

Country Name	Project for Strengthening of Capacity on Road Maintenance Management through Contracting (Phase 3)
Republic of Kenya	

I. Project Outline

Background	Road transport accounted for 90% ¹ of all domestic transport in Kenya. The development and improvement of the road networks were important for the economic development of the country. The government of Kenya had actively engaged private contractors in road maintenance works, using traditional contract methods where Road Agencies (RAs) instruct the details of maintenance works in tender documents and supervise the actual work through various processes. Contracting out road maintenance works to the private sector over the long term was one of the ways for RAs to deliver efficient road services, as the Performance-Based Contract (PBC). JICA implemented a technical cooperation project from May 2010 to May 2013 to introduce PBC for road maintenance works as Phase 1. Phase 2 was implemented to further strengthen the capacity of road maintenance work with much focus on PBC. Phase 3 was implemented to disseminate the outputs of Phase 1 and 2 to the entire Kenya.				
Objectives of the Project	Through capacity building of road management agencies and others on public cost estimation and road maintenance through PBC, road flatness surveys, etc., the project aims at improving road maintenance methods and disseminating them, thereby contributing to improving road conditions in Kenya.				
Activities of the Project	<ol style="list-style-type: none"> Overall Goal: <ol style="list-style-type: none"> Road maintenance management methodologies developed under the Project are mainstreamed into the road construction industry in Kenya. Existing road networks are maintained in good condition. Project Purpose: Improve road maintenance methodologies and apply them widely in Kenya. 				
Activities of the Project	<ol style="list-style-type: none"> Project site: Whole Kenya Main activities: Establishing cost survey methodologies, development of the web-based Cost Estimation System, comparative study of the International Roughness Index (IRI) measurement equipment, expansion of the cost estimation scope to include on-carriageway PBC works, harmonization of PBC standard tender document to align it with the Public Procurement and Asset Disposal Act, and trial of contractors' evaluation, etc. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;"> Japanese Side <ol style="list-style-type: none"> Experts: 13 persons Trainees received in Japan: 31 persons Equipment: Dynamic Response Intelligent Monitoring System (DRIMS) and accessories, copy machine, personal computers, etc. </td> <td style="width: 50%;"> Kenyan Side <ol style="list-style-type: none"> Staff allocated: 57 persons Facilities and Equipment: project offices at Kenya National Highways Authority (KeNHA) and Kenya Institute of Highways and Building Technologies (KIHBT), electricity, communication facilities, water service, two project cars with fuel etc. Local Cost: cost for training organized by KIHBT, travel expenses and allowances for seminars and workshops for Kenyan counterparts, administrative cost for running expenses of the project </td> </tr> </table> 			Japanese Side <ol style="list-style-type: none"> Experts: 13 persons Trainees received in Japan: 31 persons Equipment: Dynamic Response Intelligent Monitoring System (DRIMS) and accessories, copy machine, personal computers, etc. 	Kenyan Side <ol style="list-style-type: none"> Staff allocated: 57 persons Facilities and Equipment: project offices at Kenya National Highways Authority (KeNHA) and Kenya Institute of Highways and Building Technologies (KIHBT), electricity, communication facilities, water service, two project cars with fuel etc. Local Cost: cost for training organized by KIHBT, travel expenses and allowances for seminars and workshops for Kenyan counterparts, administrative cost for running expenses of the project
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Project Period	(ex-ante) November 2016 to October 2019 (36 months) (actual) December 1, 2016, to November 30, 2019 (36 months)	Project Cost (Japanese side only)	(ex-ante) 428 million yen, (actual) 480 million yen		
Implementing Agency	<ul style="list-style-type: none"> Ministry of Transport, Infrastructure, Housing, Urban Development & Public Works (MoTIHUD & PW) (at the time) Kenya National Highway Authority (KeNHA) Kenya Urban Road Authority (KURA) Kenya Rural Road Authority (KeRRA) Kenya Wildlife Service (KWS) Kenya Road Board (KRB) Kenya Institute of Highways and Building Technologies (KIHBT) National Construction Authority (NCA) 				
Cooperation Agency in Japan	Hanshin Expressway Co., Ltd., CTI Engineering International Co., Ltd.				

