ICR reports (p. 19) that there were delays in some instances in submission of audit reports as well as inaccurate preparation of some IFRs.

a. Quality of ICR Rating: Satisfactory