Japan International Cooperation Agency

Republic of Kenya

The Project for Strengthening Capacity on Road Maintenance Management through Contracting (Phase 2)

Project Completion Report

(Short Term Expert Team)

May 2016

CTI Engineering International Co., Ltd.

Hanshin Expressway Co., Ltd.

EI
JR
16-072

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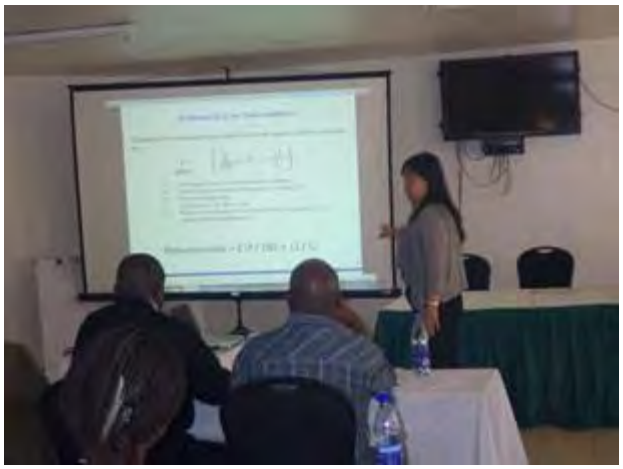
List of Abbreviations

AfD	Agence Française de Dévelopement
ARICS	Annual Road Inventory and Condition Survey System
C/P	Counterpart
CORINS	Construction Records Information System
COSTES	Cost Estimation System
DRIMS	Dynamic Response Intelligent Monitoring System
EU	Europe Union
GPS	Global Positioning System
IRI	International Roughness Index
JCC	Joint Coordination Committee
JICA	Japan International Cooperation Agency
KeNHA	Kenya National Highway Authority
KeRRA	Kenya Rural Road Authority
KIHBT	Kenya Institute of Highways and Building Technologies
KNBS	Kenya National Bureau of Statistics
KRB	Kenya Road Board
KURA	Kenya Urban Road Authority
KWf	Kreditanstalt für Wiederaufbau
KWS	Kenya Wildlife Service
LBT	Labor Based Technique
MoTI	Ministry of Transport and Infrastructure
MT	Master Trainer
NCA	National Construction Authority
NWG	National Working Group
PBC	Performance Based Contract
PDCA	Plan Do Check Action
PDM	Product Data Management
PPOA	Public Procurement Oversight Authority
RA	Roads Authorities
SWG	Sub Working Group
TECRIS	Technical Consulting Records Information Service
TOT	Training of Trainer

Project Activity Photos

	
KURA Nairobi CBD PBC site visit(2014.5)	JCC meeting (2014.6.11)
	
KURA PBC survey (drainage cleaning)(2014.6)	Joint visit with ICBTRS (EU)（Thika Road）(2014.6)
	
DRIMS Seminar(2.14. 9.10 – 9.12)	PBC monthly inspection（2014.9.19）

	
24th NWG（2014.10.15）	PBC Guideline SWG Meeting (2014 .12.5)
	
Mini Pilot Project on Nairobi Western Ring Road Installation of approach lane marking at hump. (2015.1.30)	Test construction in MTRD yard and observation by MTRD eingineers.（2015.1.27）
	
Workshop on Dono Method, field training to contractors （2015.1.27-1.28）	DRIMS Seminar（2015.3.3-3.5）

	
YK Pack test construction at West Land (2015.2)	PBC Cost survey （Drainage）(2015.3)
	
2015.4.20　Cost estimation SWG	Retrate on PBC guideline（2015.6.2～6.6）
	
Rtrate on PBC guideline（2015.7.20～7.24）	PBC Contract Evaluation Seminar　（2015.9）

	
Site training on Cost Survey（2015.9.30）	TOT master trainers retreat #3　(2015.10)
	
PBC maintenance site observation (Thika Roak/KeNHA) (2015.11)	ToT（at Naivasha）(2016.1.11-1.15)
	
RA Pilot Training　（2016.2.22~26）	JCC Meeting (2016.3.10)

1. Project Description

1.1 Project Background

Road transport accounts for 90% of all domestic transport in Kenya. Development and improvement of the road network system is, therefore, important for the economic development of the country. The government has embarked on the active use of private contractors for road maintenance works previously undertaken through the use of force account and in 2013, pilot projects using performance-based contracts were introduced. Contractors for such works were identified through the public procurement system.

JICA has assisted in various activities related to the introduction of performance based contracts for road maintenance works. This has resulted in the formulation of unit and productivity rates applicable to such contracts. In addition, assistance was provided for term contracting of road maintenance works, preparation of performance-based contract documents, improvement on the contractor selection process and the international roughness index (IRI) survey. In November 2013, Phase 2 of the project commenced with the aim of providing further capacity strengthening of road maintenance work especially under PBC (hereinafter referred to as the Project).

Having understood the achievement made in Phase 1 as well as collaboration to be made with the JICA Senior Experts in Kenya during Phase 2, the JICA Short Term Expert Team (hereinafter referred to as the Short Term Expert Team) will endeavor to strengthen the capacity of implementing agencies on the management of road maintenance through contracting.

The Project is headed by the two JICA Long Term Senior Experts based in KeNHA. The Short Term Expert Team is in a position to support the Project under them.

The Project focuses support to the smooth expansion and implementation of the Performance-Based Contract (PBC) which has been under implementation since 2010. Also the Project supports more effective operation of DRIMS (Dynamic Response Intelligent Monitoring System) for the measurement of IRI (International Roughness Index) and digestion of data use for road maintenance.

1.2 Project Goal

The Project Goal is to maintain the existing road network in good condition.

1.3 Project Objective

The capacity of implementing agencies is strengthened on management of road maintenance through contracting.

1.4 Authorities Concerned

Supervising Ministry:	Ministry of Transport and Infrastructure
Implementing Agencies:	Kenya National Highways Authority
	Kenya Urban Roads Authority
	Kenya Rural Roads Authority
	Kenya Wildlife Service
Related Agencies:	Kenya Road Board
	Kenya Institute of Highways and Building Technology
	National Construction Authority

1.5 Project Period

22 April 2014 to 31 May 2016

1.6 Input

28.70 person-months

1.7 Output

PDM Version 4, August 2015 (see Table 1-1)

Table 1-1 Output in PDM

Project Name: The Project for Strengthening of Capacity on Road Maintenance Management through Contracting (Phase 2) **Version** 4

Target Area: Whole Country **Target Group:** Implementing Agencies (KRB, KeNHA, KURA, KeRRA, KWS, KIHBT, PPOA and NCA) **Date: 4 Aug 2015**

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal 1. Performance level of roads maintenance operation contracts by performance based contracts (PBC) is improved. (Concept of PBC is understood widely both in RAs and in the related industry.) 2. Existing roads network maintain in good condition (Appropriate maintenance of roads network is implemented by PBC.)	1. Concept of PBC is understood widely both in RAs and in the roads industry. 2. Over 80% of the proportion of total length of the DRIMS monitoring roads is either in excellent condition or in good condition.	1. Interview to the RAs and industry 2. Annual DRIMS(Dynamic Response Intelligent Monitoring System) Survey (PAVED: IRI<=3 excellent condition, IRI<=5 good condition, UNPAVED: IRI<=7 excellent condition, IRI<=12 good condition)	
Project Purpose The capacity of implementing agencies is strengthened on management of road maintenance through contracting	1. Procurement and monitoring process of PBC in RAs are in line with the guideline and manuals developed by the project. 2. Roads conditions are monitored by DRIMS and the data (IRI) is analyzed by related RAs on their own.	1-1 Project documents 1-2 Interview to the engineer of the road agencies. 1-3 Assessment by Japanese experts 2-1 Project documents 2-2 Assessment by Japanese experts	Roads sector reforms do NOT affect implementation of the project activities. Adequate budget for maintenance is allocated to RAs. Road conditions are monitored by DRIMS at least once a year
Outputs 1. The maintenance operation procedure associated with PBC (Performance Based Road Maintenance Contract) is reviewed and improved and implemented properly. 2. Capacity is built in RAs (focusing on DRIMS holding RAs) to monitor and analyze road conditions by DRIMS (Dynamic Response Intelligent Monitoring System) and integrate the analyzed data into ARICS (Annual Road Inventory and Condition Survey). 3. To built sustainability of the proper PBC operation procedure, trainers on PBC operation are fostered. 4. To built sustainability of the operation of DRIMS, experts on DRIMS are fostered,	**Following indicators evaluated by self & externally** 1-1. PBC Guideline is formulated and distributed to Road Authorities. 1-2. PBC Cost Estimation Manual is formulated and distributed to the Road Authorities. 1-3. The challenges of the public procurement procedure are identified. 1-4. Examples of the roads condition improvement measures are inducted to C/P by conducting mini pilot projects. 2-1. Apx.10,000km length of Class A,B and C Roads are monitored by KeNHA by DRIMS. 2-2. An ARICS report using DRIMS data is produced. 3-1. At least 10 officers of RAs become trainers on maintenance operation contracts by PBC. 4-1. At least 15 persons in KeNHA become DRIMS experts (1 per 10 regional	1-1 PBC Guideline 1-2 Cost Estimation Manual for PBC 1-3 Record or Report of Public Procurement Seminar 1-4 Record or Report of Mini Pilot Project 2-1 Data in the KeNHA's main server 2-2 ARICS report and DRIMS Data in the KeNHA's main server. 3-1. Record or Report of PBC ToT 4-1. Record or Report of DRIMS training	.

	offices + 5 from KeNHA HQs)		
Activities **Output 1. The maintenance operation procedure associated with PBC (Performance Based Road Maintenance Contract) is improved and implemented properly.** **(Manuals)** 1-1.Evaluate the results of pilot projects under performance based contract (PBC) implemented during Phase 1 and make recommendations for improvement. 1-2.In order to support implementation of PBC, set the several performance level for the road maintenance operation according to the road facilities and the conditions and draw up the specification guideline for PBC. 1-3.Draw up the work procedure guideline for the contractor's PBC implementation in order to secure the performance level of PBC. 1-4.Draw up the evaluation guideline for the evaluation of the PBC. 1-5.Participate in the monthly inspection meeting and make some recommendation for the improvement of the PBC maintenance operation. **(Cost Estimation for PBC)** 1-6.Monitor and evaluate the cost estimation for PBC and pick up some challenges for the formulation of the cost estimation manual for PBC, 1-7.Conduct the general cost investigation about the actual condition on PBC works. 1-8.Provide "Draft of cost estimation manual for PBC by execution package type" from the data obtained at 1-7, and assist road agencies in applying it to the PBC procurement. **(Public Procurement for the maintenance operation)** 1-9. Review the public procurement system for the maintenance operation (mainly tendering system), and support improvement of the system. 1-10. Share the Japanese procurement system and anecdotal experiences for the securing the public works quality. 1-11.Extract some challenges and suggest improvement points for the public procurement system especially tendering system. 1-12.Assist the updating of the contract evaluation system data as a result of the scores in the completed contracts. **(Common to the above activities)** 1-13.Propose the maintenance and repair methods through mini pilot projects in both paved and unpaved road to improve the actual state of roads, contribute the road safety and alleviate	**Inputs (Japan)** 1. Dispatch of Experts 1-1 Long-term Experts: 2 persons - Chief Advisor/ Road Maintenance Administration: 2 years - Public Procurement & Contract: 2 years 1-2 Short-Term Experts* - Contract Management - Road Construction Supervision - Cost Estimate * Short-Term Experts will be dispatched when necessity arises and their person months will be determined later. Expertise indicated above are tentative and subject to change during the course of the Project 2. Training 2-1 Seminars/workshops ToT in Kenya 2-2 Counterpart training in Japan 3. Equipment and Tools 3-1 Project Car(s)-for Road patrol and supervision	**Input (Kenya)** 1. C/P Personnel -Project Director -Project Manager -General Manager and Manager of the agencies 2. Administrative Personnel -Supporting and Administrative Staff 3. Provision of facilities for the Project implementation -Project office -Expenses for electricity, Communication facilities, water service, etc. 4. Administrative cost for running expenses of the project	Adequate budget for participants on the trainings or seminars is secured by the authorities Majority of trained officials continues to work in the maintenance sector. Members of National Working Groups are not change much. **Preconditions** Sufficient personnel to implement project activities is secured and retained Positive collaboration among all implementing agencies and stakeholders is maintained

the traffic jams, 1-14.Assist road agencies in regular use of these systems in JCC, ITT, and NWG. 1-15. Conduct the counterpart training in Japan for deepening the knowledge of the maintenance operations. **Output 2. Road conditions are periodically monitored by DRIMS (Dynamic Response Intelligent Monitoring System) as a part of ARICS (Annual Road Inventory and Condition Survey).** 2-1.Monitor and assess how the Dynamic Response Intelligent Monitoring System (DRIMS) which were introduced during the project phase1 are used in annual road condition surveys 2-2.DRIMS measurement is done and the IRI data is analyzed by KeNHA staff periodically. 2-3.Set up the target IRI level (performance level) in the PBC maintenance operation using the data obtained through DRIMS . 2-4.Estimate the expecting annual road maintenance cost of total Kenya road network. **Output 3. To built sustainability of the proper PBC operation procedure, ToT (training of trainer) is conducted.** 3-1.Conduct the training of trainers (TOT) using the manuals which are produced by activity 1-2,1-3,1-4 with cooperation from KIHBT (the Kenya Institute for Highways and Building Technology). 3-2.Propose KIHBT or NCA(National Construction Authority) to organize the training course on "Performance Base Contract" to built sustainability of the proper PBC operation procedure. **Output 4. To built sustainability of the operation of DRIMS, the DRIMS team is formulated in KeNHA (Kenya National Highways Authority). DRIMS training is conducted and certifications are issued to participants by KeNHA.** 4-1. Train KeNHA core staff to maintain DRIMS equipments and to measure IRI by DRIMS. 4-2. Assist to form DRIMS team in KeNHA to built sustainability of the DRIMS measurement.			

2. General Achievement of the Project

The Short Term Expert Team commenced its services in accordance with the contract concluded with JICA on 21 April 2014. The Work Plan was agreed in the National Working Group (NWG) Meeting on 6 June 2014 and then seconded in the Joint Coordination Committee (JCC) Meeting on 11 June 2014. JICA conducted the Terminal Evaluation in August 2015. Based on the result of the evaluation, the Project was extended to May 2016.
Implementation generally followed the Project Chart which is attached as Attachment GP-1.

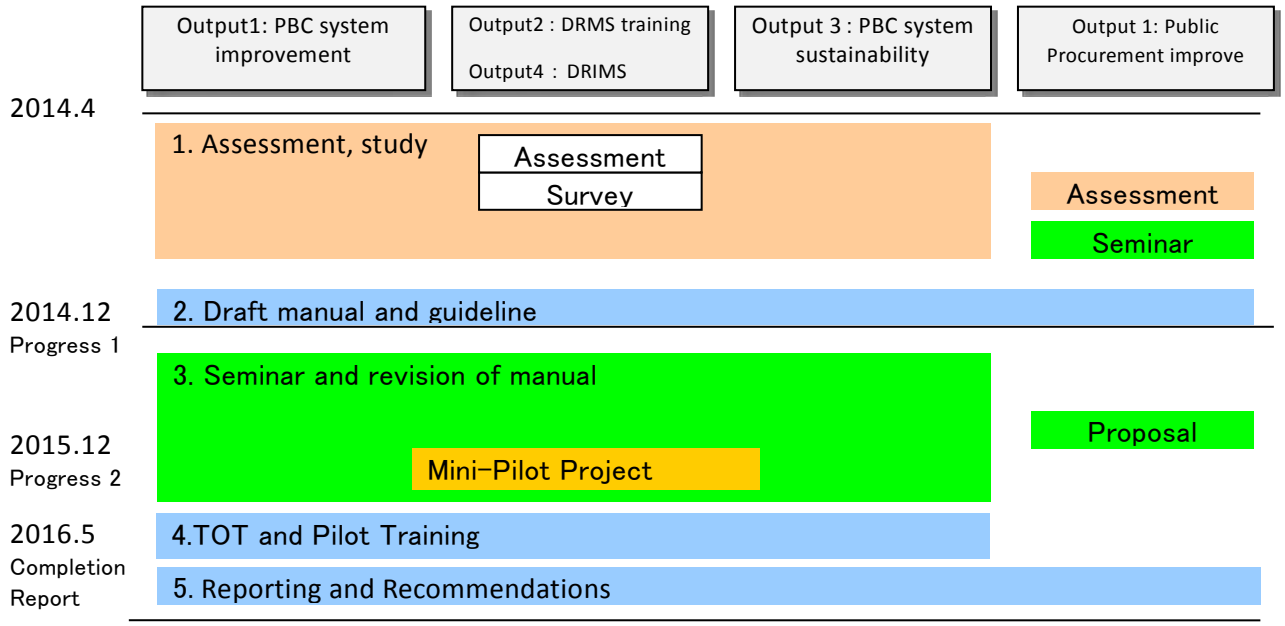


Figure 2-1 Project Implementation Schedule

Following documents are attached to the Appendices:

① Project Flow Chart (Attachment GP-1)
② Work Plan (Attachmnet GP-2)
③ Person Month Plan and Actual (Attachment GP-3)
④ List of Equipment Procured (including Handover Certificate) (Attachment GP-4)
⑤ Minutes of JCC Meeting (Attachment GP-5)
⑥ Minutes of TOT (Attachment GP-6)
⑦ List of the certified engineers in PBC training (Attachment GP-7)

Following are the project deliverables:

① Performance Based Road Maintenance Contract Guideline
② Cost Estimation Manual for Performance Based Road Maintenance Contract, Vol. 1
③ Cost Estimation Manual for Performance based Road Maintenance Contract, Vol. 2
④ Cost Estimation Manual for Performance based Road Maintenance Contract, Vol. 3
⑤ COSTES2015 (Cost estimation system)
⑥ TOT lecture material

The major outputs of the Short Term Expert Team are the following. Detailed activities are described in the following chapter.

1. Reports and Guidelines
   Submission and approval of the Work Plan (6 June 2014)
   PBC Survey Report (15 Oct 2014)
   PBC Guideline (December 2015)
   PBC Cost Estimation Manual, Ver. 1 (December 2015)
2. Seminar and Workshop
   #1 DRIMS Seminar (10-12 Sep. 2014)
   #2 DRIMS Seminar (3-5 March 2015)

   PBC Seminar (1 Oct 2014)
   #1 Cost Estimation Sub-Working Group (17 Sep 2014)
   #2 Cost Estimation Sub-Working Group (30 Sep 2014)
   #3 Cost Estimation Sub-Working Group (10 Dec 2014)
   #4 Cost Estimation Sub-Working Group (20 Apr 2015)
   #5 Cost Estimation Sub-Working Group (31 Jul 2015)
   #6 Cost Estimation Sub-Working Group (11 Sep 2015)

   #1 PBC Guideline Sub-Working Group (5 Dec 2014)
   #2 PBC Guideline Sub-Working Group (5 Mar 2015)
   #3 PBC Guideline Sub Working Group (2-5 Jun 2015) *
   #4 PBC Guideline Sub Working Group (20-24 Jul 2015) *
   * in Naivasha in retreat style

   #1 Seminar on Public Procurement for the Maintenance Operation (28 Oct 2014)
   #2 Seminar on Public Procurement for the Maintenance Operation (17 Sep 2015)

   #1 TOT Master Trainee Working Group (14-16 Sep 2015) *
   #2 TOT Master Trainee Working Group (5-9 Oct 2015) *
   #3 TOT Master Trainee Working Group (23-27 Nov 2015) *
   * in Naivasha in retreat style

3. PBC and Cost Estimation TOTs (Training of Trainers)
   On cost estimation survey (29 Sep to 19 Oct 2015)
   #1 PBC mainly on theories (11-15 Jan 2016) *
   #2 PBC mainly on field training (1-5 Feb 2016) **
   Pilot Training focused on RA (22-26 Feb 2016) **
   * in Naivasha in retreat style
   ** in Nakuru in retreat style
4. Others
   Mini-Pilot Project Implementation (26-27 Jan. 2015)
   Monitoring in Mini-Pilot Project (Feb 2015 to Feb 2016)

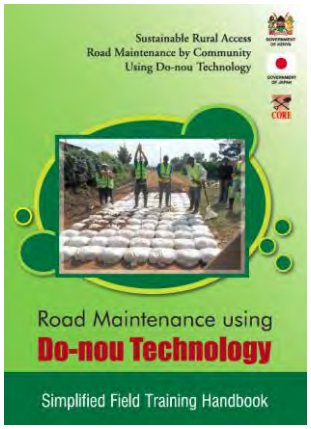
Six sub-working group meetings and four sub-working group meetings have been held for the Cost Estimation Manual and the PBC Guideline, respectively. The meetings were conducted by the retreat style for a week, so that intensive discussions among working group members were made possible. Proofreading of the draft was conducted from September to October 2015. Printing was completed by the end of December 2015.

The Mini-Pilot Project was conducted during the Project for introducing onsite road repair methods: 1) Lane marking; 2) Reflector and Solar type road studs; 3) Ready pack cold mix asphalt for urgent pavement repair; and 4) Dono (soil bag method) method, were presented. Lane marking and road studs were applied to the Nairobi Western Ring Roads which was constructed under the Japanese Grant Aid Scheme. Installation was contracted to Maslows Corporation, a local Kenyan firm. For the Dono method, technical advice was given by Messrs CORE during implementation. Messrs CORE is a non-governmental organization based in Nairobi. The pilot project was monitored for a year during the Project.

The details of Messrs CORE are as follows:
Community Road Empowerment (CORE)
Kiyoshi Kita, CEO

Address: Nairobi Office: P. O. Box 19539-00202 KNH Nairobi
Lenana & Wood Avenue Junction 51, A2
Tel: 0787 650926

Website: www.corekenya.org
E-mail: corekenya@yahoo.com



With regard to DRIMS, two seminars inviting DRIMS operators were held. Lecture and technical advices were provided by Dr. Nagayama of Tokyo University, a member of the Short Term Expert Team, and instant feedback and improvement were welcomed by the participants.

3. Output 1: The maintenance operation system associated with the performance-based contract (PBC) is improved and implemented effectively and as a result, the actual state of roads is improved.

3.1 PBC Guidelines

(1) 1-1 Evaluate the results of pilot projects under performance-based contract (PBC) implemented during Phase 1 and make recommendations for improvement

The Project surveyed four (4) RAs and twenty (20) contractors involved in PBC to assess the current implementation condition of PBC in Kenya. The survey was done by the interview method. The draft survey report was submitted to NWG on 15 October (See Attachment GP-7). The result was presented in the Workshop held on the 1st of October 2014 as well.