II. Result of the Evaluation

<Constraints on Evaluation>

- Indicator 1-1 of the Overall Goal, "100% of RA engineers in manager class are trained for PBC." was not verifiable because no information was obtained from the RAs other than KeNHA through the questionnaire nor interviews. Regarding the institutional/organizational aspect of sustainability, information was collected through questionnaires and interviews, but information on the sufficiency of personnel at KIHBT, KWS, and KURA could not be obtained, so the institutional and organizational aspects were evaluated based on the information obtained.

¹ National Transport Policy, 2013

<Special Perspectives Considered in the Ex-Post Evaluation>

[Verification of the Achievement Status of the Overall Goal]

- Most of the indicators for the Overall Goal in the PDM Ver. 3 were achieved by the end of the project period and the project team set indicators at the time of project completion. Therefore, in the ex-post evaluation, the achievement of the overall goal is evaluated based on the indicators set at the completion of the project, not on the PDM Ver. 3 indicators.
- The target year for indicator 1-3 of the Overall Goal, “The total length of 10,000km is applied for PBC.”, is FY2024. However, the information collected at the time of ex-post evaluation was that of FY2022. Therefore, the achievement of this indicator was judged by comparing the planned and actual values of FY2022.

1 Relevance/Coherence

[Relevance]

<Consistency with the Development Policy of Kenya at the Time of Ex-Ante Evaluation >

The project was consistent with the development policy of Kenya at the time of ex-ante evaluation. In the national development plan “*Vision 2030 (2008-2030)*”, the government of Kenya prioritized the economic development and poverty alleviation through infrastructure development. “*Second Medium-Term Plan 2013-2017*” in the “*Vision 2030*” identified expansion of the road network and enhancement of road maintenance and management as issues to be addressed in the transportation infrastructure sector.

<Consistency with the Development Needs of Kenya at the Time of Ex-Ante Evaluation >

The project was consistent with the development needs of Kenya at the time of ex-ante evaluation. In Kenya, the central government managed approximately 160,000 km of road, of which only about 40% were classified as “Good” or “Better” condition. Kenya’s road administration was overseen by the Ministry of Transport and Infrastructure (at the time), with different RAs managing roads by road type, such as highways, inner-city roads, rural roads, and roads in national parks. Most of the road maintenance works were outsourced to private contractors, but the RAs did not have sufficient capacity for cost estimation and contract supervision, resulting in problems such as insufficient budget planning and work plans, delays in contractor procurement and maintenance work, and inconsistent quality.

<Appropriateness of Project Design/Approach>

The project design/approach was appropriate. It addressed development issues in terms of involvement of vulnerable people in the society; 30% of the procured works were awarded to the vulnerable such as women, youth and persons with disabilities as per the procurement law. The lessons learned from the past similar projects were also duly utilized. Most of the rural roads were also included in the sites for the cost estimation studies. No problem attributed to the project design/approach was confirmed.

In light of the above, the relevance of the project is ③².

[Coherence]

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan’s ODA policy for Kenya at the time of ex-ante evaluation. In “Country Assistance Policy for the Republic of Kenya” (2012), “Economic Infrastructure Development” was one of the priority areas. It referred to human resource development for effective operation and autonomous maintenance of infrastructure.

<Collaboration/Coordination with JICA’s other interventions>

The collaboration/coordination between the project and other JICA’s projects was expected at the time of ex-ante evaluation, and the positive effects were confirmed at the time of ex-post evaluation. PBC method is being adopted in JICA’s supported grant aid project “The Project for Dualling of Nairobi-Dagoretti Corner Road C60/C61” (2012) and “The Project for Dualling of Nairobi-Dagoretti Corner Road C60/C61 (Phase 2)”(2017) which were implemented by KURA. PBC is also applied to JICA’s supported yen loan project “Mombasa Port Area Roads Development Project” (2012 - ongoing) under KeNHA and in the JICA’s technical cooperation project “Project for Strengthening of Capacity Development on Bridge Management System (BMS)” (2020-2025), by RAs and the positive effects were confirmed at the time of ex-post evaluation. BMS training course has been administered to 22 training instructors at KIHBT and the BMS training (mandatory) requires the trainees to have been adequately trained in PBC.