1) Current situation of PBC in Kenya

In Kenya, PBC was introduced for road maintenance service in 2011. The length of service expanded to 1732.5 km in 2015. Among four (4) RAs, KeRRA set the pace with the longest distance. AFD is supporting the small scale contractors under KeRRA to PBC.

Table 3-1 PBC Contract Evolution of Road Maintenance in Kenya

PBC Contract in Kenya (in km)

	FY11/12	FY12/13	FY13/14	FY14/15
KURA	14.3	73.5	177.7	638.2
KeNHA		0.0	283.8	374.0
KeRRA		216.0	371.1	358.3
KWS		39.4	39.4	362.0
Total	14.3	328.9	872.0	1,732.5

PBC Contract in Kenya (nos of contract)

	FY11/12	FY12/13	FY13/14	FY14/15
KURA	1	2	5	27
KeNHA		0	5	8
KeRRA		27	45	33
KWS		1	1	7
Total	1	30	56	75

Table 3-2 PBC Coverage against Total Road Network

	Network length	PBC(km)	%	nos
KURA	12,549	638.2	5.1%	27
KeNHA	13,687	374.0	2.7%	8
KeRRA	130,067	358.3	0.3%	33
KWS	4,583	362.0	7.9%	7
Total	160,886	1,732.5	1.1%	75

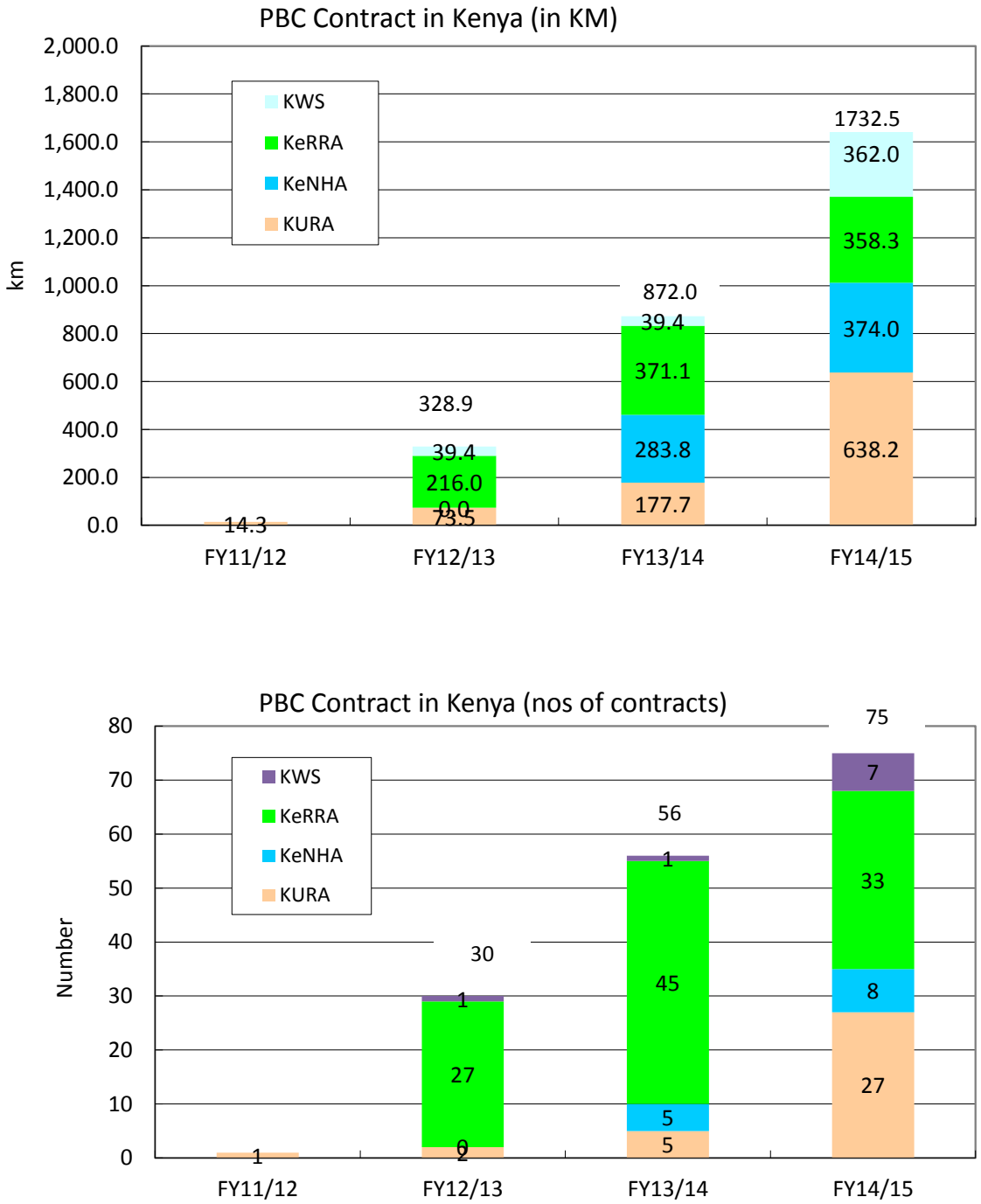


Figure 3-1 PBC Contract Evolution of Road Maintenance in Kenya

2) PBC Survey

The outline of the survey result is shown below. The survey covered 55% of the length and 35% in the number of all PBC contracts (Table 3-3). Surveys were conducted in June and July 2014 when most of the contracts were still at the Initial Mobilization Period (IMP) or just completed IMP (Figure 3-2). All of the RAs utilized PBC; however, KWS had only one (1) contract.

In current contracts, the scope of PBC is normally limited to off-carriageway maintenance which can be performed by the labor-based method without use of major equipment. A pilot project which includes carriageway maintenance using major equipment is being conducted by KeNHA as an exception (Table 3-4). The reasons are 1) capacity of contractors: PBC contractors are generally small scale contractors; 2) difficulty of prediction of pavement deterioration; 3) costwise reason. The pavement repair falls under an instructed work in most of the cases.
In terms of contract documents, KeNHA, KURA and KWS all possess contract documents developed using the standard PBC tender document. However, KeRRA developed more simplified contract documents in order to cater towards small-scale contractors. According to a KERRA manager, simplified documents made contractors more motivated to participate in PBC tenders. In addition, R2000 under KIHBT Kisii had PBC training programs supported by AFD.

Table 3-3 PBC Survey Coverage

	PBC total (FY13/14)		PBC survey			
	km	contract	km	%	contract	%
KeNHA	283.8	5	123	43%	3	60%
KURA	183.7	6	184	100%	6	100%
KeRRA	371.1	45	137	37%	10	22%
KWS	39.4	1	39	100%	1	100%
	878	57	483	55%	20	35%

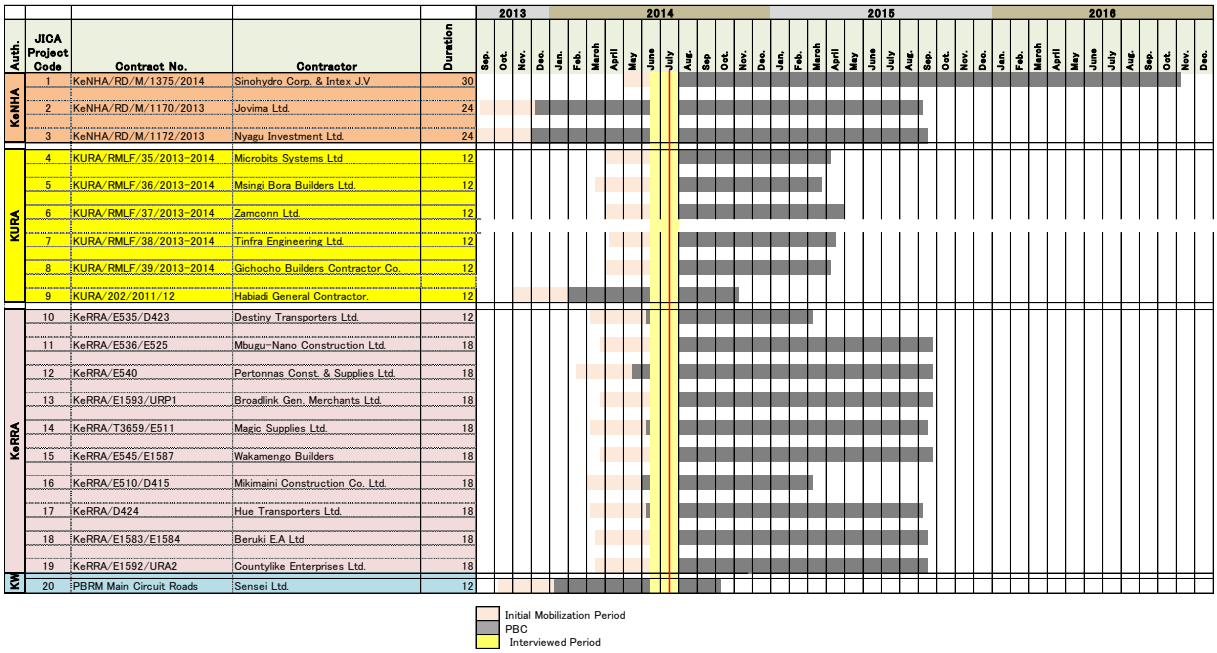


Figure 3-2 Contract Period and PBC Survey Timing

Table 3-4 PBC Standard Scope of Each RA

Scope of Services to be provided under PBC

	KeNHA		KURA		KeRRA		KWS
1	Inspect road, identify and remove all obstructions	1	Inspect road, identify and remove all obstructions	1	Inspect road, identify and remove all obstructions	1	Inspect road, identify and remove all obstructions
2	Maintenance and repairs to carriageway and shoulders						
3	Clear side drains, mitre drains, cut-off drains	2	Clear side drains, mitre drains, cut-off drains	2	Clear side drains, mitre drains, cut-off drains	2	Clear side drains, mitre drains, cut-off drains
4	Repair and replace scour checks	3	Repair and replace scour checks	3	Repair and replace scour checks	3	Repair and replace scour checks
5	Repair eroded ditches	4	Repair eroded ditches	4	Repair eroded ditches	4	Repair eroded ditches
6	Clean cross-culverts, access culverts, outlets and inlets	5	Clean cross-culverts, access culverts, outlets and inlets	5	Clean cross-culverts, access culverts, outlets and inlets	5	Clean cross-culverts, access culverts, outlets and inlets
7	Headwall repairs	6	Headwall repairs	6	Headwall repairs	6	Headwall repairs
8	Clear stream Channels	7	Clear stream Channels	7	Clear stream Channels	7	Clear stream Channels
9	Vegetation control; grass slashing, bush clearing and tree pruning	8	Vegetation control; grass slashing, bush clearing and tree pruning	8	Vegetation control; grass slashing, bush clearing and tree pruning	8	Vegetation control; grass slashing, bush clearing and tree pruning
10	Maintenance and minor repairs to bridges	9	Maintenance and minor repairs to bridges	9	Maintenance and minor repairs to bridges		
11	De-silt drifts			10	De-silt drifts		
		10	Road furniture maintenance				
		11	Replacement of damaged chainage markers				

Service common to 4 road authorities

Service only under single road authority

Service under 2 road authorities

Lessons learned from the PBC survey are summarized below. PPT of the workshop is to be referred for details

- In general, performance of contractors under PBC is satisfactory as rated by RAs.
- Although improvement is required, minimal safety measures are adopted onsite for workers in most of the projects underway.
- Inadequate structure design（e.g. culvert pipes of φ450mm), damage by traffic accident, illegal dumping and illegal encroachment are common challenges for PBC implementation.
- Most of the contractors feel that a 12 months contract period is too short to put into practice what they had learned at the project onset. Longer contract periods and longer contract lengths are strongly requested by the contractors for contract improvement.
- Creation of specific registration category for PBC is recommended to obtain a wider acceptance of PBC.
- At the completion of contract, contractors should be evaluated for their overall performance. Contractors with favorable evaluation result should have an increased opportunity for future contracts.
- It was noted that there is no standard form and inspection system.
- Works required to achieve satisfactory service levels during IMP are much more than anticipated by contractors forcing cashflow shortage.
- In general, RAs and contractors feel that the current performance specification is realistic.

The Government of Kenya has a plan to have 10,000 km paved roads constructed by 2020. Accordingly, in 2020, it is expected that the road length under PBC will increase from 1,000 km to 13,000 km which is equivalent to 1,800 million KSH to 23,400 million KSH increase in monetary terms (Figure 3-3). Road maintnance under PBC has a big potential to become one of the big markets in the construction business.

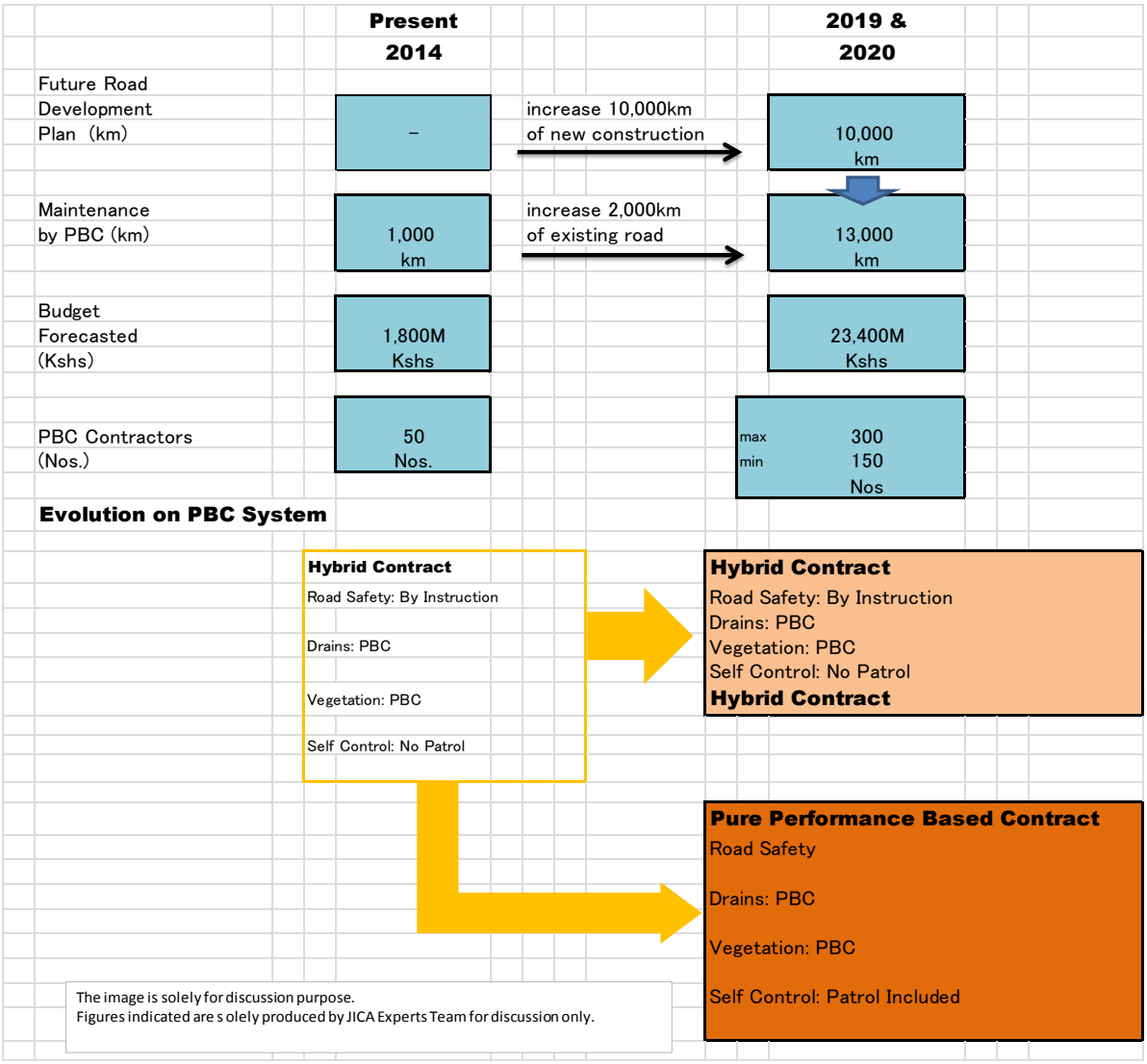


Figure 3-3 Expected PBC Market Growth

(2) 1-2 In order to support the implementation of PBC, set several performance levels of road maintenance operation according to the road facilities and conditions, and draw up the specification guideline for PBC

The draft PBC Guideline has been prepared by the Short Term Expert Team on the basis of the PBC Survey, an additional survey by experts and interviews with members of RAs. This draft was presented at the 24th NWG Meeting held on 15 October 2014 and an additional revision was made in December 2014 following interview with members from 4 RAs and 4 contractors. It was then agreed that the draft would be summarized into a PBC guideline consisting of 4 sections; namely, (1) Service Level Setting; (2) Work Management; (3) Service Level Inspection; and (4) Contractor's Evaluation, and a cost estimation manual (For PBC Guideline, refer to Table 3-5). The PBC Guideline follows the basic PDCA cycle required for proper road maintenance as illustrated in Figure 3-4. It was then further agreed that the cost estimation manual should be

developed into a form of cost estimation system for supporting the actual cost estimation operation.

Table 3-5 Contents of PBC Guideline

Sections	Contents	Remarks
Introduction	Outline of performance based onctracts on road maintenance in Kenya, Objectives and others	
Part 1: Service Level Setting for PBC	Standardized service levels	
Part 2: Work Management under PBC	Self Control Unit (SCU) and work management under SCU.	For contractors
Part 3: Service Level Inspection under PBC	Inspection methodologies	
Part 4: Contractor's Evaluation	Evaluation of performance for contractors	
Appendix	Templates and forms	

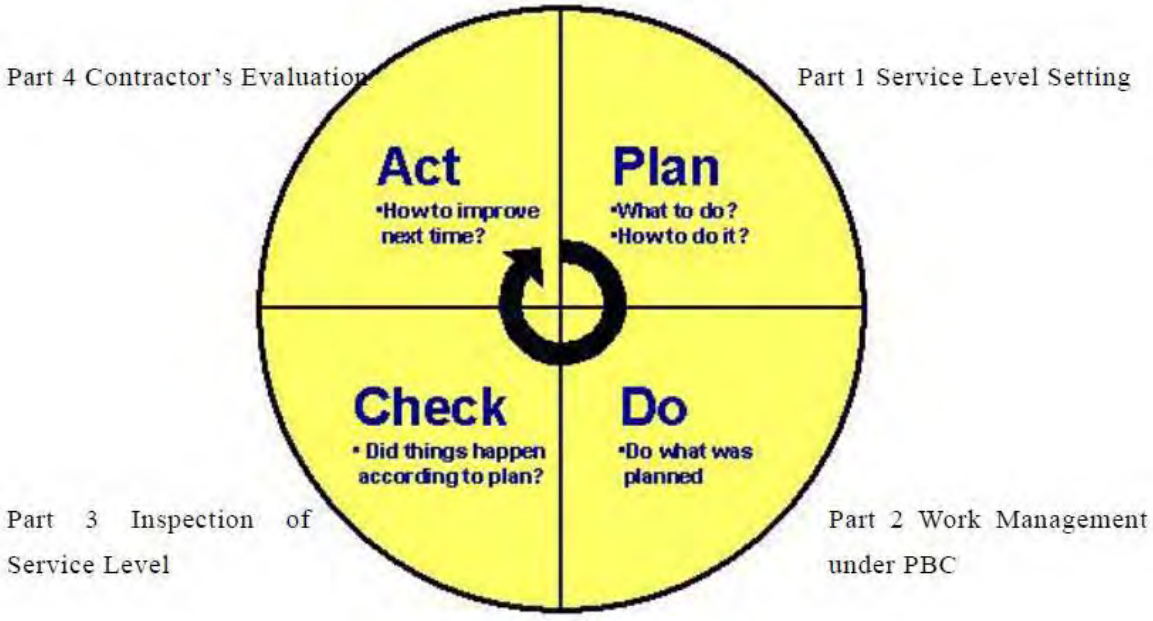


Figure 3-4 Guideline and PDCA Cycle

A simpler set of service level without consideration for traffic volume and road type had been in use in Kenya. The new PBC guideline introduces the draft service level table categorized into 4 levels by annual average daily traffic volume and road types as indicated in Table 3-6.

Table 3-6 Draft Service Level Table

Road Type	Paved		Unpaved	
Annual Average Daily Traffic Volume	High	Standard	High	Standard
	More than 50,000 vpd	Less than 50,000 vpd	More than 500 vpd	Less than 500 vpd
Service Level Category	High	Standard	High	Standard

Note: vpd – vehicles per day

The service category is now split into 3 categories in lieu of the previous 2 as in Table 3-7 . The summary of Standard Service Levels is indicated inTable 3-8 . Finalization of service category, service scope and service levels has been the fruitful achievement of discussions among PBC Guideline sub-working group members and participants from other donor agencies such as AfD, KWF and EU involved in road maintenance projects.

Table 3-7 Service Level Categories

	Previous Issue	Based on Project
	Standard Tender Document for Procurement of Road Maintenance Works under Performance Based Term Contract, November 2011	Guideline for Road Maintenance under Performance Based Contract, October 2015
1	Road Safety	Road Usability
2	Durability	Road User Comfort
3		Road Durability

Table 3-8 Standard Service Levels (Summary)

Category	Service Scope	Service Criteria (Paved Road)		Service Criteria (UnPaved Road)	
Road Usability	**A)Road Usability**	1	Passability	1	Passability
		2	Road Works Advance Warning Signs	2	Traffic Regulatory Control Signs
		3	Roughness	3	Roughness
				4	Average Traffic Speed or Roughness
				5	Minimum Traffic Speed
Road User Comfort	**B) Pavement, Shoulders and ROW for Paved Roads (P-B-1) & Unpaved Roads (UP-B-2)**	1	Road Cleanliness	1	Road Cleanliness
		2	Potholes	2	Corrugation depth
		3	Cracking in flexible Pavement	3	Rut Depth
		4	Multiple cracks in the pavement	4	Potholes
		5	Rutting		
		6	Ravelling		
		7	Loose pavement edges		
		8	Height of shoulders vs. height of pavement		
		9	Paved shoulders		
		10	Cracks in Concrete Pavement		
		11	Interlocking Block Pavement		
		12	Medians		
Road Durability	**C) Drainage**	1	Side Drains, Mitre Drains and Cut-off drains (lined)	1	Side Drains, Mitre Drains and cut-off drains (lined)
		2	Side Drains, Mitre Drains and Cut-off drains (unlined)	2	Culverts and Access Drifts
		3	Culverts and Access Drifts	3	Scour Checks, gabions and other erosion protection structures
		4	Scour Checks, gabions and other erosion protection structures		
		5	Manholes and Gulley pots		
	D) Vegetation	1	Vegetation free zone	1	Vegetation free zone
		2	Outer/inner vegetation	2	Outer/inner vegetation
		3	Growth encroaching into vegetation free zone from the side or top	3	Growth encroaching into vegetation free zone from the side or top
		4	Trees within ROW	4	Trees within ROW
	E) Structures	1	Concrete structures	1	Concrete structures
		2	Steel structures	2	Steel structures
		3	Bridge expansion joints	3	Riverbeds
		4	Riverbeds		
	F) Road Furniture	1	Warning signs/Mandatory signs	1	Warning signs/Mandatory signs
		2	Information signs, Edge marker posts, Guide posts, Kilometer posts	2	Information signs, Edge marker posts, Guideposts, Kilometer post
		3	Traffic signals	3	Guardrails and Pedestrian rails
		4	Street Lighting		
		5	Road Markings/Road studs		
		6	Guardrails and Pedestrian rails		
	G) Profile and Road width			1	Gravel Thickness
				2	Camber
				3	Usable Road Surface Width
	H) Embankment and slopes	1	Embankment slopes	1	Embankment slopes
		2	Slopes in Cuts	2	Slopes in Cuts

(3) 1-3 Draw up the work procedure guideline for the contractor's PBC implementation in order to secure the performance level of PBC

The Short Term Expert Team identified that, in order to have a successful PBC project, the importance of the Self Control Unit (SCU), a unit to be established by the contractor for monitoring and identifying the level of road maintenance, cannot be overexagerated. The PBC

Guideline presents the standard organizational setup of SCU and how it should be operated, together with the safety control required to be implemented onsite. The same methodology is adopted in the Cost Estimation Manual and such has been the basis of cost estimation for deriving the cost of SCU.

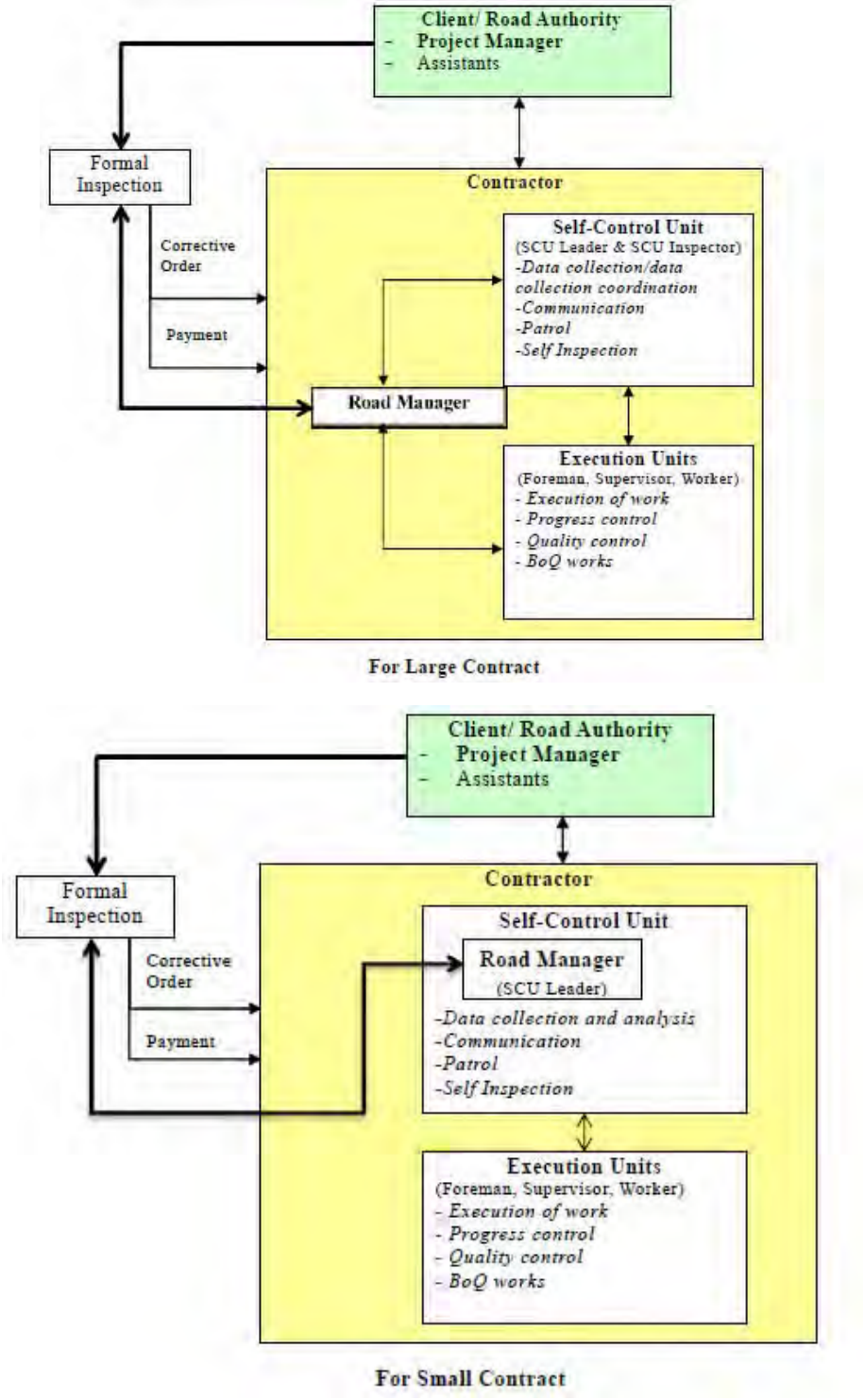


Figure 3-5 Role of Self Control Unit

(4) 1-4 Draw up the evaluation guideline for the evaluation of PBC

Under a PBC project, service level inspection is conducted on a regular basis (generally once a month) to check whether each service level is in compliance or in non-compliance. In case non-compliance is detected, a necessary measure required for payment deduction must be taken against the contractor in charge. In order that systematic inspection is conducted, the PBC Guideline introduces inspection methodologies for the different inspection stages as well as the standardized payment reduction calculation table.

Table 3-9 PBC Inspection and Stage of Inspection

	Inspection	Timing	Inspection location	Purpose	Evaluator	Activity Record/ Form	Method of Measurement
1	Self-Inspection	In accordance with contractor's program	Entire contract road length	(1) Self-monitoring of Service Level achievement (2) Record of activity	Self-Control Unit (SCU)	Self-Inspection Record	Visual Inspection and tools as specified in the contract
2	Ad hoc Inspection	At any time	At any place and section of road/s in the contract	(1) Monitoring of Service Level achievement (2) Advise the Contractor on ways he can improve on performance & address specific matters.	Project Manager, SCU	Notebook Corrective Order	Visual Inspection and tools as specified in the contract
3	Formal Inspection	End of month	Entire contract road/s length	Justification of Monthly Statement	Jointly by the Project Manager and Road Manager, SCU	Formal Inspection Check List Formal Inspection Form Corrective Order	Visual Inspection and tools as specified in the contract
4	Substantial Completion Inspection	One month before the end of the contract.	Entire contract road/s length	Conclude substantial completion of the contract and address outstanding matters	Jointly by the Project Manager and Road Manager	Substantial completion inspection minutes	Visual Inspection and tools as specified in the contract

Table 3-10 Payment Reduction Calculation Table

Appendix 14 Payment Reduction Calculation Table (Paved Road) Sheet

Project	ABC Road PBC Maintenance Project							Contruct Period		24
Road Authority	KeNHA, KURA, KeRRA			Contractor	XYZ Contractor					
Road Name/ Class/ Chainage/ (j)Length	ABC Road					C, D, E, Unclassified, Urban		10+10.00 - 23+5.00		10.0km
Statement Month/ Year and Elapse of Month	September	2014	3	Standard Service Level				High Standard, Fair		
Contract Due Amount of the Month (x)	400,000	KSH								

Service Level Criteria		Compliance			Reduction						
Service	Service Scope	(a) Contract Road Length (km)	(b) Required Target	(c)=(a)*(b) Target Length (km)	(d)=(a)-(c) Exemption Length (km)	(e) Non-Compliant Length (km)	(f)=(e)-(d) (>=0) Adjusted Non-Compliant Length (km)	(f)/(c) NON-Compliant Rate	(g) Reduction Weight	(h)=(f)*(g) Reduction Rate (%)	(i)=(c)x(h) Reduction Length (km)
Documentation		10.0	100%	10.0	-	-	-	1	4%	4.0%	0.40
1. Road Usability	A) Road Usability	10.0	100%	10.0	0.0	2.0	2.0	20%	40%	8.0%	0.80
2.Road User Confort	B)Pavement, Shoulders	10.0	100%	10.0	0.0	2.0	2.0	20%	50%	10.0%	1.00
3. Road Durability	C)Drainage	10.0	100%	10.0	0.0	0.0	0.0	0%	30%	0.0%	0.00
	D)Vegetation	10.0	100%	10.0	0.0	6.0	6.0	60%	30%	18.0%	1.80
	E) Structures	10.0	100%	10.0	0.0	6.0	6.0	60%	20%	12.0%	1.20
	F) Road Furniture	10.0	100%	10.0	0.0	6.0	6.0	60%	20%	12.0%	1.20
	G) Profile and Road Width (unpaved)	Not Applied									
	H) Embankment and Slopes	10.0	100%	10.0	0.0	2.0	2.0	20%	6%	1.2%	0.12
									(j) Total =	65.2%	6.52
										200%	

Required Target			
Elapse of Month	1. Road Usability	2. Road User Comfort	3. Road Durability
1	50%	50%	50%
2	100%	75%	75%
3	100%	100%	100%
4	100%	100%	100%
5	100%	100%	100%
6	100%	100%	100%
7~	100%	100%	100%

Calculation of the Payment Amount of the Month

Contract Due Amount of the Month	KSH	400,000	(x)
Reduction Rate	%	65%	(j)
Reduction Amount	KSH	260,800	(z)=(x)x(i)
Payment Amount of the Month	KSH	139,200	(y)=(x)-(z)

A14-1

(5) 1-5 Participate in monthly inspection meetings and make some recommendations for the improvement of the PBC maintenance operation.

The Short Term Expert Team participated in monthly inspection/final inspection on the Eastern Bypass Project and confirmed the condition and status of how inspection was carried out. The outcome from such review is reflected in the interview result of (1) as well as the PBC Survey Report. Challenges and action identified during the review and reflected in PBC Guideline are listed in Table 3-11.

Table 3-11 Challenges and Action Identified in Review and Reflected in PBC Guideline

Challenges	Details of Challenges	Action
Site Identification	Kilometer marking (1km) is not available	Marking to be made
Objectivity of Inspection	Visual inspection and objectivity not secured	Inspection items and methodologies redefined
Action on Non-Compliant Issues	Although formal inspection is made on a random basis, when non-compliant issues are repaired, issues are removed from non-compliant sections. Thus, the formal inspection will	If non-compliant issues are detected during Formal Inspection, payment reduction may be imposed. If the result of Formal Inspection is not satisfactory, supplemental

Challenges	Details of Challenges	Action
	result in a clean sheet without any payment reduction. However, in actuality, there remain sections at which non-compliance is witnessed.	inspection maybe called upon. The payment reduction parameter is reviewed and the value is doubled.
Work Management by Contractors	Self Control Unit is not functioning.	Redefination of Self Control Unit
	No record kept.	Templates for work record and photo record prepared.
	Evaluation is not properly performed.	If records are not kept, payment reduction maybe imposed.

3.2 PBC Cost Estimation Manual

(1) 1-6 Monitor and evaluate the cost estimation for PBC and pick up some challenges for formulation of the cost estimation manual for PBC

This activity was to develop a cost estimation manual of PBC work for RAs.
Identified challenges on cost estimation are the following:

- The gap between the Engineer's Estimate and the offered price by a contractor is very large.
- The offered price may range a few times to several ten times higher than the Engineer's Estimate.
- Importance to educate the contractors on PBC contract system and costing.
- The importance of scientific way of cost estimation is recognized in Phase 1. However, use of the cost estimation manual remain very low.
- One of the reasons for the above is that the methodology of updating and setting of parameters are not fully understood.

(2) 1-7 Conduct general cost investigation about the actual condition of PBC works

The local staff is in charge of this task. The Short Term Expert Team with the support of the local staff conducted the price survey involving 20 contractors inquiring breakdowns of the cost (direct cost, indirect cost, overhead and profit margin) and required work inputs to clarify breakdowns for each PBC work item.

- The methodology of price survey and work inputs survey can be used for future updating of the manual.
- PBC projects attract heavy competition (more than 10 contractors) . It forces contractors to price only competitively to beat others and most of the time not scientifically.
- Cost management by contractors is not proper most of the time and no clear breakdown is obtained.

- Main core PBC works are essentially conducted by a group of laborers. The cost estimation manual needs to reflect such work practice.
- Six Major Labor-Based Works are selected as shown in Table 3-12 which are the main core work items for the off-carriageway activity. The cost estimation manual must be developed using such.

Table 3-12 6 Major Labor-Based Works

No.	Item
1	Grass Cutting
2	Cross Culvert Desilting
3	Catch Basin Desilting
4	Lined Side Ditch Desilting
5	Unlined Side Ditch Desilting
6	Carriageway Cleaning

				Item	Cost
4	3	2	1	Total Project Cost (VAT 16% Inclusive)	12=10+11
				Project Cost	10=7+8+9
				Direct Cost	7=4+5+6
				PBC Works	4=1+2+3
				6 Major Labor Based Works under Road User Comfort and Road Durability	1
				Patrol and Self Inspection under Road Usability	2
				Other PBC Works under Road User Comfort and Road Durability	3
				Instructed Works	5
				Haulage Cost	6
				Indirect Cost	8
				Overhead & Profit	9
				VAT (16%)	11

Figure 3-6 Cost Estimation Structure under COSTES2015 for PBC

(3) 1-8 Provide "Draft of cost estimation manual for PBC by execution package type" from the data obtained in 1-7, and assist road agencies in applying it to the PBC procurement.

1) Development of Cost Estimation Manual for PBC

Sub-working group meetings were conducted 6 times for preparation of the cost estimation manual.

The major framework of the manual was developed considering the following three points:

- 1) Include PDCA cycle steps. Manual update (including cost survey) is mandatory (Figure 3-7)
- 2) Manual users must be identified and agreed upon: The manual is composed of three (3) volumes; namely, Vol. 1 for cost estimation administrators to update data such as unit price; Vol. 2 for government cost estimators who actually calculate the cost; and Vol. 3 for private contractors (Table 3-13).
- Development of Cost Estimation System (COSTES): A cost estimation system (software) needs to be developed in line with the manual so that the cost estimation exercise and subsequent updating would not become a heavy burden on users and road administractors.

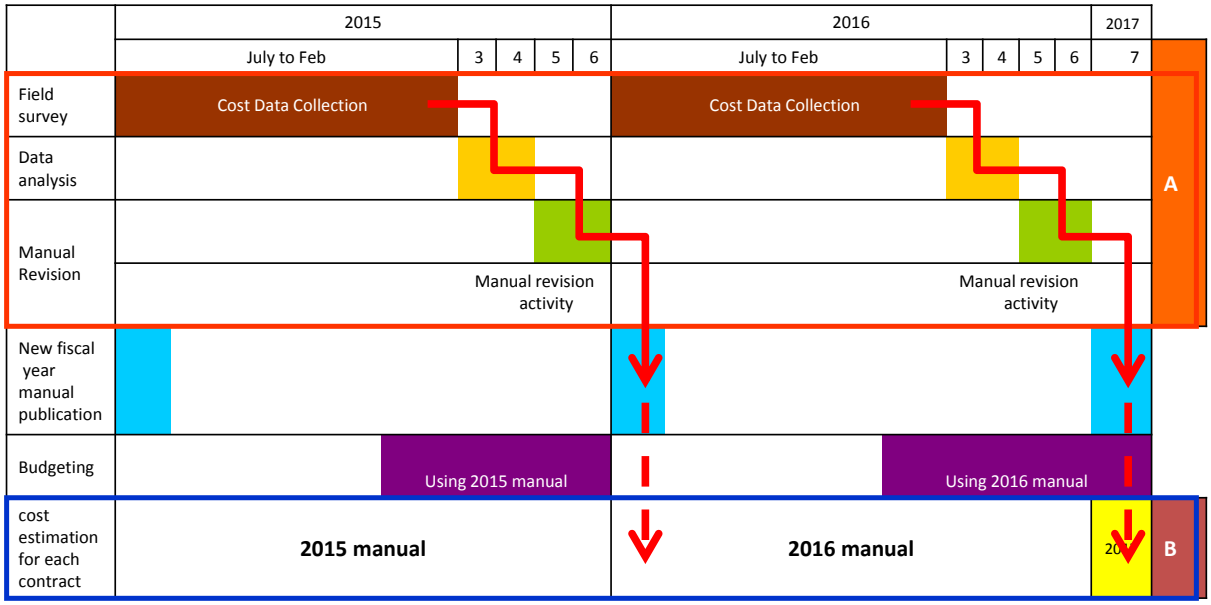


Figure 3-7 PDCA of Cost Estimation Manual

Table 3-13 Volumes of Cost Estimation Manual and Purpose

Vol	Name of Manual	User	Objectives
1	Cost Estimation Manual for Administrators	KRB	1. Cost and Affiliated Surveys 2. Provision of Estimation Parameters 3. Update and Maintenance of Database and Manual 4. How to Revise Vol. 2 and 3
2	Cost Estimation Manual for Government Cost Estimators	Road Authorities and KWS	1. Estimation of Project Cost for Budget Allocation 2. Estimation of Project Cost for Tender
3	Cost Estimation Manual for Contractors	Contractors	1. Estimation of Project Cost

2) Outline of Cost Estimation Method

Cost of road maintenance work consists of Direct Cost, Indirect Cost, Overhead & Profit, and Tax. The contents and cost estimation methods of Indirect Cost, Overhead & Profit and Tax follow COSTES2011 as shown in Table 3-14. Important points for formalization of cost estimation method on other items are shown in the following paragraph.

Table 3-14 Estimation Method of Indirect Cost, Overhead & Profit, and Tax

	Contents	Ratio
Indirect Cost	・ Site Management Cost ・ Site Staff Allowances ・ Site Staff Social Charges ・ General Safety Measures ・ Human Resource Management Cost	Direct Cost × 30%
Overhead & Profit	・ Head Office Management Cost ・ Head Office Staff Salaries and Allowances ・ Cooperate Social Charges ・ Research and Development ・ Advertisement and Publicity ・ Depreciation Costs for Fixed Asset ・ Profit Margin	(Direct Cost + Indirect Cost) × 10%
Value-Added-Tax (VAT)		(Direct Cost + Indirect Cost + Overhead & Profit) × 16%

Direct Cost consists of PBC Works, Instructed Works and Haulage Works. The PBC Works consist of 6 major labor-based works（Grass Cutting, Cross Culvert Desilting, Catch Basin Desilting, Lined Ditch Desilting, Unlined Ditch Desilting and Carriageway Cleaning), Patrol and other PBC works.

The cost estimation method of 6 major labor-based works follows SRUQ (Standard Resource Usage per unit Quantity) method in Japan as well as COSTES2011. SRUQs for 6 major labor based work items have been surveyed and the results are reflected in the Cost Estimation method

introduced in the Manual as shown in 3.1(1). The 6 major labor-based works consist of workers (laborer, supervisor and foreman) and miscellaneous tools needed for maintenance works. SRUQs of supervisor and foreman are computed from SRUQ of labor based on SRUQs ratio of labor, supervisor and foreman (90:3:1). The cost estimation method of miscellaneous tools has been proposed as 5% over the summation of all the laborer, supervisor and foreman cost. SRUQs have been classified in Heavy, Normal and Light condition and they are utilized in initial mobilization, rainy season and dry season, respectively. The SRUQ survey had been also conducted in the same initial mobilization, rainy season and dry season.

Two types of quantification which are Actual and Simple quantity are adopted for cost estimation. Actual quantity is defined as the actual quantity of work and service for each service criteria executed by the contractor to achieve the specified service level; whereas, Simple quantity is defined as the targeted quantity of work and services for each service criteria to be executed by the contractor as per the contract drawings. The accuracy of the cost estimation method by actual quantity is contrarily high, although the quantification of actual quantity is not easy. On the other hand, the accuracy of the cost estimation method by simple quantity is lower than actual quantity method, although the quantification of simple quantity is easy.

Another cost estimation method which is computed from standardized quantity defined by PBC survey and road length is also introduced. The standardized quantities are defined as the average quantity of 6 major labor-based work items per km for each road authority. Simple or actual quantities of 6 major labor-based work items are computed from the road length and the standardized quantities, and the cost is computed by the summation of cost of the 6 major labor-based work items as well as the above-mentioned methods. Comparison of the 3 types of cost estimation method is shown in Table 3-15.

Table 3-15 Comparison of Three Types of Cost Estimation Method

Cost Estimation Method	Input Data	Easiness	Accuracy
Actual Quantity	6 Actual Quantities	Difficult	High
Simple Quantity	6 Simple Quantities	Medium	Medium
Standardized quantity method	Road Length	Easy	Low

Several types of survey method for the cost estimation of other PBC works are introduced, but the actual cost estimation method is not introduced in the manual because the impact of the other PBC works to the total cost is minimal and negligible. The Self Control Unit consists of the SCU leader and the SCU inspector and vehicle (pickup).

Instructed works are defined as the works instructed by the client and the actual cost is to be compensated. Cost is computed from COSTES2011. Haulage cost is the transportation cost for the maintenance works and consists of 2-ton truck and pickup. Outlines of the cost estimation methods are shown in Table 3-16.