<Cooperation with other institutions/ Coordination with international framework>

The cooperation/coordination with other donors such as World Bank (WB), Agence Française de Développement (AFD) and European Union (EU) planned at the time of ex-ante evaluation were implemented as planned, and the positive effects were confirmed at the time of ex-post evaluation. The engineers who obtained PBC knowledge reviewed road projects funded by other donors such as WB, AFD and EU, and PBC method was adopted in such projects.

In light of the above, the coherence of the project is ③.

[Evaluation Result of Relevance/Coherence]

In the light above, the relevance/coherence of the project is ③.

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the Time of Project Completion>

At the time of project completion, the Project Purpose was mostly achieved as planned. (Indicator 1) KRB issued a notification to RAs for using Cost Estimation Manual (CEM) as the planned unit price in 2018. Cost Estimation Unit (CEU) was established at each RA. Unit costs and task rates obtained by Cost Estimation System (COSTES) were used by all RAs when creating and submitting a road maintenance management plan to KRB once a year. CEM can be downloaded from KRB’s website freely and can be utilized by anyone including private contractors. 196 users were registered in COSTES. (Indicator 2) 918 contractors attended the training for PBC organized by KIHBT. They agreed with NCA regarding registration of PBC categorization. The final procedure to introduce PBC categorization was in progress.

<Continuation Status of Project Effects at the Time of Ex-Post Evaluation>

By the time of ex-post evaluation, the project effects had been continued. Unit costs and task rates obtained by COSTES have been used by RAs and contractors even after the project completion. The RAs have fully introduced contract evaluation which was introduced on a trial basis by the project. KIHBT conducted a PBC sensitization workshop in collaboration with KRB to private contractors to attract their interest to the PBC training program.

² ④ : very high, ③ : high, ② : moderately low, ① : low

<Status of Achievement of the Overall Goal at the Time of Ex-Post Evaluation>

At the time of ex-post evaluation, the Overall Goal was achieved mostly as planned. As a consequence of continuation of project effects, the road maintenance management methodologies developed under the Project have been mainstreamed in the road construction industry in Kenya and existing road networks have been maintained in good condition almost as planned. Indicator 1-1, “100% of RA engineers in manager class are trained for PBC”, the data was not verifiable. Regarding the indicator 1-2 “Over 1,500 contractors are trained for PBC through KIHBT.” was achieved beyond the plan as a total of 1,925 contractors have been trained for PBC. Regarding the indicators 1-3 on the total length of the road sections maintained by using the PBC, the target in FY2022 (9,000km) was achieved beyond the plan. Regarding the indicator 1-4 on the CEM update, the indicator was achieved as planned as CEM has been updated periodically. The indicator 2-1 on the status of the Dynamic Response Intelligent Monitoring System (DRIMS) monitored road sections was almost achieved since nearly 80% of the DRIMS monitored road sections were in “Good” condition in 2022.

<Other Impacts at the Time of Ex-Post Evaluation>

Firstly, positive impacts were observed in terms of social inclusion, empowerment and well-being, in particular, for youth, female workers and persons with disabilities. 30% of road maintenance work is awarded to youths, women, and persons with disabilities. Off-the-road work based on PBC methods, such as vegetation control, drainage cleaning and desilting, did not require skilled labor and can be easily performed by women and persons with disabilities, creating employment opportunities, social inclusion, and enhanced empowerment for people who have been prevented from participating in society.