Table 3-16 Outlines of Cost Estimation for PBC

			Standardized Quantity Method							Simple Quantity Method					Actual Quantity Method				
			Imput Data	SRUQ-1	Q'ty-1	SRUQ-2	Q'ty-2	Unit Rate	Amount	**Imput Data**	SRUQ-2	Q'ty-2	Unit Rate	Amount	**Imput Data**	SRUQ-2	Q'ty-2	Unit Rate	Amount
			L	**λ1**	Q1= L×λ1	λ2 (**H,N,L**)	Q2=Q1× **CN**×λ2	R	C= Q2×R	**Q'ty (Qac)**	λ2 (**H,N,L**)	Q2=Qac× **CN**×λ2	R	C= Q2×R	**Q'ty (Qsi)**	λ2 (**H,N,L**)	Qsi=Q1× **CN**×λ2	R	C= Q2×R
				Simple or Actual Q'ty						Simple Quantity					Actual Quantity				
Direct Cost (DC)	6 Major Labour Based Work	A Grass Cutting	**Road Length L km**	___m2/km	Qgc	___man/m2	___man	Labor /Forman	Cgc	**___m2**	___man/m2	___man	Labor /Forman	Cgc	**___m2**	___man/m2	___man	Labor /Forman	Cgc
		B Cross Culvert		___m/km	Qcc	___man/m	___man		Ccc	**___m**	___man/m	___man		Ccc	**___m**	___man/m	___man		Ccc
		C Catch Basin		___pcs/km	Qcb	___man/pcs	___man		Ccb	**___pcs**	___man/pcs	___man		Ccb	**___pcs**	___man/pcs	___man		Ccb
		D Lined Side Ditch		___m/km	Qld	___man/m	___man		Cld	**___m**	___man/m	___man		Cld	**___m**	___man/m	___man		Cld
		E Unlined Side Ditch		___m/km	Qud	___man/m	___man		Cud	**___m**	___man/m	___man		Cud	**___m**	___man/m	___man		Cud
		F Carriageway Desilting		___m2/km	Qcw	___man/m2	___man		Ccw	**___m2**	___man/m2	___man		Ccw	**___m2**	___man/m2	___man		Ccw
	Other PBC Works	Potholes Repair, etc	Outstanding Issues																
		Bridge Repair																	
	Patrol & Self Inspection	SCU Leader（1 man）	**___ man**					R	Cpsl	same as on the left					same as Standard Q'ty Method				
		SCU Inspector（0～2 men）	**___ man**					R	Cpsi										
		Pickup(1～2 unit)	**___ unit**					R	Cppu										
	Instructed Works	Road Repair	**Qn**					COSTES 2011	C	same as on the left					same as on the left				
		Soil Excavation	**___m3**						C										
	Houlage	2 ton truck	**___ unit**					Truck/Fuel	C	same as on the left					same as on the left				
		Pickup	**___ unit**					Truck/Fuel	C										
Idirect Cost(IDC)	Indirecr Cost		DC					30%	Cic	same as on the left					same as on the left				
OH & Profit (OHP)	Overhead & Profit		DC+IDC					10%	Cop	same as on the left					same as on the left				
Tax	VAT		DC+IDC +OHP					16%	Cvat	same as on the left					same as on the left				

Note)	SRUQ-1	Standardized Q'ty of 6 major labour based works per km for all road autorities
	SRUQ-2	SRUQ of 6 major labour based works（HNL）
	HNL	H:Heavy (Initial Mobilization)　N:Normal（Rainy Season）　L:Light（Dry Season）
	CN	Cycle number per month

3) Development of Cost Estimation System (COSTES2015 for PBC)

During Phase 1, a cost estimation system (COSTES2011) was developed to calculate the road maintenance cost in Kenya. However, COSTES2011 lost popularity because it could not apply cost fluctuation and could not also be complied with the change of specification.

To improve the situation, a new cost estimation system was developed to improve stability and versatility. In addition, this new system was made compatible with the PBC Guideline and the Cost Estimation Manual. Furthermore, upgrade and data update by Kenyan engineers was taken into account.

During the Project, the new cost estimation system, data administration and method of upgrading the system were taught and the knowledge transferred to appropriate road and system engineers of Kenya. Through the activities, an integrated system which can estimate total maintenance cost was developed. Continuous use of the cost estimation system under PBC is, therefore, expected.

a) Outline of Activities

Transparency is always required for a performance-based maintenance contract. To satisfy this requirement, a new system was developed to realize objective cost estimation with only a minimum amount of information. Compatibility among various category of estimation engineers was likewise considered.

The new cost estimation system was carefully developed under the PBC Guidelines and the cost estimation manuals. As for stability, careful checks were performed because the new system could be used under various types of operation system.

Since it was expected that the field survey will frequently encounter changes in productivity rate and unit prices, the new system has to include these updates. Therefore, the main estimation program and sets of database were separated as the basic system structure. The new database that the data administrators from KRB can update was carefully developed. Furthermore, the new system had to consider the fact that the three players; namely, the data administrators, road authority engineers and contract candidates, will commonly use the system software. Stability, simplicity and security were always taken into account.

A very basic (initial) draft of the system was developed by the first experts dispatched to Kenya in July 2015. The long-term expert's opinions is reflected in that system. Subsequently, a prototype version was developed through trials by the road administrators and contractor candidates in the first dispatch. Various feedbacks were found by the trial use of the system by road administrators. Additionally, a special training course was set for the data administrators or members of KRB.

b) COSTES2015 for PBC

- **Outline of the COSTES2015 for PBC**

During this project, a new system program complying with the basic scheme of cost estimation was developed. Also, a series of user's manual were produced. Technical training courses which are

essential for the technical transfer are presented. The following figure shows the basic scheme of the system and its relationship with the overall project.

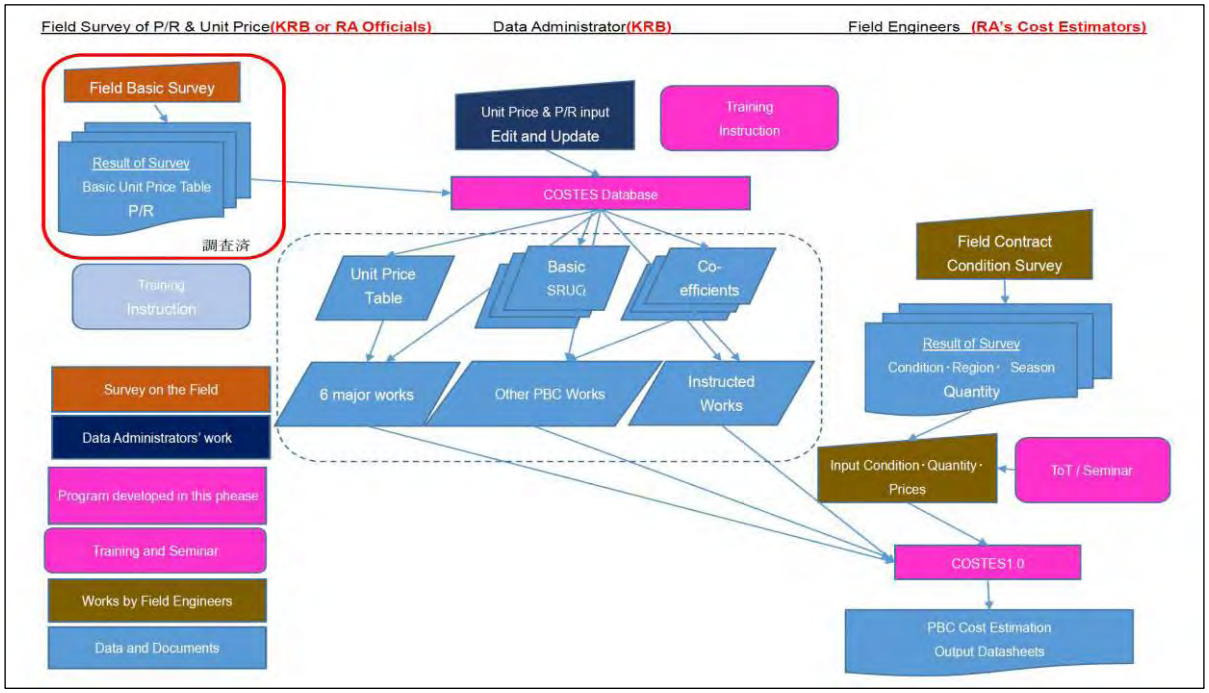


Figure 3-8 Overall Scheme of Work Procedure and Cost Estmation System

KRB has been appointed as the system administrator. Therefore, the cost estimation system is setup for the use of officials of Kenyan RAs and KWS and the contractor candidates, respectively.

♦ **Contents of the COSTES2015 for PBC**

Based on the discussion among the long-term experts and the counterpart officials of Kenya, it was decided that the new system called "COSTES2015 for PBC" is comprised of two bodies. One is a database including basic variables, configuration and unit prices, and the other is a program to generate cost estimation spreadsheets by automatically searching appropriate values specified by user's minimum input.

Additionally, three volumes of manuals; namely, the Administrator's Manual, the Manual for Government Cost Estimators, and the Manual for Contractors, were produced.

♦ **COSTES2015 for PBC: Vol. 1 for Administrators**

The Administrator takes care of the database by registering and editing values obtained by the field survey of unit cost or productivity rate and others. The COSTES carefully considers user's manipulation by gathering entire data such as surveyed unit prices and productivity rates (SRUQ) and other variables into one database file. The database file consists of only essential variables that are fully utilized by COSTES2015 for PBC. The database includes data tables of "Basic Condition classified by Authorities", "Unit Price" "Productivity Rate Set", "List of Other PBC Works", and "Instructed Works".

All data can be registered by the authorities on yearly basis. In addition, the input form is equipped with a quick value check system to avoid mistaken input (Figure 3-9). Since this database file includes

confidential data, the file is secured by a strong pin code. Only appointed officials of KRB can edit the file.

The COSTES2015 for PBC Manual Vol. 1 for Administrators describes the detail of each variable and update guidance. This manual became a part of the Cost Estimation Manual.

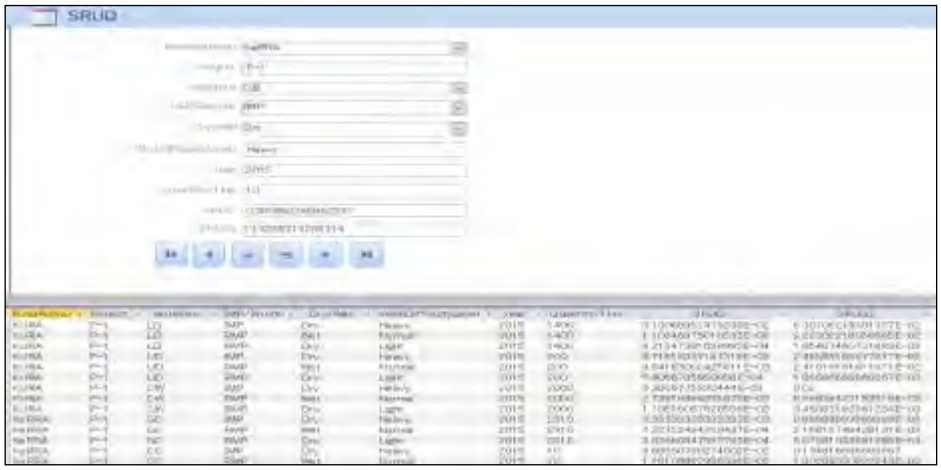


Figure 3-9 Editing Window of the Six Major Labour-based Works

- **COSTES2015 Vol. 2 for Government Cost Estimators and COSTES2015 Vol. 3 for Contractors**

In the Phase 1 project, an initial cost estimation program called COSTES2011 was developed. In the Phase 2 project, a new program named COSTES2015 for PBC was likewise developed. COSTES 2015 for PBC inherits features of COSTES2011, but new features are integrated to improve usability, compatibility, stability, and availability. A schematic outline of the new program is shown in Figure 3-10.

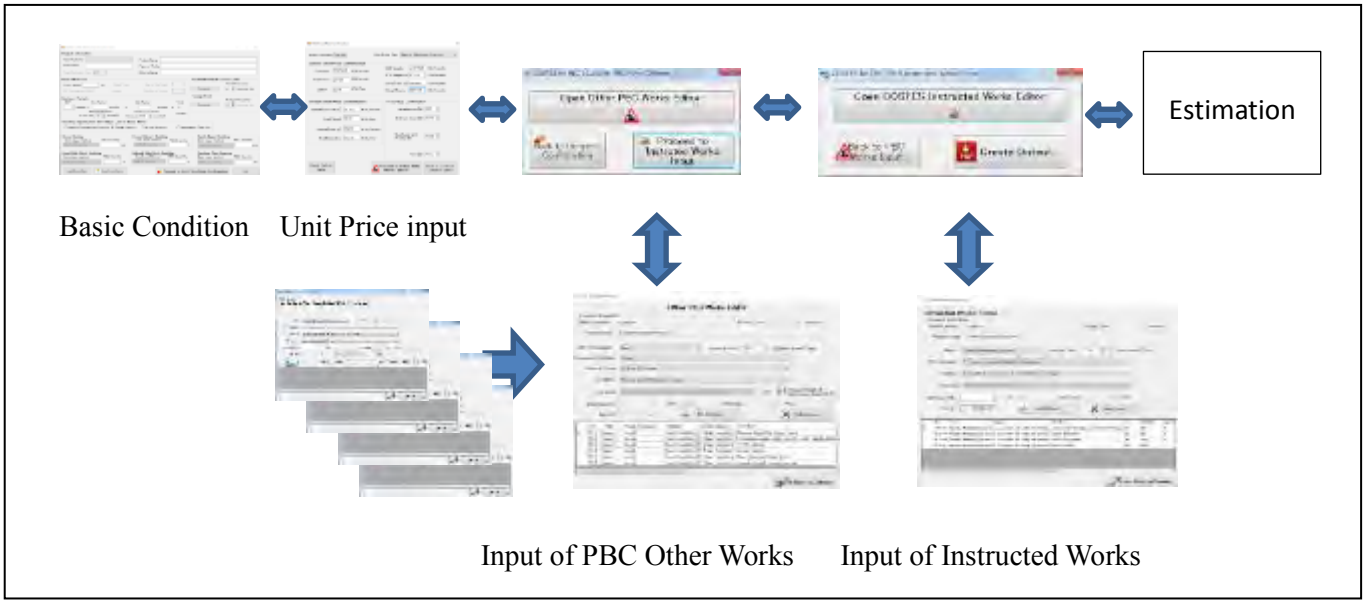


Figure 3-10 Basic Program Flow, COSTES2015 for PBC

- Basic Contract Condition Input

On the Basic Condition Input is the basic contract information (Project Name, Period of dry/wet season, Quantity of six major labor-based works. Members of Self Control Unit (SCU) and Haulage Unit) are registered. Entire input data can be saved to a file and existing input data can be loaded from a file.

- Unit Price Input/Confirmation

After the contract condition input is the user input or the confirm unit prices. CEM has already specified 11 core items and their unit prices. When logging in as a road authority official, default unit price can be called from the database. If the user is a contractor candidate, it is necessary to input all unit prices by himself. In addition, contractor candidate can choose the input method of indirect cost and overhead and profit from either direct price input or input of percentage of direct cost.

- Input of PBC Other Works

In some projects, some maintenance works other than the six major labor-based works might be included. In this case, COSTES for PBC prepared an optional window to edit PBC maintenance works. COSTES for PBC offers a list of Other PBC Works and the user can select the necessary work items and also specify the price input method. Lump-sum price input, unit price input and input of percentage of direct cost of the six major labor-based works are prepared as the price input method.

- Instructed Works Editor

COSTES2015 for PBC is oriented to the cost estimation of performance-based contracts. However, it is well-ordered that the conventional method or specification-based or quantity specified contract, or mixed price input method is possible. To cope with this complicated situation, the COSTES for PBC prepared a window called “Instructed Works Editor” to edit this kind of conventional price input. Since a new database of instructed works has not been established, the database of instructed works’ list used for COSTES2011 is reused. This list is to be replaced based on the latest cost survey.

- Cost Estimation Output

Based on the user input and variables registered in the database, COSTES2015 for PBC automatically generates datasheets of cost estimation. The datasheet format is predetermined and common among road authority estimations and contractor candidate estimations. The PDF type is the default format of this output; however, the data administrator has the option to enable the output in Microsoft Excel format. A sample output is shown in Figure 3-11, which is similar to the Japanese typical cost estimation format.

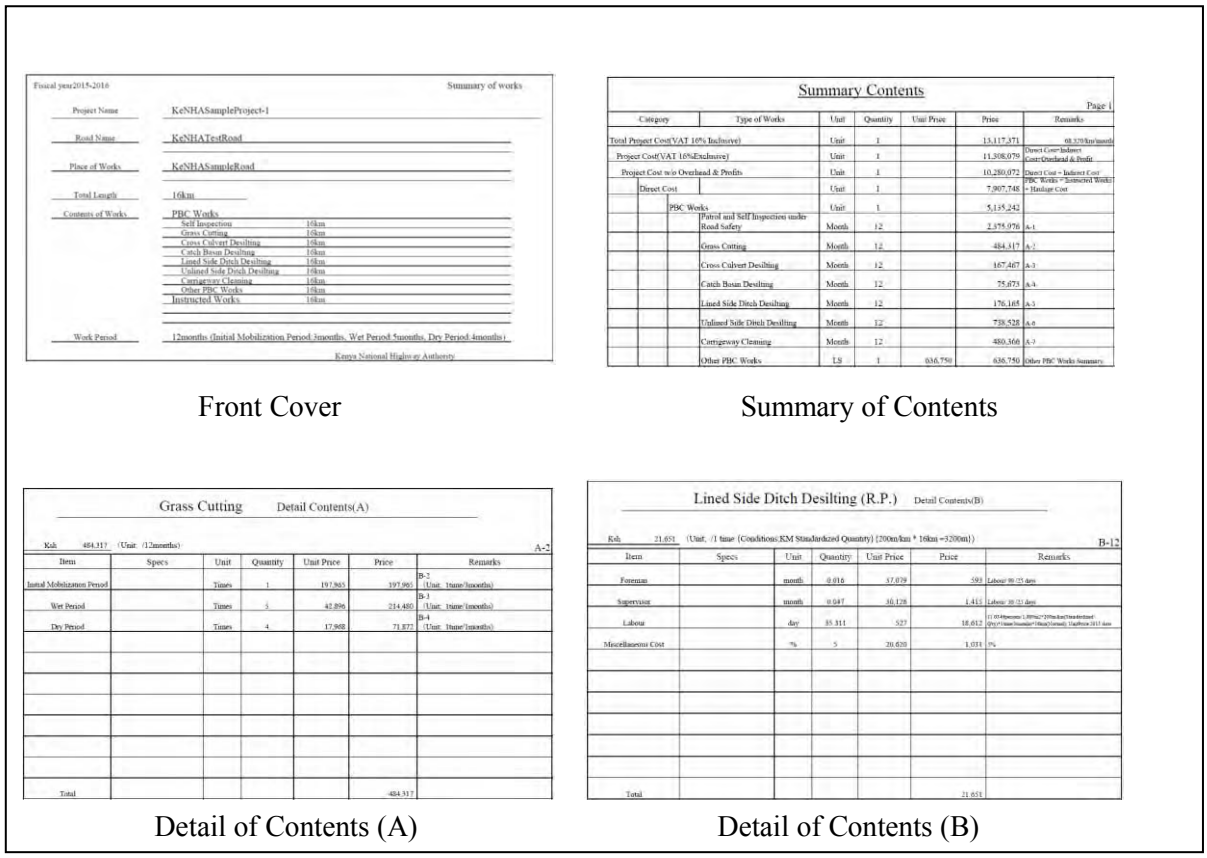


Figure 3-11 Sample Output Form of COSTES2015 for PBC

The User's Manual and Interpretation Guideline of the output cost estimation datasheets is included in the Cost Estimation Manual as "COSTES2015 for PBC".

c) Training Courses of COSTES2015 for PBC and Feedbacks from Training

COSTES for PBC had been brushed up in the technical training and feedback from trainees. Some key events related to this improvement are shown, as follows:

[Until June 2015]

◆ A very basic specification shown in the following was established by tele-conference. Also, it was confirmed that the very basic draft version was prepared before dispatch.

- Fully complied with PBC guideline which is in the making.
- Output format mainly complied with Japanese typical format. Excel output is required.
- Whole variables should be included in separate database file.
- Program file should be compact in order to ensure its usage among various types of computers.

[July 2015 (During Dispatch)]

(System Development)

◆ Based on the discussion with the long-term expert, System Prototype was developed.

① Reality: Prompt application to PBC contracts that are in progress. Major six labor-based works are considered. Both road authority officials and contractor candidates can use the common system.
② Usability: Users can easily check the cost by altering index. Main parameters such as productivity rate and unit price have been prepared as a database.
③ Applicability: Improve estimation accuracy by detail cost survey.
④ Unity: Applying common format that has already been in use in the Hanshin Expressway Company Limited, Japan. Detail contents can be checked by exploring common format.
⑤ Continuity: Inherit conventional cost database used for COSTES2011.

◆ Along the progress of system development, cost estimation method is upgraded by the feedback from the system. Related manuals should be upgraded as well.

(Technical Transfer)

◆ The prototype system has been tested by holding a seminar attended by the counterpart members and road authority officials. In this trial, system stability was checked and some feedbacks regarding the output sheets were collected.

Date	Venue	Technical Experts	Contents
July 20 to 24, 2015	Lake Naivasha	Tsujino, Ikedda, Nakaajima, Uno	Second Retreat on the PBC Guideline
July 28, 2015	KRB	Tsujino, Nakajima, Uno	Introduction and Training using the prototype
July 31, 2015	KIHBT	Tsujino, Ikeda, Uno	Introduction of the prototype system or Cost Estimation Sub-Working Group

Second Retreat (July 20 to 24)

Introduction and trial of the prototype (July 31)

[August 2015 (During Dispatch)]

(System Development)

- Prototype System has been improved based on the feedbacks obtained in July.

(Technical Transfer)

- August 4 in the meeting of the National Working Group: The prototype system was introduced and demonstrated.
- August 6: Detail of the database and the system were introduced to KRB who has been appointed as the data and system administrator. Trial use such as update and management of the database was also carried out.

August 4: Introduction of the Prototype at NWG

August 6: Introduction of the Prototype to KRB

[September and October, 2015]

- Checked the conformity of terms and methodology between the system and manuals.
- Begun the training on productivity rate survey to KRB who will manage cost estimation.
- ToT to KRB who will manage cost estimation. The themes were the Prototype system and the survey of cost estimation.
- October 22: Demonstration and a small training course using the prototype system were held for the technical trainees visiting Japan from Kenya. Some feedbacks related to system performance usability and output format were collected.

[November and December, 2015]

- Prototype system program had been upgraded by fully conforming with PBC Guideline and Cost Estimation Manual.
- Also, Prototype system was upgraded to reflect the feedbacks obtained after August 2015.

[January 2016 (Second Dispatch]]

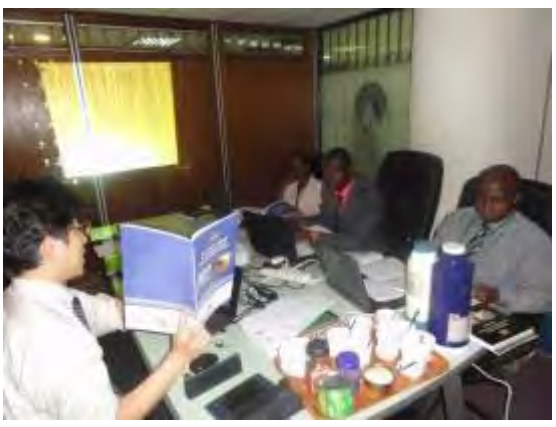
(System development)

- Prototype system of the COSTES2015 for PBC has been upgraded by reflecting every request and feedback by the end of the second dispatch.