Secondly, technical impacts were also reported. According to KIHBT, before the introduction of the PBC training program, contractors used to quote very low to secure maintenance contracts. Without budget estimates, bidders offered very low bid prices that would have prevented them from satisfactorily completing the projects, and underquoting affected the performance of contractors. The COSTES and manuals developed by the project helped move away from the engineer’s estimate (estimate by RA’s own way) method of project approximation. As a result, following the road maintenance training on the use of the COSTES, the RAs began sharing budget information with bidders as opposed to initial method of procurement where the engineer’s estimate was not disclosed to the bidders but only used in financial evaluation.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is (3).

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results	Source
(Project Purpose) Improve road maintenance methodologies and apply them widely in Kenya.	1. Unit costs and task rates obtained by COSTES are used by RAs and contractors.	<u>Status of achievement (Status of the Continuation): achieved as planned (continued).</u> (Project completion) KRB issued a notification to RAs for using CEM as the planned unit price in 2018. CEU was established at each RA. Unit costs and task rates obtained by COSTES were used by all RAs when creating and submitting a road maintenance management plan to KRB once a year. CEM can be downloaded from KRB’s website freely and can be utilized by anyone including private contractors. 196 users were registered in COSTES. (Ex-Post Evaluation) Unit costs and task rates obtained by COSTES have been used by RAs and contractors even after the project completion. COSTES, which was established in the project is still available on KRB’s website.	<ul style="list-style-type: none"> Project Completion Report Answers to the questionnaire from KeNHA, KeRRA, KRB and Ministry of Roads and Transport (MoRT)
	2. At least 300 contractors are registered under the classification of “PBC work” by NCA.	<u>Status of the Achievement (Status of the Continuation): partially achieved (continued).</u> (Project completion) 918 contractors were trained by KIHBT for PBC, and they agreed with NCA regarding registration of PBC categorization. The final procedure to introduce PBC categorization was in progress. (Ex-Post Evaluation) The number of registered contractors was not verified because NCA is yet to publish PBC in its categorization of contractors. However, “PBC work” is categorized as a form of contracting, and currently, for technical evaluation of the procurement of maintenance contractors, RAs require bidders to have PBC training as a mandatory requirement for their key staffs.	<ul style="list-style-type: none"> Project Completion Report Answers to the questionnaire from NCA and interview with KIHBT.
(Overall Goal) 1.Road maintenance management methodologies developed under the Project are mainstreamed in the road construction industry in Kenya.	1-1. 100% of RA engineers in manager class are trained for PBC.	Status of the Achievement: Not verifiable. (Ex-Post Evaluation) The proportion of manager class who attended training for PBC reached 100% for KeNHA reached 100% for KeNHA in FY 2019/20, FY 2020/21, and FY 2022/23. The data for other RAs are not verifiable because data was not provided. <Supplemental Information> The number of training participants increased steadily, reaching a cumulative total of 1,182 by the completion of the project.	<ul style="list-style-type: none"> Answers to the questionnaire from KIHBT
	1-2. Over 1,500 contractors are trained for PBC through KIHBT.	Status of the Achievement: Achieved beyond the plan. (Ex-Post Evaluation) A total of 1, 925 contractors have been trained for PBC up to 2023.	<ul style="list-style-type: none"> Answers to the questionnaire from KIHBT