(Technical Transfer)

- System development was completed and the name became COSTES2015 for PBC. In the ToT held from 11 to 15 January 2016, the COSTES for PBC was tested by the trainees and it was confirmed that the system worked properly with the trainees' computers.
- The detail of the COSTES for PBC was explained by following the newly released PBC guideline and Cost Estimation Manual.
- A sample problem was given to the trainees and all of them got the same solution.
- On the 19th and 20th, detail contents such as the structure of the database, program routines, program source codes, and some other key facts were introduced to the officials appointed to KRB who will take the responsibility as data and COSTES2015 for PBC system administrators.
- With the training of trainees from RAs and detail technical transfer to the KRB staff or the system administrator of COSTES2015 for PBC, the project for developing the COSTES2015 for PBC was completed.


January 12 and 15, 2015: Seminar and Drill on COSTES2015 for PBC



January 19, 2015: Technical Transfer of COSTES2015 for PBC (FULL SET)

d) Outputs of Technical Transfer

The following contents have been transferred to the Kenyan counterparts:

Series 1 : First Dispatch (until July 2015)

Type	Contents	Target
Documents	Prototype system manual for RAs	Road authority officials Contractor candidates
	Prototype system and database manual for data administrator	KRB
Program	Prototype Software	Attendants of ToT
Database	Prototype Database	KRB
Source Codes	Source codes of the prototype software	KRB

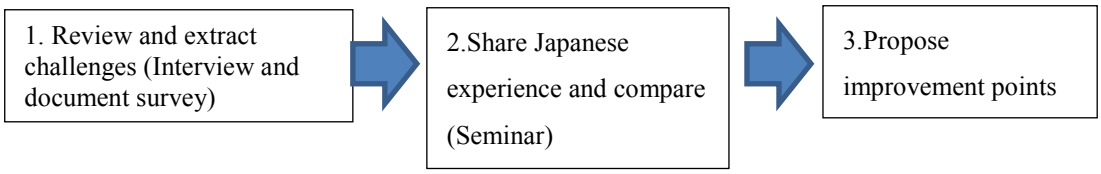
Series 2 : Second Dispatch (until January 2016)

Type	Contents	Target
Documents	COSTES2015 for PBC Manual (incl. in the CEM) Vorlume 1: For Data Administrator; Volume 2: for RAs; Volume 3: for Contractors	Road authority officials・KRB
Documents	COSTES2015 for PBC - Supplemental Documents	Road authority officials
Program Software	COSTES2015 for PBC	Road authority officials・KRB
	COSTES2015 for PBC - Database	KRB
Source codes	COSTES2015 for PBC - Program Source codes (for Data Administrator)	KRB

3.3 Public Procurement for Maintenance Operation

Aiming at improvement of the public procurement system in Kenya, this activity took the following approaches:

- Making use of a Japanese public procurement system based on the viewpoint and experience as road administrator, technical transfer that accorded with the Kenyan system is conducted.
- Keeping consistency with current system especially the Public Procurement ACT in Kenya.
- Developing PDCA cycle on procurement system which enables selection of capable contractor and improves their ability to produce sustainable and self-motivated system.



(1) 1-9 Review the public procurement system for the maintenance operation (mainly tendering system), and support improvement of the system.

1) Current Condition and Challenges

Interview with counterpart entity was conducted. Viewpoints of interview for each entity are listed below.

- PPOA: Overall public procurement system
- NCA: Contractor's registration
- KRB: Contract Evaluation System
- Procuring Entity (KeNHA, KURA, KeRRA): Current condition and challenges on procurement

Information on the current condition and challenges were extracted through interview and document review with respect to public procurement such as Kenyan laws (rules and regulations as well) and contract documents of procuring entities, as follows:

2) General in Public Procurement System

- Basically, in Kenya the open tendering system is applied in contracting according to the ACT. The issue that "excessive competition may lead to low price bidding which is difficult to secure quality of work" is assumed. This situation is mostly acknowledged by the counterparts through the interview.
- However, some evidence of such as correlation between price and quality might be needed.

- Contract data of procuring entities such as contract sum, number of bid respondents, bid acceptance ratio (construct sum divided by engineer's estimation), contract evaluation score shall be monitored.

3) Contractor's registration

- →Contractor's registration class of NCA has recently increased from 3 to 5 (consists of Building, Electronic, Mechanical, Road, and Water).

- →Still more registration class would be needed such as "maintenance".

4) Contractor's information database

- NCA needs to expand the online system in their business. They are interested in "CORINS".

- There is an opinion that information database should better be managed by PPOA since many contract data is assembled in PPOA.

→System of Japanese contract information database named "CORINS" (Construction Records Information Systems) is recommendable. Approach of merging contract data possessed by each authority is needed.

5) Contract Evaluation

- Currently, the "Supervision and Contract Evaluation" Manual developed in the Phase 1 project is not utilized well. Some road authorities execute contract evaluation, but evaluation score is not used in the procurement process. Being considered is fairness between new entry bidders and bidders who have evaluation history because scored contract is still few. In KeRRA, they do not adopt evaluation since the number of contracts is quite large.

- Database of contract evaluation score has already been develop by KRB but not used yet. KRB should have an enforcement policy on the use of database. There is an opinion that NCA is the preferable authority to manage this system.

- →Enforcement of Contract Evaluation System by determining rules of execution (Who is responsible for the evaluation, Which contract should be evaluated, How to use and Who will manage the database) and means of regulating the system such as issuance of Ministry Order are needed.

6) Tender Evaluation

- Open tendering is basically adopted pursuant to the Public Procurement Act of Kenya. Bidder who satisfies the qualification requirement and offers the lowest price is selected as the successful bidder.

- However, technical proposal is accepted in some of the large-scale construction works on "pass or fail bases" and finally the successful bidder is selected based on the price.

- Evaluation of technical capability including quality assurance is usually difficult to be conducted by procuring entity and they tend to avoid it. It is easy to get a complaint from bidders not awarded. Detailed regulation of evaluation is needed for applying such system. Otherwise, the system competing only for price might be taken.

- In international contracts, introducing "Comprehensive bidding evaluation system" (evaluate tender by both price and technical capability) might be good for Japanese enterprise to increase their competitiveness. However, it is difficult to confirm the truth of the application such as experience of the registered engineer, so that the competitor who makes a false declaration might win the contract.

→Propose "Comprehensive bidding evaluation system" by customizing evaluation item and score allocation depending on situation of Kenya.

7) Quality Assurance

- For recent trial, tender is reserved for youth, woman and person with disabilities and difficult to assure quality of work. On the other hand, this kind of contract is mainly for easy work such as bush and site cleaning and considered as no problem for assuring quality.

- Certain level of low price bid or participation of inexperienced person is unavoidable since chance of tender shall be ensured due to the nature of public procurement.

→Propose contract monitoring system such as the Japanese "Low price bid contract monitoring system".

8) Others

- "Cost Estimation Manual" has been developed in the Phase 1 project. Implementation is highly expected but not utilized yet since estimated cost by the manual is much higher than engineer's estimation.

→Contract ceiling price calculated by Cost Estimation gives benchmark of low price bidding and has important meaning on quality assurance. Currently, PBC cost estimation manual is being developed by incorporating the survey result of productivity of PBC contract by the Phase 2 project. Through development of a new manual reflecting market price, it is strongly recommended that the procurement entity should implement Cost Estimation.

Table 3-17 Possible Challenges and Solutions on Public Procurement System in Kenya

Stage in procurement procedure	Possible issue of procuring entity (PE)	Possible solution	System governing entity
Pre-qualification	·Huge number of bidding respondents	·Segmentalize the registration category in contractor's registration ·Share contractor's information online	NCA
Tender evaluation	·Difficulty of selecting qualified contractor ·Low bid because of excessive competition	·Apply evaluation by scouring bid price and technical ability	PPOA
Contract monitoring	·Contract evaluation result is not used for next procurement	·Enforcement of Contract evaluation	MoTI KRB

(2) 1-10 Share the Japanese procurement system and anecdotal experiences for securing public works quality.

1) Comparison of Japanese and Kenyan System

The "Seminar on Public Procurement system in Japan" was held to share the Japanese practice on procurement system in comparison with the Kenyan system. Challenges and possible solutions on the system were discussed with the counterparts.

2) Discussions

a) Public Procurement System in Japan

Q1. In Kenya, a system like "Comprehensive evaluation bidding" is adopted only in the procurement of consultancy services. Is this also adopted in the procurement of construction works in Japan?
A1. It is also adopted in the procurement of construction works in Japan.

Q2. Do you have the authority like the PPOA in Japan?
A2. There is no authority which has the function of PPOA in Japan. Public procurement system is managed by the Ministry.

Q3. What is the countermeasure against corruption?
A3. Suspicion of corruption is reported to the third party monitoring entity and penalty such as suspension of business license is given after confirming the fact of fraud through investigation.

Q4. Is rule of scoring in "Comprehensive evaluation bidding system" provided by Law?
A4. Enforcement of the system is pursuant to the Law but detailed rule of the system is determined by each procuring entity since the Law only stipulates basic concept that "Price and quality should be well balanced."

b) Overall View of Public Procurement in Kenya (PPOA)

(i) Summary of Presentation

- Public procurement hungered in the constitution. Currently, Act 2006 is used. a new act was expected to come into force on 27 March 2015
- Recent changes – variation of contract quantity 15% to 25%
- Evaluation period – 15 days. CEO may approve extension of evaluation period to 30 days depending on complexity of evaluation
- For specially permitted contracts, PPOA give approval

(ii) Comments, Questions and Answers

C1. PPOA should share contents of new act with authorities so that there would be no conflict with use of General Conditions of Contract FIDIC and the Act. The two should work together smoothly in order to avoid arbitration.

Q1 Mandatory requirements such as submission of specified number of copies of bidding documents should not be a major criteria for evaluating contractors. However, the bidders should understand the instructions clearly. Engr. Okeyo cited a case that if a contractor fails to follow instructions in the bidding documents, he may also fail to implement the instructions issued to him during the construction work. The bidders should be educated on how to prepare documents.

A1. It was suggested that bidders should submit one copy of the documents to PPOA so that if there would be complaints of missing/plucked sections, the copy with PPOA would be referred during evaluation. There has been cases in which a tender is discontinued because of missing/plucked sections of documents.

C2. PPOA to provide standard of contract document.

c) Overall view of Contractor's registration in Kenya (NCA)

(i) Summary of Presentation

- Founded under NCA Act 2011
- Role of NCA is building capacity of contractors, issue licenses and accreditation of skilled personnel
- Number of registration classes for "Road construction works" is going to increase
- Registration category for each class – NCA1 to NCA8
- NCA is introducing annual license renewals.
- 30% of foreign contracts must be given to local contractors. This means that 30% of staff including managerial positions must be local staff

(ii) Comments, Question and Answers

Q1. 0.5% levy of construction cost of contracts of more than Ksh 5M is imposed by NCA as construction levy. Engr. Okeyo wondered if this levy is applicable to private construction works and road maintenance?

A1. Levy is applicable to private works and road maintenance works

C1. 0.5% levy of construction construction cost should be capped like in the case of NEMA (National Environment Management Authority).

3) Opinion in Feedback Sheet

a) The most things learned in the topics

- Tender evaluation guidelines as applied in Japan, especially the concept of "acceptable bid ratio".
- The bid acceptance ratio (%) of bidding by a contractor is related to the quality of works that the contractor can deliver.
- Tender evaluation using price score and technical capability
- Contractor's registration in Japan
- Contract evaluation management
- Contract management
- Low price bid contract monitoring
- Transparency in procurement and contracting
- Evaluation of "the process" is important
- Guide on which law to use
- Agreement should be a guide on which law to use.
- Function of NCA
- Class of road construction work
- Generally, use of the right procurement procedure will give the best result.

- In road works, open tendering is mostly used; the evaluation committee should consider not only on the least bid price but technical ability as a key factor.

b) Questions

- Is the PPOA and JICA working together to improve Kenya's public procurement system?
- Can you borrow from these good practices?
- I would like to know more about sanctions applied to non-performing contractors.
- Elaboration of the contractor registration system in Japan and benefit it gives the contractor.
- Resolution of the construction industry in favor of contractor's associations.

c) Suggestions

- PPOA should introduce "contract management" in the law to operate in line with the international conditions of contract (FIDIC). Share the draft law with PE's especially for works (e.g. roads).
- PPOA should emulate the JICA well researched Public Procurement System and carry out research on Kenya's Public Procurement System with a view of improving procurement of contractors for road works/building works.
- Highly advocated is the total adoption of e-procurement in most procurement activities in the government sector, mostly in the road sector.
- Improve on participation to include the county government who also do large procurement
- Technical and cost be the main issue.

4) Summary and challenges

The overall public procurement system in Japan was studied/clarified through the seminar and the challenging issue on the system in Kenya is highlighted from discussion and feedback sheet as follows:

- Elimination of non-performing contractor
- Evaluation of contract performance
- Contract management

PPOA is recognized as main stakeholder of improving procurement system and NCA also tries to improve contractor's registration system. Therefore, improvement points with respect to highlighted issues shall be investigated, discussed and negotiated with relevant organization.

Seminar on Public Procurement System in Japan (28 October 2014)

(3) 1-11 Extract some challenges and suggest improvement points for the public procurement system especially tendering system

- Seminar on introducing Japanese procurement system was held on 28 October 2014. Topics of the seminar included extracted current challenging issues in Kenya according to results of interview from counterparts organization and procurement documents survey to compare Japanese system.
- Through the discussions in the seminar, (1) Elimination of non-performing contractor, (2) Contractor's performance evaluation, and (3) Contract management were highlighted as the issues to be improved.
- According to the scope of improvement, "contractor's evaluation system for PBC maintenance work" was decided to be proposed.
- To propose an evaluation method, concept of the manual "Supervision Checklist and Contract Evaluation Manual for Road Works, 2012" developed by the former project was referred. The system stated in the above-mentioned manual was modified by introducing concept of PBC and reflecting situation of ongoing PBC maintenance work.
- Contractor's performance is evaluated by extent of work requirement level compliance which is checked monthly under PBC. In addition, the check items such as corrective order issuance, safety/environment consideration, and statutory compliance which shall be checked by the client were chosen referring to the above-mentioned manual and scoring rule with these items was proposed.
- The proposed scoring rule was modified through discussion in the PBC guideline working group and incorporated in Part 4 of the PBC guideline. Its basic concept was approved by the National Working Group on 18 March 2015.

- Trial scoring in ongoing PBC maintenance work was conducted. Five works of KeNHA for 12 months and 12 works of KURA for 3 months were selected. The score of some works of KURA was very low; causation can be inferred that the self-control unit did not perform well or work performance compliance was poor. Even though there is a room for discussion on score accuracy since sample number of the work was limited and evaluators were inexperienced on the scoring, this trial result proved that the scoring rule enables us to evaluate contractor's performance relatively.

Table 3-18 Monthly Evaluation Criteria

Scope	Requirement (Pass Criteria)		Fail Criteria
Service Level Compliance	1	Service level compliance is confirmed during formal inspection	Reduction rate for non-compliance to service level by equal or more than 5%
Self-Control Unit Performance	1	Self-control unit is managed by qualified and experienced contractor's staff member	Registered self-control unit member does not inspect their road/s
	2	Self-control unit operates properly	Inspection record is not submitted to the client before formal inspection
Work Safety Management	1	Workers and operators wear proper safety gear	Workers and operators do not wear reflective jackets. Helmet is also needed in case of work using machinery.
	2	Traffic control is conducted properly	No traffic control (in case of work affecting traffic or without proper safety devices (e.g. signboard, cone, flagman) and no tapered edge at the approach
	3	No accident to workers, operators and other staff attributable to the contractor	Worker or operator or other staff is injured and has to be hospitalized for more than or equal to 3 days
	4	No accident to third-parties attributable to contractor	Third-party person is injured or property is damaged (any level of accident is not allowed)
Environment and Social Management	1	Environmental consideration is properly conducted	Mitigation measures against noise, emission, or dust at residential area is not taken and while complaints are received
	2	Waste material generated from the site is properly disposed	Waste material is left at the site
	3	Transportation by vehicles is properly controlled	Overloading , material falling, leakage, or spillage is found
Corrective order	1	No corrective order is issued by authority	No remedy is made for instruction by the client so that corrective order is issued
Statutory Compliance	1	Contractor complies with the relevant statutory regulations	Contractor violates relevant statutory regulations and sanction is enforced

Table 3-19 Evaluation Score Tally Sheet

Item		Monthly Evaluation													(a)	(b)	(c)	(d)	(f)
		No. of month with "Pass=1" in past years	Year (2015)												No. of month with "Pass=1" in total	(a)/ Total month (%)	Weight for each item	Score for each item (b)*(c)	Penalty*1
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec					
1	Service revel compliance														**0**		**50%**	**0**	
2	Self-control unit performance														**0**		**10%**	**0**	
3	Work safety management														**0**		**20%**	**0**	
4	Environment and social management														**0**		**10%**	**0**	
5	Corrective order issuance														**0**		**10%**	**0**	
6	Statutory compliance														**0**				**0**
																		0	**0**
																	Total score	**0**	

*1: Penalty of -20 point is given for non-compliance in equal or more than one month

Table 3-20 Contract Evaluation Trial (Scoring Data of Ongoing PBC Maintenance Work)

Item		1 Service revel compliance	2 Self-Control unit performance	3 Work safety management	4 Environment and social management	5 Corrective order issuance	6 Statutory compliance	Total score
Weight for each item		50%	10%	20%	10%	10%	-20 point at least one non-compliance	100%
KeNHA	KISII-KILGORIS	**50**	**10**	**20**	**10**	**8**	**0**	**98**
	ISIOLO-MERILE	**29**	**10**	**20**	**10**	**6**	**0**	**75**
	GARUA-NADOGO (A3)	**50**	**10**	**20**	**10**	**8**	**0**	**98**
	NJORO-LANET (A104)	**50**	**10**	**20**	**10**	**9**	**0**	**99**
	THIKA ROAD	**25**	**15**	**8**	**10**	**8**	**0**	**66**
KURA (Nairobi)	LOT 1	**50**	**10**	**20**	**0**	**10**	**0**	**90**
	LOT 2	**50**	**10**	**20**	**0**	**10**	**0**	**90**
	LOT 3	**0**	**0**	**0**	**0**	**10**	**0**	**10**
	LOT 7	**33**	**0**	**20**	**7**	**10**	**0**	**70**
	LOT 12	**50**	**0**	**20**	**10**	**10**	**0**	**90**
	LOT 20	**50**	**10**	**20**	**0**	**10**	**0**	**90**
	LOT 21	**50**	**10**	**0**	**10**	**10**	**0**	**80**
	LOT 26	**0**	**10**	**0**	**0**	**10**	**0**	**20**
	LOT 27	**0**	**0**	**0**	**0**	**10**	**0**	**10**
	LOT 28	**0**	**10**	**0**	**0**	**10**	**0**	**20**
	LOT 29	**50**	**0**	**20**	**10**	**10**	**0**	**90**
	LOT 30	**33**	**0**	**0**	**0**	**10**	**0**	**43**

*Data collection period : KeNHA: 12 months, KURA: 3 months

(4) 1-12 Assist the updating of contract evaluation system data as a result of the scores in the completed contracts

- Aiming at promoting utilization of contract evaluation data in procurement system, "Seminar on contract evaluation system for PBC" was held on 17 September 2015.
- In this seminar, importance of contract evaluation, how to evaluate contractors and how to incorporate an evaluation result in the procurement process (incorporate evaluation score in pre-qualification requirement and tender evaluation) were explained.
- In addition, attendants practiced scoring of contractor's using sample case.
- Finally, procurement system improvement including contract evaluation was proposed by confirming rule and relationship between each organization related to public procurement.

Seminar on Contract Evaluation for PBC (17 Sep 2015)

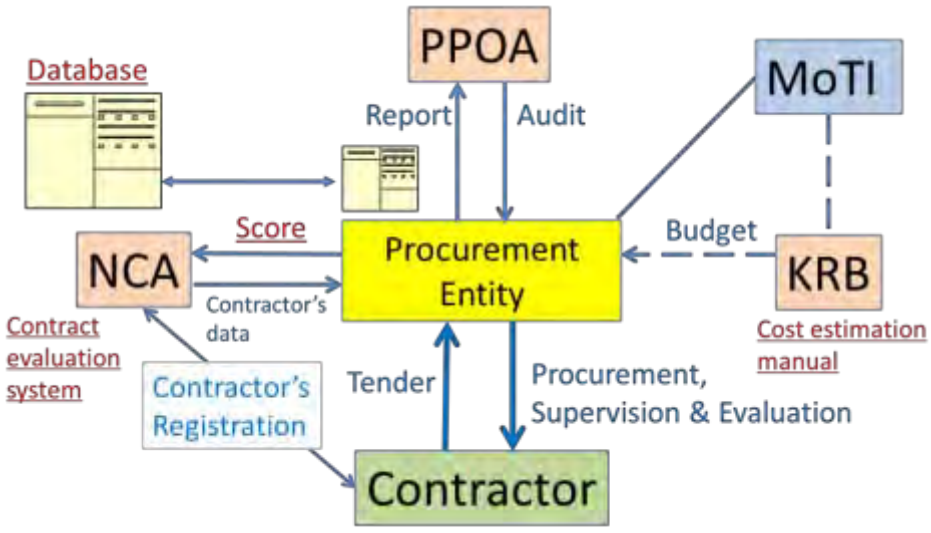


Figure 3-12 Rule and Relationship between Organizations through Procurement Process and Proposed System Improvement

3.4 Others

(1) 1-13 Propose the maintenance and repair method in both paved and unpaved road to improve the actual state of roads, contribute the road safety and alleviate the traffic jams.

1) Implementation of the Pilot Project

The concept of the Mini-Pilot Projec is shown in Figure 3-13. Table 3-21 shows its implementation schedule.