	<p>1-3. The total length of 10,000km is applied for PBC. Note: The target year of the above-mentioned indicator is for 2024. The target year for the ex-post evaluation is FY 2022, three years after project completion. In the ex-post evaluation, the target value for FY2022 was set at 9,000 km, and the planned and actual figures for FY2021/22 were compared.</p>	<p>Status of the achievement: Achieved beyond the plan. (Ex-Post Evaluation) The target in FY2022 (9,000km) has been achieved although the data on the length of road under the KeRRA's jurisdiction was not obtained.</p> <p style="text-align: center;">Table 1 Length of PBC Unit: km</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>RA</th> <th>FY19/20</th> <th>FY20/21</th> <th>FY21/22</th> </tr> </thead> <tbody> <tr> <td>KeNHA:</td> <td>6,418.0</td> <td>7,298.0</td> <td>8,724</td> </tr> <tr> <td>KURA:</td> <td>484.4</td> <td>636.0</td> <td>661</td> </tr> <tr> <td>KeRRA:</td> <td>n.a.</td> <td>n.a.</td> <td>n.a.</td> </tr> <tr> <td>KWS:</td> <td>n.a.</td> <td>n.a.</td> <td>37</td> </tr> <tr> <td>Total</td> <td>6,902.4</td> <td>7,934.0</td> <td>9,422</td> </tr> </tbody> </table>	RA	FY19/20	FY20/21	FY21/22	KeNHA:	6,418.0	7,298.0	8,724	KURA:	484.4	636.0	661	KeRRA:	n.a.	n.a.	n.a.	KWS:	n.a.	n.a.	37	Total	6,902.4	7,934.0	9,422	<ul style="list-style-type: none"> • FY 2019/2020/2021: Evaluation Result Sheet of the Phase 2 • FY 2021/2022: Annual Public Roads Programme 2021-2022, KRB
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	<p>1-4. CEM is updated periodically (at least one time before the ex-post evaluation).</p>	<p>Status of the achievement: Achieved as planned. (Ex-Post Evaluation) In the year 2020, KRB was appointed as the administrator of the CEM and charged with the responsibility of the CEM update every two years. KRB developed a cost estimation manual "CEM 2022".</p>	<ul style="list-style-type: none"> • Answers to the questionnaire from KRBA 																								
<p>2. Existing road networks are maintained in good condition.</p>	<p>2.1 Over 80% of the DRIMS monitored road sections are in either "Excellent" or "Good" condition, (Northern Corridor is considered as monitoring sample road.)</p>	<p>Status of the achievement: Mostly achieved as planned. (Ex-Post Evaluation) Nearly 80% of the DRIMS monitored road sections were in "Good" condition in 2022.</p> <p style="text-align: center;">Table 2: Condition of the DRIMS monitored road sections under PBC Unit: %</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>2020</th> <th>2021</th> <th>2022</th> </tr> </thead> <tbody> <tr> <td>Excellent</td> <td>0%</td> <td>0%</td> <td>0%</td> </tr> <tr> <td>Good</td> <td>74%</td> <td>77%</td> <td>78%</td> </tr> <tr> <td>Fair</td> <td>16%</td> <td>19%</td> <td>20%</td> </tr> <tr> <td>Poor</td> <td>10%</td> <td>4%</td> <td>2%</td> </tr> </tbody> </table> <p>Note: Entire Northern Corridor Network is under PBC.</p>		2020	2021	2022	Excellent	0%	0%	0%	Good	74%	77%	78%	Fair	16%	19%	20%	Poor	10%	4%	2%	<ul style="list-style-type: none"> • Answers to the questionnaire from KeNHA 				
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3 Efficiency

The project cost slightly exceeded the plan (the ratio against the plan: 112%) and the project period was within the plan (the ratio against the plan: 100%). The project cost was increased due to the return and arrival expenses associated with the replacement of long-term experts, as well as the addition of third-country training in Ethiopia.

	Project Cost (Japanese side only, yen)	Project Period (months)
Plan (ex-ante)	428 million yen	36 months
Actual	480 million yen	36 months
Ratio (%)	112%	100%

Outputs were produced as planned.

In light of the above, the efficiency of the project is ③.

4 Sustainability

<Policy Aspect>

The "Strategic Plan for 2023-2027" aims to ensure that most roads are under PBC maintenance for safe, efficient and smooth mobility for people and goods. In addition, PBC has been fully embraced by the RAs as the preferred method of maintenance and KIHBT continues to train technical personnel of RAs and contractors. According to the Preparation Guidelines and Priority of "Annual Public Roads Programme (APRP)" approved by the government of Kenya, PBC maintenance is to be applied in order to preserve the existing road assets, as well as routine maintenance and periodic maintenance interventions.

<Institutional/Organizational Aspect>

The information on the sufficiency of personnel of the KIHBT, the KWS and the KURA was not verified. Therefore, the institutional aspects were evaluated based on the information collected.