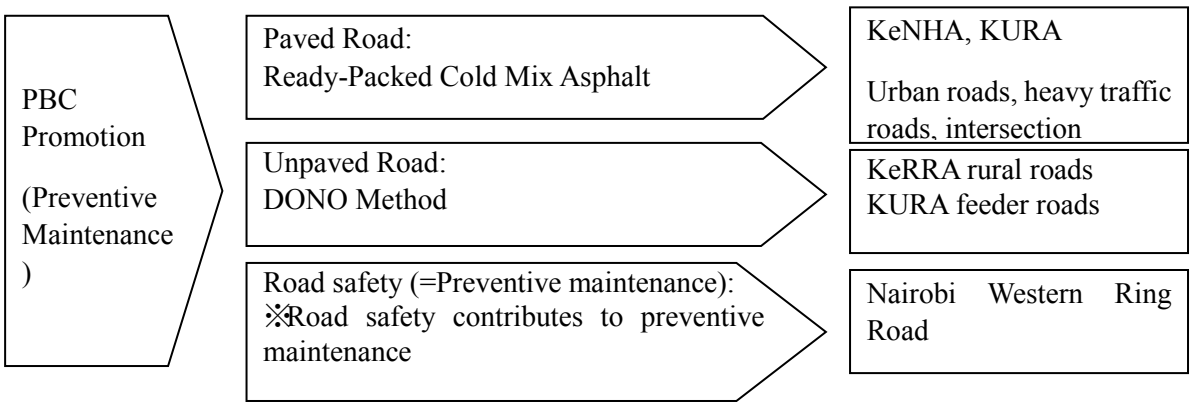
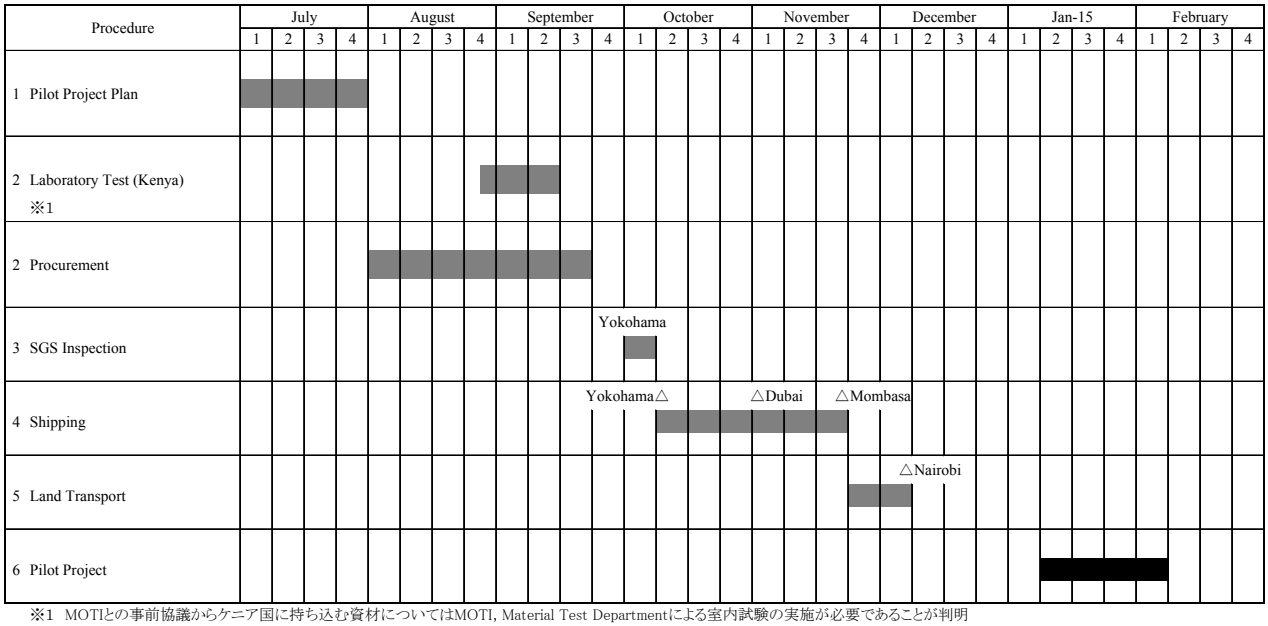


Figure 3-13 Purpose of the Mini-Pilot Project

Table 3-21 Concept of Mini-Pilot Project

Item	Contents	Method	Sites	Date	Quantity
Paved Road	①－1 AC urgent repair (ready mixed cold mix asphalt)	KYPack(ready mixed cold mix asphalt) Imported material from Japan	Ufulu Highway Machakos Road	Feb 25-27, 2015 Mar 3-5, 2015	240 boxes (1 box = 10 bags)
Unpaved Roads	②－1 Dono Method	Technical demonstration and test construction by NGO (Community Road Empowerment)	Shalom House, St. Comboni Road, Dagoretti, Nairobi, Kenya	Jan 27-29, 2015	3 days seminar (10 contractors invited)
Traffic Safety	③－1 Road Studs	Installation of road studs at intersection, sharp curve and humps Installation by Maslows	Nairobi Western Ring Road	Jan 26, 2015～Feb 12, 2015	Solar 50 refelt 100
	③－2 Lane marking	Introduction of 「All weather type thermos plastic lane marking」 To improve visibility of “hums” which widely seen in the urban roads in Kenya	Nairobi Western Ring Road	Same as above	485.9m2

Material Shipping Schedule for the Pilot Project



※1 MOTIとの事前協議からケニア国に持ち込む資材についてはMOTI, Material Test Departmentによる室内試験の実施が必要であることが判明

Figure 3-14 Implementation Schedule of Mini-Pilot Project

2) Monitoring and Effectiveness of Mini-Pilot Projects

Effectiveness was confirmed by monitoring for 1 year after the installation as shown in Table 3-22.

Table 3-22 Effectiveness Evaluation of Mini-Pilot Project

Item	Contents	Effectiveness	Remark
Paved Road	①－1 AC urgent repair (ready mixed cold mix asphalt)	High	This method is effective especially high density traffic roads such as roads in BOD in Nairobi where traffic control is not easy for repair work. This method enables to patch pothole without interruption of traffic. If the products are locally produced, the economical advantage will increase.
Unpaved Roads	②－1 Dono Method	High (maintenance required)	For the implementation, Dono was constructed in three layers considering protection of the road from stagnant water expected in the area. In one year, the Dono embankment was partially damaged by water. Drainage should be correctly constructed.
Traffic Safety	③－1 Road Studs	High (especially busy urban roads, expressway)	All road studs installed were in good condition during the monitoring period. No vandalism or damage. The solar type contributed largely for the drivers to recognize humps and curves or center lines. Especially at night, this made easier to drive and improve traffic safety.
	③－2 Lane marking	High	The product implemented kept required reflection ratio and remaining rate.

3) Press release on the Mini-Pilot Project (from JICA HP)

Japan International Cooperation Agency

Press Release

JICA Kenya Office
Tel: 2775000

Public Relations Department
Fax: 2724878

TO: NEWS EDITOR

TOPIC: ROAD SAFETY MEASURES ON NAIROBI WESTERN RING ROADS

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23 March 2015

Please find attached an article on road safety measures implemented on the Nairobi Western Ring Roads.

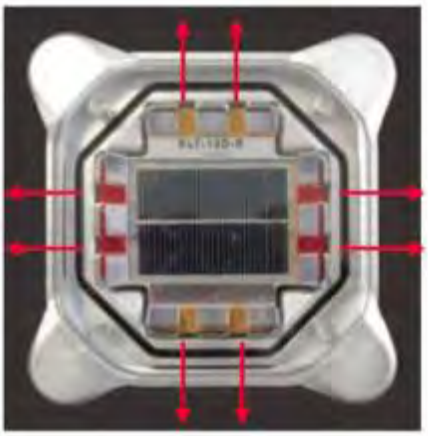
The measures are implemented under a Mini Pilot Project (MPP) for Road Safety Improvement aimed at improving the Kenyan road conditions and enhancing the road maintenance capacity of road sector staff.

For more information, please contact Ms. Hellen on Tel. 2775000, or Email: KimaruHellen.KY@jica.go.jp

JICA Implements Road Safety Measures on New Road

Road users sigh with relief whenever new roads are completed and become operational, since they ensure faster transportation of people and goods. However, when adequate care is not given to road safety measures, many of these turn into killer roads. This was the consideration behind the Mini Pilot Project (MPP) for Road Safety Improvement implemented on the Nairobi Western Ring Roads, whose objective is to improve road safety/maintenance through road safety equipment. JICA, through Japanese grant aid, supported construction of the 8.4km Western Ring Roads which connect several roads in the western part of the city from 2011-2013.

"We are focusing on road maintenance and capacity building of our counterparts in related government agencies – KeNHA, KURA, KeRRA and KWS," explains Mr. Hiroshi Tsujino, the Project's Chief Advisor, as he demonstrates the traffic safety improvement measures of lane marking & "cat's eye" installation. "Cat's eye" is a reflective safety device used in road marking to warn motorists of impending hazards such as roundabouts, bumps and intersections. Mr. Tsujino explains further that they have installed two types of Cat's Eye – reflection type and solar light-emitting type, both of which have been installed at various sections of the roads.



[Left]: The reflective light of the Cat's eye warns of the intersection

[Right]: The Cat's Eye device (solar light-emitting type)

Understanding that the first beneficiary of road maintenance is the road users, the project has erected an information board to help the public understand what is being implemented. The project has been designed to include maintenance of: (1) Lane marking at humps to add approach markings and (2) Intersections by installing Cat's Eye to improve visibility especially at night. The purpose of the MPP is to identify the effectiveness, acceptability and durability of these Japan-imported materials under Kenyan weather and traffic conditions for further use in enhancing traffic safety and to also offer a platform for training of road sector staff.

Mr. Tsujino shows the information board

Clear lane markings warn motorists of the hump. This is particularly helpful at night.

The Government of Kenya and JICA are implementing the technical assistance project entitled "The Project for Strengthening of Capacity on Road Maintenance Management through Contracting." Phase I of this project started in 2010 and Phase II in 2013. "Through this project, we have produced the Road Maintenance Manual, the Cost Estimation Manual, the Performance Based Contract (PBC) Standard Procurement Document and others. In Phase II, we are working with our counterparts to improve road maintenance under PBC by producing guidelines and through field trainings," says Mr. Tsujino.

Included in the MPP is an effective method of repairing potholes using special patching materials

All these measures are aimed at improving the Kenyan road conditions and enhancing the road maintenance capacity of road sector staff. It is the hope of the Government and the people of Japan that the assistance by the technical transfer will be utilized effectively and will contribute to the improvement of road conditions and traffic safety in Kenya.

4) Recommendations from Specialist Expert on Mini-Pilot Project

The following is the review and recommendations of Mini-Pilot Project from the Specialist Expert in charge of road stud installation and lane marking.

1. Review of Installation – Use of Miscellaneous Equipment and Materials

In order to improve the level of site workmanship, the following miscellaneous equipment and materials are recommended.

Clothes for Workers: hard hat, shoes, protective gloves and safety warning jacket for workers working under the contractor

Equipment: 5m measuring tape, white chalk, broom, wire brush, steel plate, chisels, hammer, handburner, marking line, rollers for applying primer. palettes for material handling, oil for cleaning purpose

The above is required for high productivity and workmanship. The degree of accuracy is controlled by use of measuring tape and chalk. The marking line can produce a straight line straight and a curve line as accurate to the design drawing. It is best to use a set of brooms and brushes to clean the road surface from sand and dust.

For lane marking, it is a mandatory requirement to apply a layer of primer for lane marking. However, use of such is restricted in Kenya. This maybe due to the practice of applying non-thermoplastic paint as the simplified method of repair. By using thermoplastic paint, primer application is the key point for durability.

2. Improvement on Site Workmanship – Lane Marking

For primer application, it should be noted that the application width should be slightly wider than the lane marking itself with the attention on non-irregularity and ensuring that no place was left out. A steel mesh filter should be used when filling the painting equipment with paint. Materials for such filter can be procured easily in Kenya. The front guide of the painting equipment should be placed as accurately as possible to the target line. Full concentration is required during the entire process of marking. ‘Accuracy’ and ‘Gentleness’ are the keywords for further improvement, although the workers had previous experience on the job.

Further improvement recommendations are:

1. Sections where minor defects are spotted need to be redone using a spatula and a burner and glass beads should be placed consistently. Both require gentleness and thoughtfulness.
2. By using steel plates and masking tapes, the edge treatment becomes neater.
3. Overly encroached markings should be removed by using chisels and hammers.
4. Remove paint from the painting equipment when the job is completed.
5. The end of the applicator should be treated with a spatula to completely remove paint. Lubricants should be applied whenever necessary.

During the Mini-Pilot Project, it took unwanted time for cleaning and the work redone when dripping occurred. This maybe one of the key points for improvement.

3. New Techniques for New Roads

It is prudent that a separate set of applicators with different application widths should be considered for use in future considering that the new road has an excellent surface condition. This would provide higher workmanship and productivity. This was same in Japan when the lane marking using thermoplastic paint was introduced. Originally, one applicator was used for both white and yellow marking. This was gradually changed to one applicator for one color.

It is envisaged that on heavy traffic roads and sections with high fatality accidents, use of lane marking would drastically increase. On the other hand, in order to save cost and time, a combination of using thermoplastic paint at relatively flat pavement surface and traditional paint at rough surface can be considered.

Further improvement maybe made on the following:

Considering the major modification of the system in Japan, a passenger vehicle for 7 passengers maybe modified to mount a power gate (which can load/unload the paint equipment by control of a driver only to fit a dual applicator for both white/yellow paints using a PTO hydraulic system. This would reduce loading and unloading as well as saving precious time.

A set of the paint equipment including push types of 10, 15, 20 and 30 cm and pull types of 30 and 45cm, together with use of pressure type and tollocoid type pumps for primer application would greatly improve work efficiency. However, attention should be placed on the maintenance of nozzles from being clogged by dust.

4. Quality Control

When conducting a pilot application at the MOTI laboratory, the thickness of paint applied by the local contractor was 1mm. The MOTI laboratory also insisted that technical specifications in Kenya specified the minimum thickness to be 3mm. Based on personal experience, the thickness of 2mm is regarded as the maximum achievable. Consistent application of thick coat of paint is technically very challenging and maybe a reason for high cost in Kenya.

For application of thermoplastic paint, this was more challenging in Kenya as if the application temperature was set at a lower temperature; beads were unable to be contained within or on the surface. As necessary beads are not intact, the monitored luminance was lower than the specified 100mcd/lx. m2. By considering the climatic condition of Nairobi, the realisitic value for thermoplastic paint is regarded to be 2mm; if time consuming adjustment to the paint equipment is made, 3mm maybe possible.

(2) 1-14 Assist road agencies in regular use of these systems in JCC, ITT, and NWG.

This item was conducted by the long term experts.

(3) 1-15 Conduct the counterpart training in Japan for deepening the knowledge on maintenance operations.

This item was conducted by the long term experts with support from Hanshin Expressway Co., Ltd.

4. Output 2: Road conditions are periodically monitored by Vehicle Intelligent Monitoring System (VIMS) objectively and the annual road maintenance plan is formulated by the amalgamation of ARICS and VIMS.

(1) 2-1 Monitor and assess how the Dynamic Response Intelligent Monitoring System (DRIMS) which were introduced during the project phase1 are used in annual road condition surveys

This activity was conducted jointly with the long term experts. Dr. Nagayama of Tokyo University organized the DRIMS seminar in September from the Short Term Expert Team.

14 March to 9 May 2014, DRIMS use condition survey [all regional offices of KeNHA(10)]*

23 June to 27 June 2014, 1st DRIMS Seminar*

Objectives of seminar: equipment operation, calibration and data analysis

25 August to 5 September 2014, DRIMS follow-up [all regional offices of KeNHA(10)]

10 September to 12 September 2014, DRIMS Workshop

Lecture by Dr. Nagayama of Tokyo University on DRIMS and report from KeNHA DRIMS engineers. During the seminar, questions and answers on DRIMS as well as technical guidance on the operation was conducted. The DRIMS shall improved its devices and software considering the feedback from the seminar. The result shall be used for the maintenance development plan.

* activity solely done by the long term experts

3 March to 5 March 2015, 2nd DRIMS Seminar

Lecture by Dr. Nagayama of Tokyo University. Data integration with video image and DRIMS was introduced as a new function.

(2) 2-2 DRIMS measurement is done and the IRI data is analyzed by KeNHA staff periodically.

DRIMS was included into ARICS as a method of road survey and specified under ISO certification within KeNHA.

(3) 2-3 Set up the target IRI level (performance level) in the PBC maintenance operation using the data obtained through DRIMS

Draft IRI target level is specified in PBC guideline as

Table 4-1.

Table 4-1 Draft IRI Target Levels

Road Surface Type	IRI Target Level		Remarks
Asphalt Concrete (new)	2.5 mm/m	1km average	
Asphalt Concrete (rehabilitated)	*3.5 mm/m **5.0 mm/m	1km average	*Rehabilitated to good condition (overlay) **Rehabilitated to fair condition (pothole patching)
Concrete road surface	5.0mm/m	1km average	
Unpaved (gravel surface)	11.0 mm/m	1km average	
Unpaved (quarry stone based)	15.0 mm/m	1km average	

Note: IRI target level of 11.0mm/m and 15.0mm/m for unpaved (gravel surface) and unpaved (quarry stone surface) respectively were proposed based on experience in KfW road projects in Kenya.

(4) 2-4 Estimate the expected annual road maintenance cost of total Kenya road network.

Required cost for road maintenance by PBC for all road networks in Kenya is estimated as 29.4 billon KSH/year in Table 4-2. Coverage by actual budget is approximately 30% of it

Table 4-2 Required Annual Cost for PBC (calculated by COSTES2015)

Agency	Paved (km)	Unit Rate (Ksh/km/ month)	Total Cost (Mil.Ksh/ year)	Unpaved (km)	Unit Rate (Ksh/km/ month)	Total Cost (Mil.Ksh/ year)	Total (km)	Total Cost (Mil.Ksh/ year)
KeNHA	6,783	27,925	2,273	6,904	14,181	1,174	13,687	3,447
KeRRA	2,268	27,925	760	127,799	14,181	21,747	130,067	22,507
KURA	2,140	34,935	897	10,409	14,181	1,771	12,549	2,668
KWS	6	27,925	2	4,577	15,059	827	4,583	829
Total	11,197	29,265 (Ave.)	3,932	149,689	14,208	25,521	160,886	29,453

Table 4-3 Comparison of Estimated Cost and Actual Budget

CATEGORY OF WORKS		KENHA	KERRA	KURA	KWS	TOTAL
Actual Budget (*) (12/13)	Paved Road (A)	1,337,300,000	82,503,000	1,044,880,000	-	2,464,683,000
	Unpaved Road (B)	981,263,000	3,779,362,000	642,122,000	240,000,000	5,642,747,000
	Total (C=A+B)	2,318,563,000	3,861,865,000	1,687,002,000	240,000,000	8,107,430,000
Required Budget Based on COSTES Computation (D)		3,447,000,000	22,507,000,000	2,668,000,000	829,000,000	29,451,000,000
Coverage (E=C/D)		67%	17%	63%	29%	28%

(*) Routine Maintenance only; Improvement and rehabilitation are not included

Source: (A) and (B) from FY2012-13, (D) from COSTES2015

5. Output 3: To build sustainability of the PBC system, the training and certification systems are formulated in government organizations.

(1) 3-1 Conduct the training of trainers (TOT) using the manuals produced by Activity 1-2, 1-3 and 1-4 with cooperation from KIHBT (Kenya Institute for Highways and Building Technology)

1) Objectives

The objective is to provide necessary training as mentioned below to end users. To achieve this, it was necessary to:

① Prepare programs and training materials
② Conduct TOT (Training of Trainers)
③ Conduct Pilot Training

2) Concepts

a) Staged Implementation

First Stage : Aug-Dec 2015ollaborato ry work between JICA Team and MTs

Second Stage : January 2016TOT implementation by MTs Suppoort by JICA Team

Third Stage : February 2016 Pilot Training Support by JICA Team

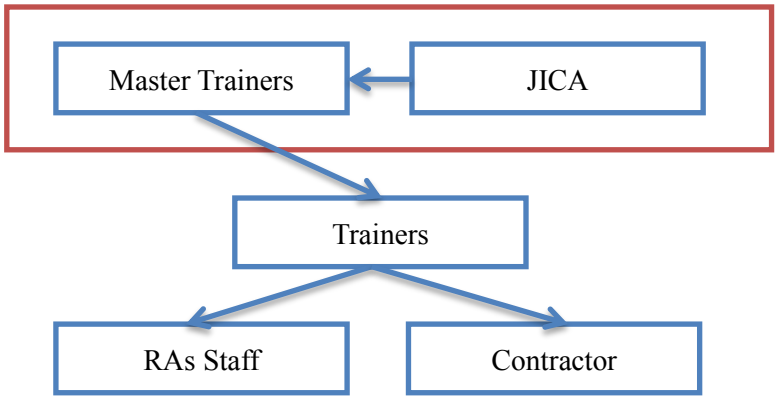


Figure 5-1 Flow of TOT

b) Training Programs

① Outline of Road Maintenance and PBC
② Service Level Setting (Part 1)
③ Work Procedure (Part 2)
④ Service Level Inspection (Part 3)
⑤ Contractor's Evaluation (Part 4)
⑥ Cost Estimation (COSTES)
⑦ Procurement Procedure
⑧ Cash flow management
⑨ Test for certification

c) Methodology

[Selection of MTs]

From each RA, at least 1 member was selected. The selection was made from the participants of the JICA Training in Japan including 2015.

[Participation of KIHBT as the Core Trainer]

Programs were developed based on understanding that KIHBT would take over the position of the core trainer. KIHBT committed to undertake such position.

d) Implementation

Table 5-1 TOT Implementation

Stage	Period	Method	Major Contents	Expert
1st Stage: Collaboratory work between JICATeam and MTs	14-16 Sep. 2015	#1 TOT WG	Guidance Work Allocation	Kawakami, Mita
	5-9 Oct. 2015	#2 TOT WG	Program Plan	Kawakami
	Sep. – Nov. 2015	Self training	Training Materials	National Staff
	23-27 Nov. 2015	#3TOT WG	Training Materials Mock Up	Kawakami
2nd Stage： TOT implementation by MTs (Part 1)	11-15 Jan. 2016 （Theories）	Retreat System （1week）	TOT Implementation Feedback and Improvement	Nakajima
（Part 2）	1-5 Feb. 2016 （ Exercises and Field Training）	Retreat System (1 week)	Same as Above	Nakajima
3rd Stage: Pilot Training	22- 26 Feb. 2016（for RAs） ※by KIHBT	Retreat System （1week）	RA	Mita, Kawakami

3) Details of Implementation

a) First Stage: Sep-Nov 2015, TOT WG [Master Trainers Meeting]

First Step: Sep-Nov 2015, TOT WG (Master Trainers Meeting)

Master Trainers (MTs) were appointed from mainly the C/P organization officers who attended the training program in Japan. MTs developed curriculum and materials for the training with assistance from the JICA technical cooperation team.

●1st TOT WG: Guidance and work allocation (Sep 14-16 in Naivasha)

✓ MTs were divided into 3 groups and training subjects were allocated as task of each group.

●2nd TOT WG: Curriculum planning (Oct 5-9 in Naivasha)

✓ Training contents and procedure were summarized into the table according to discussion in each group. Presentations by each group were made at the end of the WG.

- ✓ KIHBT lecturers made suggestion on the way of conducting effective lecture to MTs who were not accustomed to teach.

●3rd TOT WG: Material preparation (Nov 23-27 in Naivasha)

- ✓ Training materials were developed by each group and trial training to other groups and members was conducted.
- ✓ How to appoint trainee and timetable of TOT were discussed. Schedule of TOT and trial training to RAs and contractors were set tentatively.

<Master Trainers>

Outline of PBC, Cost Estimation (Eagle Team):

Mr. Maithya (MoTI), Engr. Omai (KRB), Ms. Owiti (KeNHA), Engr. Kaliti (KIHBT), Engr. Ogai (KRB), Mr. Orwenyo (KRB)

Service Level Setting, Service Level Inspection, Contract Evaluation (Rhino Team):

Engr. Takoy (KeNHA), Engr. Mwangi (KeRRA), Mr. Okuku (KWS), Mr. Nyamila (KIHBT), Ms. Maureen (KeNHA), Ms. Kalya (NCA)

Work Procedure, Procurement Procedure, Cash Flow Managemant (Ngamia Team):

Engr. Odwesso (KURA), Mrs. Nyamweya (KIHBT), Engr. Akech (NCA), Engr. Kiiru (KeNHA), Engr. Ochieng (KWS), Mr. Ndungu (PPOA)

#1TOT (Sep 14-16, 2015)

#3TOT (Nov 23-27, 2015)

Points to be Noted

- ♦ It is anticipated that capabilities of contractors vary drastically. Registration Class maybe one way of classifying contractors for training. (Example: Class 6-8 as one)
- ♦ It is important to understand who is to be invited. Managerial positions would be suitable.

- Role of RAs and others should be understood by all: NCA: Recognition; KIHBT: Training; RA: Contract Conditions. Linkage of 3 parties would be important. A mechanism of training participation becoming the tender requirement must be agreed upon.
- NCA bears 50% of training cost borne by contractors participating in training programs certified by NCA.
- Training materials possessed by NCA and KIBHT would be shared.

Training Program

- For RAs. The same program is envisaged for contractors
- A 5-day program

Table 5-2 Training Programs

Day	Topic	Time	Master Trainers
DAY 1	1. Outline of PBC	3 hours	Mr. Boniface Maithya/Mr. Julius Kaliti/Ms. Winnie Owiti
	2. Service Level Setting	3 hours	Engr. Kagochi Mwangi/Ms. Maureen Wangui
DAY 2	3. Cost Estimation	6 hours	Engr. Tom Omai/Eng. Margaret Ogai
DAY 3	4. Procurement Procedure	3 hours	Mr. Peter Ndung'u/Mr. Walter Ochieng
	5. Work Procedure 1	3 hours	Engr. Edwin Odwesso
DAY 4	6. Work Procedure 2	3 hours	Mrs. Jemimah Nyamweya/Engr. George Kiiru
	7. Service Level Inspection	3 hours	Mr. Robert Okuku/Mr. Pius Nyamila
DAY 5	8. Cash Flow Management	1 hour	Engr. Maurice Akech
	9. Contractor's Evaluation	3 hours	Engr. Sheikh Takoy/Ms. Winnie Kalya
	10. Test for Certification	1.5 hours	Facilitator: Ms. Winnie Owiti
	11. Certification	1.5 hours	Facilitator: Ms. Winnie Owiti

b) Second Stage: Jan-Feb 2016, TOT Implementation by MTs

TOT implementation was conducted by MTs based on training programs and training materials prepared under the First Stage towards trainees regarded as MT condidates by each RA. This included cost estimation administrators from KRB for COSTES2015 for three days.

The TOT for PBCwas split into 2 sessions: ①for Theory Session and ②for Exercises and Field Training. This action was taken after receiving many comments/requests from MTs and Trainers. Table 5-1 indicates ①and Table 5-5 indicates the training schedule of ②.

Table 5-3 TOT Program

Date	Location	Contents	Participants
11-15 Jan 2016	Naivasha	TOT Session ①: PBC Guideline; Cost Estimation Manual; COSTES2015	28
18-20 Jan 2016	Nairobi	TOT for COSTES2015 (KRB, Vol. 1)	3
1-5 Feb 2016	Nakuru	TOT Session ②: PBC Guideline; Cost Estimation Manual, COSTES2015 (Exercises and Field Training)	26

Table 5-4 Program of TOT Session ①

Draft PBC ToT Timetable from 11/1/2016 to 15/1/2016				
Day	**Time**	**Topic**	**Team**	**Main Person in charge**
(11/1) DAY1	8:00-9:00	Registration		
	9:00-9:15	Opening Remarks		Facilitator : Ms. Winnie Owiti
	9:15-9:30	Introduction of Participants		
	9:30-10:30	1.Outline of PBC	Eagle	Mr. Boniface Maithya/Mr. Julius Kaliti/Winnie Owiti
	10:30-11:00	Tea Break		
	11:00-12:30	1.Outline of PBC	Eagle	Mr. Boniface Maithya/Mr. Julius Kaliti/Winnie Owiti
	12:30-13:30	Lunch Break		
	13:30-15:00	2.Service Level Setting	Rhino	Eng. Kagochi Mwangi/Ms. Maureen Wangui
	15:00-15:30	Tea Break		
	15:30-17:00	2.Service Level Setting	Rhino	Eng. Kagochi Mwangi/Ms. Maureen Wangui
(12/1) DAY2	9:00-10:30	3.Cost Estimation	Eagle	Eng. Tom Omai/Eng. Margaret Ogai
	10:30-11:00	Tea Break		
	11:00-12:30	3.Cost Estimation	Eagle	Eng. Tom Omai/Eng. Margaret Ogai
	12:30-13:30	Lunch Break		
	13:30-15:00	3.Cost Estimation	Eagle	Eng. Tom Omai/Eng. David Orwenyo
	15:00-15:30	Tea Break		
	15:30-17:00	3.Cost Estimation	Eagle	Eng. Tom Omai/Eng. David Orwenyo
(13/1) DAY3	9:00-10:30	4.Procurement Procedure	Ngamia1	Mr. Peter Ndung'u/Mr. Walter Ochieng
	10:30-11:00	Tea Break		
	11:00-12:30	4.Procurement Procedure	Ngamia1	Mr. Peter Ndung'u/Mr. Walter Ochieng
	12:30-13:30	Lunch Break		
	13:30-15:00	5.Work Procedure 1	Ngamia1	Eng. Edwin Odwesso
	15:00-15:30	Tea Break		
	15:30-17:00	5.Work Procedure 1	Ngamia1	Eng. Edwin Odwesso
(14/1) DAY4	9:00-10:30	6.Work Procedure 2	Ngamia1	Mrs. Jemimah Nyamweya/Eng. George Kiiru
	10:30-11:00	Tea Break		
	11:00-12:30	6.Work Procedure 2	Ngamia1	Mrs. Jemimah Nyamweya/Eng. George Kiiru
	12:30-13:30	Lunch Break		
	13:30-15:00	7.Service Level Inspection	Rhino	Mr. Robert Okuku/Mr. Pius Nyamila
	15:00-15:30	Tea Break		
	15:30-17:00	7.Service Level Inspection	Rhino	Mr. Robert Okuku/Mr. Pius Nyamila
(15/1) DAY5	9:00-10:00	8.Cash Flow Management	Ngamia1	Eng. Maurice Akech
	10:00-10:30	9.Contractor's Evaluation	Rhino	Eng. Sheikh Takoy/Ms. Winnie Kalya
	10:30-11:00	Tea Break		
	11:00-12:30	9.Contractor's Evaluation	Rhino	Eng. Sheikh Takoy/Ms. Winnie Kalya
	12:30-13:30	Lunch Break		
	13:30-15:00	10.Test for Certification	ALL	Facilitator : Ms. Winnie Owiti
	15:00-15:30	Tea Break		
	15:30-17:00	11.Certification	ALL	Facilitator : Ms. Winnie Owiti

Table 5-5 Program for TOT Session

Day	Time	Topic	Team	Main Person in charge
(1/2) DAY1	8:00- 9:00	Registration		
	9:00- 9:15	Opening Remarks		Facilitator: Mr.Julius Kaliti
	9:15- 9:30	Introduction of participants		
	9:30- 10:30	Training Program		Robert Mutai
	10:30- 11:00	Tea break		
	11:00-12:30 **(Field)**	**Practical Training (1)** KURA PBC Road site visit	kURA, JICA	Robert Mutai, KURA
	12:30-13:30	Lunch break		
	13:30-15:00 **(Field)**	-Road asset and condition survey (Appendix 5) -Service Level Setting (Appendix 6)	JICA	Robert Mutai, Jared Onyoni
	15:00-15:30	Tea break		
	15:30-16:30	-Preparation of inspection result report form (Appendix 12 and Appendix 13) - Road asset survey (using drawings) (Appendix 5)	JICA	Robert Mutai, Jared Onyoni
	16:30-17:00	Grouping		All
(2/2) DAY2	**(Field)** 9:00-11:00 11:00-12:00	**Practical Training (1) MOCK** -Road asset and condition survey (Appendix 5) -Service Level Setting (Appendix 6)	Eagle Rhino	
	12:00-13:30	Lunch Break		
	13:30-15:00	-Preparation of inspection result report form (Appendix 12 and Appendix 13) - Road asset survey (using drawings) (Appendix 5)	Rhino	
	15:00-15:30	Tea break		
	15:30-17:30	Presentation of new trainers		New trainers
(3/2) DAY3	**(Field)** 9:00-10:00 10:00-10:30 10:30-11:00	**Practical training(2)** -Self inspection (Appendix 11) -Formal inspection (Appendix 11) - Daily Reports (Appendix 8 Patrol Rp,Appendix 10 Incident Rp) - Monthly Evaluation (Appendix 17)	JICA	Robert Mutai, Jared Onyoni
	(Field) 11:00-12:30	-Cost survey (demonstration)	JICA	Robert Mutai, Jared Onyoni
	12:30-13:30	Lunch break		
	13:30-14:30	-Inspection result report form (Appendix 12, 13) -Payment Reduction form (Appendix 14,16)		Robert Mutai, Jared Onyoni
	14:30-15:00	Tea break		
	15:00-17:00	Contractor's Evaluation (Appendix 17, Appendix 18)		Robert Mutai, Jared Onyoni
(4/2) DAY4	**(Field)** 9:00-10:00 10:00-11:00 11:00-12:00	**Practical training(2) MOCK** -Self inspection (Appendix 11) -Formal inspection (Appendix 11) - Daily Reports (Appendix 8 Patrol Rp,Appendix 10 Incident Rp) - Monthly Evaluation (Appendix 17)	Rhino Ngamia	
	12:00-13:30	Lunch break		
	13:30-14:30	-Inspection result report form (Appendix 12, 13) -Payment Reduction form (Appendix 14,16)	Rhino Ngamia	
	14:30-15:00	Tea break		
	15:00-17:00	Contractor's Evaluation (Appendix 17, Appendix 18)	Rhino	
(5/2) DAY5	9:00-10:30	Cross Cutting Issues	Rhino	Mr.Pius Nyamila
	10:30-11:00	Tea break		
	11:00-12:30	Presentation of new trainers	-	New trainers
	12:30-13:30	Lunch break		
	13:30-16:00	Presentation of new trainers		New trainers
	16:00-17:00	Summary		

c) Third Stage: Pilot Training

The Third Stage was held in Nakuru as a Pilot Training from 22 Feb 2016 to 26 Feb 2016 based on the Retreat System . The pilot project was implemented by KIHBT with participants from KIHBT, MOTI, KeNHA, KURA, KeRRA and PPOA.

The program was based on what is described in b). In addition to what was originally agreed with the JICA Team, an additional topic was included on Cross Cutting Issues such as environmental issues and HIV AIDS issues.

The ongoing PBC project site was used for field training such as site investigation, service level inspection and monthly evaluation. On the final day, a test was conducted and all 46 pariticipants received the training course completion certificate.

Table 5-6 Pilot Training Details

Date	Location	Contents	Participants
22 Feb 2016	Nakuru	Pilot Training: PBC Guideline, Cost Estimation Manual COSTES2015 (by KIHBT)	63

Number of Master Trainers: 8
Number of Trainers: 6
Certified engineers in the Pilot Training: 46

(2) 3-2 Propose KIHBT or NCA (National Construction Authority) to organize the training course on "Performance Based Contract" to build sustainability of the proper PBC operation procedure.

Although Pilot Training was planned for contractors as well, such did not proceed as planned due to time constraint. In the last JCC meeting, confirmation was made that KIHBT would take over the program and will conduct training to contractors from April 2016. For this purpose, an implementation committee will convene sessions from April 2016 involving 9 stakeholders, with the MOTI representative taking the chairman's role.

Table 5-7 Proposed KIHBT 2016 Training Schedule

1.	1. 2. 3. 4.	NAIROBI MACHAKOS KIAMBU KAJIADO	NAKURU	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	11th – 15th April, 2016
				Contractors (Engineers and Technical Personnel)	18th – 22nd April, 2016
2.	5. 6. 7. 8. 9. 10.	LAMU KILIFI MOMBASA KWALE TAITA TAVETA TANA RIVER	MOMBASA	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	9th – 13th May, 2016
				Contractors (Engineers and Technical Personnel)	16th – 20th May, 2016
3.	11. 12. 13. 14. 15.	MIGORI KISII HOMABAY KISUMU NYAMIRA	KISUMU	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	6th – 10th June, 2016
				Contractors (Engineers and Technical Personnel)	13th – 17th June, 2016
4.	16. 17. 18. 19. 20.	LAIKIPIA NYERI NYANDARUA MURANG'A KIRINYANG'A	NYERI	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	11th – 15th July, 2016
				Contractors (Engineers and Technical Personnel)	18th – 22nd July, 2016
5.	21. 22. 23. 24.	SIAYA NANDI KAKAMEGA UASIN GISHU	KAKAMEGA	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	8th – 12th August, 2016
				Contractors (Engineers and Technical Personnel)	15th 19th August, 2016
6.	25. 26. 27. 28. 29.	KITUI MAKUENI THARAKA NITHI MERU EMBU	EMBU	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	12th – 16th September, 2016
				Contractors (Engineers and Technical Personnel)	19th – 23rd September, 2016
7.	30. 31. 32. 33.	NAKURU NAROK BOMET KERICHO	NAKURU	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	10th – 14th October, 2016
				Contractors (Engineers and Technical Personnel)	17th – 21st October, 2016
8.	34. 35. 36. 37. 38.	MANDERA WAJIR GARISSA ISIOLO MARSABIT	ISIOLO	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	7th – 11th November, 2016
				Contractors (Engineers and Technical Personnel)	14th – 18th November, 2016
9.	39. 40. 41. 42. 43.	TURKANA SAMBURU WEST POKOT ELGEYO MARAKWET BARINGO	BARINGO	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	5th – 9th December, 2016
				Contractors (Engineers and Technical Personnel)	13th – 17th December, 2016
10.	44. 45. 46. 47.	TRANS NZOIA BUGOMA BUSIA VIHIGA	BUSIA	Road Authorities , Kenya Wild Life Services and Counties (Engineers and Technical Personnel)	9th – 13th January, 2017
				Contractors (Engineers and Technical Personnel)	16th – 20th January, 2017

6. Output 4: To build sustainability of operation of the VIMS system, the training and certification systems are formulated in government organizations.

(1) 4-1. Train KeNHA core staff to maintain DRIMS equipment and to measure IRI by DRIMS.

Follow-up of IRI measurement in road under KeRRA and technical transfer (by long term experts)
Follow-up of IRI measurement in road under KeNHA and support to all 10 regional offices (by long term experts)
Following number of DRIMS were purchased and used for road inventory:
KeNHA: 10 sets
KWS: 3 sets
KRB: 1 set
KIHBT: 1 set (handed over from JICA Short Term Expert Team for training)

(2) 4-2. Assist to form DRIMS team in KeNHA to build sustainability of the DRIMS measurement.

DRIMS seminar was conducted in September 2014. DRIMS Operator Certification System was proposed in March 2015 (Figure 6-1).
After discussion with RAs, the operation system shown in Figure 6-2 was developed. DRIMS Champion is the person in charge of DRIMS in regional office level and DRIMS Master is the person in charge on the headquarters level who is the contact channel between KeNHA and DRIMS Consortium in Japan.

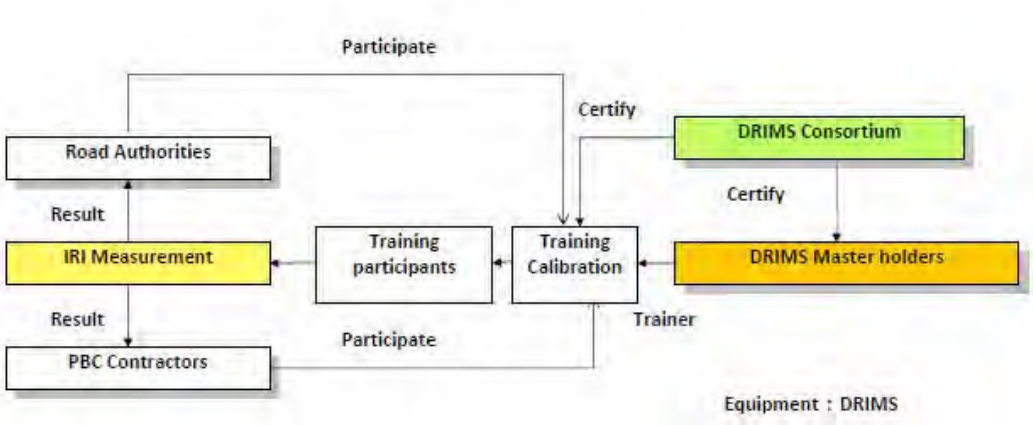


Figure 6-1 DRIMS Operator Certification System (Proposed)

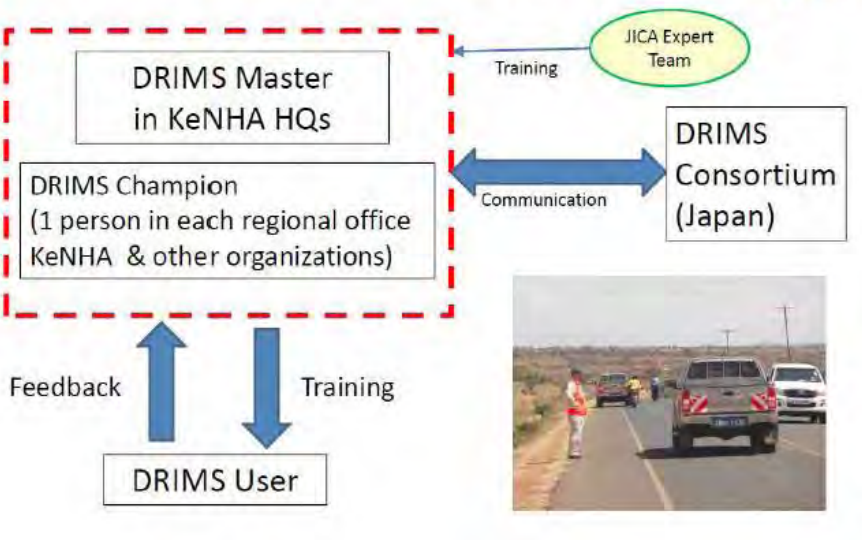


Figure 6-2 DRIMS Operation Organization in KeNHA (Final)

7. Issues and Lessons Learned for Implementation of the Project

7.1 Issues on Project Implementation

- Good coordination between Long Term Expert Team and the Short Term Expert Team
- Support of the activity during absence of the Short Term Expert Team
- Cultivation of ownership and initiative of the counterparts

7.2 Major Lessons Learned for Implementation of the Project

7.2.1 Project Management

a. Having had the experience of participating at the last stage of the Phase 1 project for producing training materials, the Short Term Expert Team was able to mobilize the activity smoothly.
b. The Short Term Expert Team employed two (2) local staff members for the entire period of the Project. This made easier to follow-up ongoing activities even during the absence of the Short Term Experts.
c. The role of the Long Term Experts and the Short Term Expert Team was clearly understood from the beginning of the Project. The long term experts took the responsibility of overall project management and shared perspectives from the project sustainability viewpoint. The Short Term Expert Team concentrated on delivering documents as the project deliverables. Communication among members was one of the most important keys for the success of the Project. Near the end of the Project, counterparts presented high ownership of the project. The examples were smooth handover of the traning program by KIHBT and attainment of numerous Master Trainers by RAs.
d. The Project intentionally involved consultants from other donor projects who were acquainted with PBC related activities and projects .Involvement of such members strongly helped the Project to attain the level of cross authority and ministerial level.
e. The Short Term Expert Team communicated very well with the Long Term Experts and provided necessary amendments in time for numerous project milestones.
f. The Short Term Expert Team had the support of native English speaking proofreaders to maintain the document quality to a satisfactory level.

7.2.2 PBC in Kenya

a. The Short Term Expert Team tried to include a comprehensive cycle of the PBC road maintenance work; namely, cost estimation, service level setting, work management, service level inspection and contract evaluation.
b. For cost estimation, the Project produced computation software based on the manual. Through development of the software, the definition of parameters, format, and responsibilities of the users became much clearer snd this made the software user friendly. The form was referred from Hanshin Expressway Company, which clarified the breakdown of the cost.

c. PBC Guideline (Ver. 1) was drafted. The draft reflected the experience and inputs from the stakeholders not only RAs and MOPI but also other donors consultants. The contents of the manual has link with PBC guideline. For further improvement, practice onsite by RA and contractor and provision of required amendments are important.

7.2.3 DRIMS

a. Dr. Nagayama of Tokyo University, one of the founding developers of DRIMS, was a member of the Short Term Expert Team. Presentation was made by the professor during the DRIMS seminar and comments and feedbacks from seminar participants were then reflected towards DRIMS improvement. The Short Term Expert Team provided manuals and checklists for better opreration based on experience from other projects by Dr. Nagayama.

7.2.4 TOT and Pilot Training

a. By using the project deliverables, the Short Term Expert Team in collaboration with the Long Term experts conducted TOT (Traning of Trainers) program and TOT Pilot Project at the final stage. Preparation of the TOT program took 4 months from September to December 2015. Candidate trainers were invited to Japan for training to facilitate motivation towards the TOT activity. Importance of practical training was voiced by such members during the TOT and the final program included lectures, field training and exercises based on such requests.
b. The TOT training program was then handed over to KIHBT. The Short Term Expert Team together with the Long Term Experts worked closely with KIHBT throughout the Project.