MoTIHUD & PW was reorganized into the MoRT in 2022, as part of the administrative changes introduced by the new government after the 2022 general elections and the MoRT has been distributing the materials to the county governments to ensure the implementation of PBC. KeNHA has decentralized road maintenance offices with officers/inspectors trained for PBC, and the current organizational structure is effective in PBC implementation. The regional offices have the key mandate of maintenance works on existing roads under their authority. The role of KeNHA HQ (Maintenance department) is to provide oversight. Regarding the KeRRA, more staff needs to be recruited and trained so that the current organization structure will be adequate to disseminate PBC model. In KRB, the documents and

manuals for PBC have been added to the whole cycle of maintenance. Regarding the sufficiency of the staff to promote the PBC, the number of staff was sufficient for MoRT and KeNHA, insufficient for KeRRA, KRB and NCA and not verified for KURA, KWS and KIHBT. Some issues have been observed, but the prospects for improvement and resolution are high based on the information verified.

<Technical Aspect>

At the time of ex-post evaluation, there is an established technical level in the RAs to sustain the project effects. KRB has sufficient technical skills and knowledge and has updated CEM periodically. There is an established independent office to sustain and coordinate activities, i.e., the Inter-Governmental Relations Technical Committee (IGRTC). All of the manuals/guidelines/materials except PBC Contractor's Evaluation Handbook have been utilized by the RAs. They have been found to be practical and impactful in estimation as well as in rolling out procedural activities during roadworks implementation. KRB, who is managing COSTES, has involved IT engineers to maintain and update the COSTES.

<Financial Aspect>

At the time of ex-post evaluation, financial sustainability has been established to some extent, and the future prospects were positive. Based on the APRP approved by the government, KRB has allocated budgets from Road Maintenance Fuel Levy (RMLF) for road maintenance and as requested by the RAs. In fact, according to the KeNHA, the budget for the PBC training has been secured.

<Environmental and Social Aspect>

No issue on environmental and social aspect has been observed, and it has not been necessary to take any countermeasures.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional/organizational aspects of the implementing agency. Therefore, the sustainability of the project effects is ③.

5 Summary of the Evaluation

The project mostly achieved as planned the improvement of road maintenance management methodologies and their wide application in Kenya (Project Purpose), their mainstreaming in the road construction industry in Kenya and maintenance of road networks in good condition (Overall Goal). After the project completion, the project effects have continued in terms of continued utilization of COSTES by RAs. Regarding the sustainability, although slight problems have been observed in terms of the institutional/organizational aspects of the implementing agency, the sustainability of the technical aspects is particularly high in view of the continuous human resource development through PBC training and the continuous update and utilization of CEM. Considering all of the above points, this project is evaluated to be highly satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

Since over 120,000 km of the national road network in Kenya has been transferred to county government authority, it is recommended that RAs continue to transfer the knowledge and skills gained from this project to the county governments. Dissemination of PBC to county governments will provide a chance for better management of their network. The roads can be rehabilitated to a maintainable level and thereafter put under PBC maintenance. Through this, the cost for maintenance is expected to be lower.

Lessons Learned:

To ensure private sector involvement in areas where private sector intervention is needed, it's essential to involve a training institution that can maintain and provide training programs accessible to the private sector. In this project, KIHBT played this role. Involving KIHBT from the beginning of the project led to sustainable results. A large number of private contractors were trained on PBC work by KIHBT. The understanding and implementation capacity of private companies who are implementers of the PBC were enhanced, facilitating the entire process from contracting to implementation of the PBC work. It not only allowed KIHBT to provide training but also aligned with the RAs' requirements for contractors to complete the training. The RA's requirement that private contractors complete PBC training as a condition for bidding for PBC work created an incentive for private contractors to attend PBC training at KIHBT and encouraged private contractors to attend PBC training. Additionally, KIHBT was able to generate revenue from providing training, ensuring the financial sustainability of the PBC training programs.



Maintenance of roadside grass through PBC
(Photo taken by JICA expert)



Cleaning the road drainage by a female worker
(Photo taken by JICA expert)