7.2.5 Road Repair by Mini-Pilot Project

Some road repair methods were introduced in the Mini-Pilot Project. Also coordination with stakeholders was considered such as 1) NGO (CORE) for Dono Method, 2) Japan grant aid project (Nirobi Western Ring Road) and Material Department of MOPI for lane marking and road studs installation, and 3) RAs for YK pack installation.
An expert on installation of road studs was appointed to the Short Term Expert Team. He was instrumental in providing technical expertise required for technical transfer.

8. Achievement of Verifiable Indicators

8.1 Output 1: The maintenance operation procedure associated with PBC (Performance-Based Road Maintenance Contract) is improved and implemented properly.

1-1. PBC Guideline is formulated and distributed to RAs.
【Achievement】 PBC Guideline was published in January 2016 and distributed to the counterparts.
1-2. PBC Cost Estimation Manual is formulated and distributed to the RAs.
【Achievement】PBC Cost Estimation Manual was published in January 2016 and distributed to the counterparts.
1-3. The challenges of the public procurement procedure are identified.
【Achievement】Public Procurement Seminar was held in October 2014 and major system and issues in public procurement were identified and shared among participants.
1-4. Examples of the roads condition improvement measures are inducted to C/P by conducting mini-pilot projects.
【Achievement】Mini-Pilot Project was conducted. In the Project, road studs, lane marking repair, urgent pavement repair (YK pack) and earth road repair (DONO method) were implemented.

8.2 Output 2: Road conditions are periodically monitored by DRIMS (Dynamic Response Intelligent Monitoring System) as a part of ARICS (Annual Road Inventory and Condition Survey)

2-1. Approx. 10,000km length of Class A, B and C roads are monitored by KeNHA by DRIMS.
【Achievement】KeNHA measured approximately 10,000 km of the network in 2015.
2-2. An ARICS report using DRIMS data is produced.
【Achievement】KeNHA decided to use DRIMS as official IRI measurement tool for ARICS, and it is specified in ISO.

8.3 Output 3: To build sustainability of the proper PBC operation procedure, ToT (Training of Trainer) is conducted.

3-1. At least 10 officers of RAs become trainers on maintenance operation contracts by PBC.
【Achievement】After TOT on PBC, 8 Master Trainers and 6 Trainers were certified by KIHBT and the JICA Chief Advisor at the end of the Project.

8.4 Output 4: To build sustainability of the operation of DRIMS, the DRIMS team is formulated in KeNHA (Kenya National Highways Authority). DRIMS training is conducted and certifications are issued to participants by KeNHA

4-1. At least 15 persons in KeNHA become DRIMS experts (1 per 10 regional office + 5 from KeNHA HQs)
【Achievement】After DRIMS training, DRIMS Champion (at least one (1) from each reagional office) and seven (7) DRIMS Master from HQ in KeNHA were certified for having sufficient technical capacity on DRIMS.

9. Recommendation for Overall Goal

Based on the activities done in the Project, recommendations for overall goal are as described below.

Overall Goal

1. Performance level of road maintenance operation by performance-based contracts (PBC) is improved. (Concept of PBC is understood widely both in RAs and in the related industry.)
2. Existing road networks maintained in good condition. (Appropriate maintenance of road networks is implemented by PBC.)

(1) Expansion of PBC

Under PBC road maintenance, roads can be placed under long term contracts by setting appropriate service levels. The cost saving achieved by PBC road maintenance compared to the traditional system is reported to be in the range of 20 to 40% from the experience gained from other countries. This makes possible to maintain a larger network of roads using the same budget.

Asset management capability will be strongly enhanced since more refined asset management maybe possible by setting different service levels according to the road category and road maintenance condition applicable based on each road characteristics.

Road users will be drawing quantitative and qualitative merits by having roads under term contracts. Merits would by higher comfort by periodical and self initiative monitoring and quick response by contractors (not waiting for instruction or order from RAs) under PBC.

Considering the limited availability of resources for RAs, PBC road maintenance has a big potential to improve the serviceablity of road maintenance by contractors working as a partner to RAs.

Expected benefits by expansion of PBC are summarized below:

- Road assets that have totally lost their function (e.g. Totally silted drainage and culverts) were recovered during the Initial Mobilization Period of PBC in many cases. As such, original function can be recovered.
- In Kenya, most of the road maintenance work is contracted to the private sector. While number of staff of road authorities are very limited, PBC which encourages more initiative from the contractors on management of the work can facilitate better road maintenance.
- In VISION2030, construction of 10,000 km of new paved roads is one of the targets. It will be 19,000 km together with existing paved road by that time. Application of PBC for road maintenance is one of the important solutions to achieve this goal.

(2) Improvement of Management of PBC and utilization of PBC Guideline

In order to have the maximum benefit from PBC, required improvements are summalized hereinafter. Practical solutions and a standard methodology are described in the PBC Guideline. Utilization of the PBC Guideline is recommended in order to have better understanding of PBC by both RAs and contractors.

- Setting of Self Contol Unit (SCU) and activation of its function in contract management

- Utilization of standardized checklist form for service level inspection
- Application of proposed payment reduction rate for Non-Compliance in order to facilitate contractors for better performance.
- Application of longer contract period (from 12 months to 24 or 26 months)

(3) Inclusion of pavement repair to the PBC

Current PBC contract is hybrid type which is the combination of PBC contract and unit rate contract. Items such as pavement repair are included in the unit rate contract as instructed works. Considering the actual road condition under contract which is old and difficult to assume frequency and volume of the pavement repair work, the hybrid contract is a good way to sufficiently manage risk to contractors. However, it is recommended to include carriageway pavement repair work to PBC gradually, so that road users can benefit from PBC. It is practicable to include pavement repair works in PBC for contracts on newly constructed roads.

- Application of PBC to newly constructed roads including pavement repair

(4) Training of Contractors

Number of contractors and better understanding are the challenges. It is expected that the number of PBC contracts will increase from 70 to 300 in 2020. Training on contracts should be facilitated by MOPI, RA, KIHBT and NCA.

- Implementation of training by KIHBT to contractors
- 300 contracts of PBC is expected in 2020, set target number of contractors to be trained.

(5) Implementation of contractor's evaluation and utilization of evaluation results

In order to facilitate training of the contractors, administrative framework should also be prepared.

- Creation of contractor's category of PBC, and set certificate of training as requirement for the registration application as PBC contractors.
- For RA, creation of requirement of PBC for application to the tender of PBC project.

(6) Improvement of cost estimation

Cost estimation is one of the topics from Phase 1. The project supported to make "scientific cost estimation" by clear cost breakdown including cost survey, setting productivity and unit cost. The project developed a simple cost estimation method based on productivity survey for typical PBC works. The methodology can be applied to other cost items.

- Expansion of use of standardized cost estimation
- Use of system (COSTES) to reduce workload of cost estimators
- Update of the database for cost estimation
- Setting of clear responsibility for cost estimation

(7) Objective monitoring of road condition using DRIMS

DRIMS is specified as the official tool for ARICS in KeNHA. Monitoring of the road condition is the first work for the road authority. It is, therefore, strongly recommended to continue monitoring using DRIMS.

Attachment GP-1 Project Flow Chart

The Project for Strengthening Capacity on Road Maintenance Management through Contracting (Phase 2) Short Term Expert Team Revised Work Schedule

Year: 2013 | 2014 | 2015 | 2016
Month: Apr May Jun Jul Aug Sep Oct Nov Dec | Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec | Jan Feb Mar Apr Apr
Venue: Kenya — Entry into Kenya; Japan — Preparation

Work Description

- Preparation of Work Plan
  - 2.2.1 Preparation of work plan
  - 2.2.2 (2) Setting Management Level
  - 2.2.2 (5) Work supervision, evaluation of contract and improvement of manual
- Items for Performance Based Contract
  - 2.2.2 (1) Monitoring of road — Field and Interview Study
  - 2.2.2 (4) Improve Road Maintenance Manual
  - 2.2.2 (3) Seek possibility to utilize VIMS
  - 2.2.4 Seminar and TOT concerning 2.2.2(DRIMS)
  - 2.2.3 Suggestion of road repairing method
  - 2.2.2 (5) Work supervision, Evaluation of contract and improvement of manual
  - 2.2.3 Suggestion for the road maintenance and management method
  - 2.2.2 (4) Improve Road Maintenance Manual
  - Ptroof reading/ editing/ printing
  - 2.2.4 Seminar and TOT concerning 2.2.2、2.2.3
  - 2.2.3 Suggestion for the road maintenance and management method (**minipilot project**)
  - 2.2.4 Seminar and TOT concerning 2.2.2、2.2.3
- Items for Cost Estimation of Public Work
  - Field and Interview Study
  - 2.2.5 Study of public works: collect data and analyze
  - 2.2.5 Study of public works: collect data and analyze
  - 2.2.6 Preparation of standard cost estimation for Package Type and check applicability to PBC
  - Ptroof reading/ editing/ printing
  - 2.2.7 2.2.7 Seminar for Cost Estimation of Public Work and implement TOT
- Items for Procurement System of Public Work
  - 2.2.8 Extract issues from Procurement System of Public Works
  - 2.2.9 Seminar for bidding system of public work
  - 2.2.11 Study for utilization of contract evaluation report into bidding consideration
  - 2.2.10 Proposition of improvement for procurement system
- Items for Road Survey and Monitoring
  - 2.2.12 Training of IRI
  - 2.2.13 Setting management level of IRI through VIMS
  - 2.2.12 Training of IRI (IRI Seminar)
  - 2.2.14 2.2.14 Estimation for annual road maintenance and management cost
- Items for Report
  - 2.2.15 Preparation of progress report of Project
  - 2.2.15 Preparation of Completion Report
- Project Activity Report
  - 2.2.16 2.2.16 Assist Project Activity Report
- Held by JICA
  - JICA Expert (long term) will set the conference accordingly

Discussion with JICA
- Discuss Work Plan
- Discussion about Completion Report

Submission of Report
- Submit Work Plan
- Submission of Progress Report 1
- Submission of Progress Report 2
- Submission of Completion Report

Item completed | Actual actiity | Plan

Attachment GP-2 Workplan

Japan International Cooperation Agency

Republic of Kenya

The Project for Strengthening Capacity on Road Maintenance Management through Contracting (Phase 2)

Work Plan
(Short Term Expert Team)

May 2014

CTI Engineering International Co., Ltd.
Hanshin Expressway Co., Ltd.

GP-2-2

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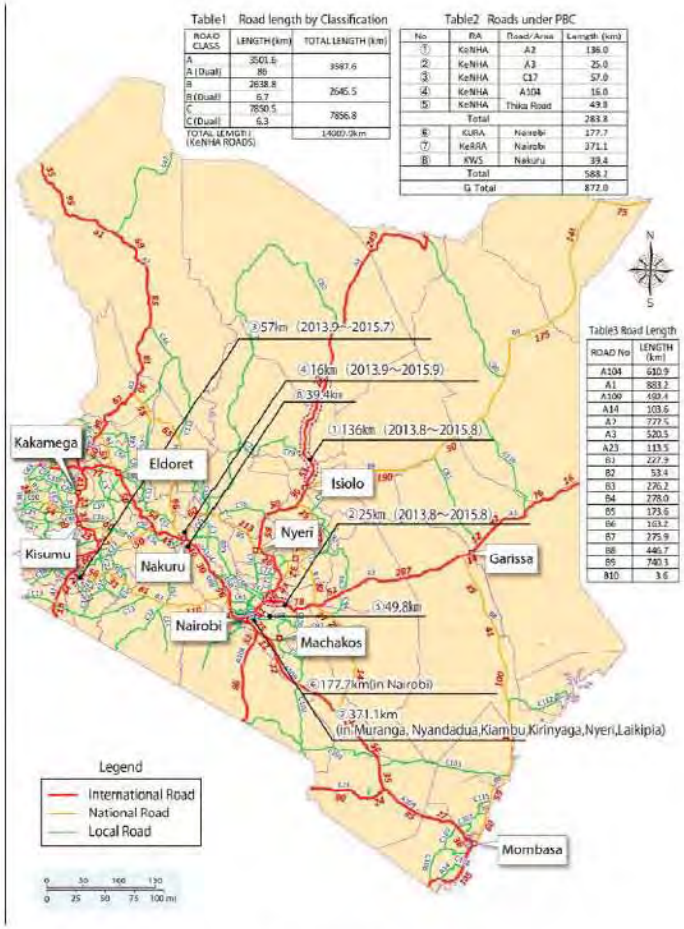

Project Location

Figure-1 IRI Map

Figure-2 Phase 2 Activity Map

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ABBREVIATIONS

ARICS	:	Annual Road Inventory and Condition Survey System
C/P	:	Counter Part
CORINS	:	Construction Records Information System
EBT	:	Equipment Based Technique
GPS	:	Global Positioning System
IRI	:	International Roughness Index
ITT	:	Inter-Agency Technical Team
JACIC	:	Japan Construction Information Center
JCC	:	Joint Coordination Committee
JICA	:	Japan International Cooperation Agency
KeNHA	:	Kenya National Highways Authority
KeRRA	:	Kenya Rural Roads Authority
KIHBT	:	Kenya Institute of Highways and Building Technologies
KNBS	:	Kenya National Bureau of Statistics
KRB	:	Kenya Roads Board
KURA	:	Kenya Urban Roads Authority
KWS	:	Kenya Wildlife Service
LBT	:	Labor Based Technique
MoTI	:	Ministry of Transport and Infrastructure
NCA	:	National Construction Authority
NWG	:	National Working Group
PBC	:	Performance Based Contract
PDCA	:	Plan Do Check Action
PDM	:	Product Data Management
PPOA	:	Public Procurement Oversight Authority
RICS	:	Road Inventory and Condition Survey System
RMS	:	Road Management System
RSIP	:	Road Sector Investment Plan
TECRIS	:	Technical Consulting Records Information Service
TOT	:	Training of Trainer

Republic of Kenya
The Project for Strengthening Capacity of
Road Maintenance Management through Contracting(Phase II)
Work Plan (Short Term Expert Team)

Table of Contents

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1 Project Outline

1.1 Back Ground of the Project

Road transport accounts for 90% of all domestic transport in Kenya. The development and improvement of the road network system is therefore important for the economic development of the country. The government has has embarked on active use of private contractors for road maintenance works previously undertaken through the use of force account. In 2013, pilot projects using performance based contracts are introduced. The contractors for such works were identified through the use of public procurement system.

JICA has assisted in various activities related to the introduction of performance based contracts for road maintenance works. This has resulted in the formulation of unit and productivity rates applicable to such contracts. In addition to such, assistance was provided for term contracting of road maintenance works, preparation of performance based contracts, improvement on the contractor selection process and the international roughness index (IRI) survey. In November 2013, phase 2 of assistance commenced with the aim of providing further capacity strengthening of road maintenance work especially under PBC.

Having understood the achievement made in phase 1 as well as collaboration to be made with JICA Senior Experts in Kenya during phase 2, the JICA Experts Team will endeavour to strengthen the capacity of implementing agencies on management of road maintenance through contracting.

1.2 Outline of the Project

(1) Overall goal

To maintain the existing road network in good condition

(2) Project Purpose

The capacity of implementing agencies is strengthened on management of road maintenance through contracting.

(3) Outputs (3)

1) Output 1

The public procurement system associated with road maintenance contacting is improved, making road maintenance procedures rationalized and its efficiency increased.

Activities

(Standard contract documents for term unit rate & performance based contract)

1-1.* Test unit rate term contract for road maintenance works and identify issues expected to be encountered when putting it into practice and make recommendations for improvement.

1-2. Evaluate the results of pilot projects for performance based contract implemented during Phase 1 and make recommendations for improvement.

1-3. Suggest revisions to be incorporated into the standard contract documents by reflecting pilot project experiences.

(Supervision and Contract Evaluation Manual)

1-4.* Monitor the use of and ascertain applicability of the 'Supervision and Contract Evaluation System' created during Phase 1 to actual road maintenance contracts implemented by road agencies, and prepare recommendations and findings.

1-5. Suggest revisions to be incorporated into the 'Supervision and Contract Evaluation Manual for Road Maintenance (Nov 2012 version)' based on the Activity 1-4.

1-6. Support road agencies in accumulating data of contractor's performance evaluation and suggest ways to make it available to other tender evaluation, including necessary revision of standard tender documents.

(Cost Estimation Manual)

1-7.* Monitor and evaluate the use of the cost estimation manual prepared during Phase 1 for budgetary planning purpose as well as preparation of 'engineer's estimates' within road agencies.

1-8. Update the cost estimation manual by drawing upon the above activity and reflect to the updated manual the revised data to be obtained through a unit price survey for the items of work (labour, material, equipment).

1-9. Assist road agencies in making arrangement to periodically update the unit prices.

1-10. Formulate standardized approach to determine, from project owner's perspectives, the quantities of work which constitutes engineer's estimates.

(Common to the above activities)

1-11. Assist road agencies in activities to scale up the use of the standard tender documents and the manuals mentioned above, and recommend on ways forward to enhance institutional arrangement for their regular use.

2) Output 2:

Road conditions are periodically monitored by Vehicle Intelligent Monitoring System (VIMS) and assessed to enable road agencies to prepare road maintenance plans based on objective information.

Activities

2-1. Monitor and assess how the Vehicle Intelligent Monitoring System (VIMS) are used in annual road condition surveys.
2-2. Assist road agencies in using the data obtained through VIMS for maintenance planning.

3) Output 3:

An enabling environment is created for road agencies, contractors and other public institution to institutionalize the interventions introduced by the Project and the project outputs are shared with them through training opportunities offered at the Kenya Institute for Highways and Building Technology (KIHBT).

Activities

3-1. Assist KIHBT in organizing the training course on "Comprehensive Road Work Management" using the training material prepared in Phase 1
3-2.* Provide support to set up a mechanism to periodically update the manuals, standard contract documents and related data, liaising with the National Construction Authority.

* denotes activities to be undertaken by JICA Senior Experts in Kenya. However incase support is required, such will be provided by the JICA Experts Team.

(4) Project Sites
Entire Kenya

(5) Concerned Authorities

Supervising Ministry:	Ministry of Transport and Infrastructure
Implementing Agencies:	Kenya National Highways Authority
	Kenya Urban Roads Authority
	Kenya Rural Roads Authority
	Kenya Wildlife Service
Related Agencies:	Kenya Road Board
	Kenya Institute of Highways and Building Technology
	National Construction Authority

(6) Project Period
November 2013 to November 2015 (2 years)

1.3 Objectives of the Project and Target Area

The objectives of the project are to strengthen the capacity of implementing agencies on management of road maintenance through contracting.

JICA Short Term Experts Team shall take proper steps in coordination with JICA Senior Experts in Kenya to achieve the expected outputs and the project purpose. The project will be carried out within the framework of the Record of Discussion dated 13 January 2010 and the Minutes of Meetings dated 2 August 2013 signed respectively by JICA and Kenyan representatives.

2. Project Approach

2.1 Current Condition and Challenges

2.1.1 General Overview

(1) Road Sector In General

The road network in Kenya has a main backbone route from Mombasa to Nairobi and through to the Ugandan border. There are International Trunk Roads (Class A) linked to this main backbone forming the main road network. Main cities and towns are then connected to the main road network through Domestic Trunk Roads (Class B) and 1 st Class National Roads (Class C).

All roads are broadly categorized into either a criteria specific road (63,500km) or a non- criteria specific road (114,500km). Table 2.1-1 indicates road classifications and surface types of the criteria specific roads in Kenya. Based on such, percentages of paved roads are relatively low for classes A, B and C roads even though importance of such roads are gravely higher.

Table 2.1-1 Road Length Based on Classifications and Surface Types of Criteria Specific Roads

Road Classification/ Surface Type	Surface Type				Total
	Asphaltic Pavement	Bitumen Sealed	Gravel Road	Earth Track	
International Trunk Road (A)	1,242.9 (34%)	1,563.8 (43%)	715.1 (19%)	94.4 (4%)	3,616.3 (100%)
Domestic Trunk Road (B)	350.2 (13%)	1,166.2 (43%)	810.2 (30%)	346.1 (14%)	2,681.8 (100%)
1st Class National Road (C)	567.8 (7%)	2,196.1 (27%)	3,601.6 (45%)	1,627.9 (21%)	7,995.6 (100%)
2nd Class National Road (D)	76.6 (0.7%)	1,183.1 (11%)	5,701.9 (51%)	4,087.7 (37%)	11,049.3 (100%)
Regional Road (E)	99.8 (0.4%)	542.0 (2.6%)	8,215.8 (30%)	18,048.5 (67%)	26,906.3 (100%)
Specialized Use	24.8 (0.2%)	114.6 (0.8%)	4,929.6 (44%)	6,253.7 (55%)	11,322.9 (100%)
Total	2,362.32 (3%)	6,768.0 (11%)	23,923.5 (37%)	30,458.6 (49%)	63,372.4 (100%)

Source: Road Condition and Inventory Survey Report 2007

The Ministry of Transport and Infrastructure has been in existence since 2013 following restructuring of various ministries. Road maintenance and repair had been performed by the former Ministry of Roads using the road maintenance levy fund and funds provided by various donor agencies. However, the condition of road maintenance and repair was regularly plagued by management resource shortage, field manpower shortage and improper management techniques. In order to overcome such, Kenya Roads Board was established in 2000, followed by restructuring of related agencies under the road sector in 2008 to rationalize road maintenance policy and implementation. Thus, Kenya National Highways Authority, Kenya Urban Roads Authority and Kenya Rural Roads Authority were established. Figure 2.1-1 indicates the organization structure of the Ministry of Transport and Infrastructure and the relationship with recently established organizations.

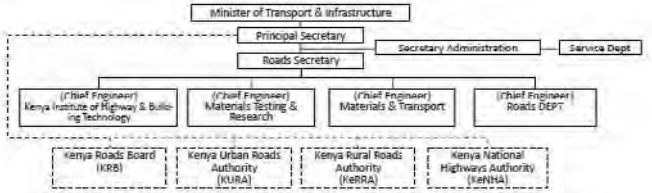

Figure 2.1-1 Administrative Organizational Chart in Charge of Road Sector

The policy of use of private contractors in road maintenance works was introduced in line with establishment of 3 organizations and a major milestone has been achieved since 2012 after introduction of performance based contracts on pilot project basis.

(2) Assistance Provided by Donor Agencies

Japan is active in offering ODA assistance in Kenya. ODA assistance in the road sector is summarized in Table 2.1-2.

Table 2.1-2 Past Japanese ODA Assistance in Road Sector

	Fiscal Year	Project	Outline	
Technical Co-operation	2006～2010	Road Maintenance Project	Advise on small scale road repair and inspection to be undertaken by the Ministry of Roads	
	2010～2013	Project for Strengthening Capacity on Road Maintenance Management Phase 1	Preparation of standard tender documents and contractor evaluation system for PBC projects	
Development Survey	2000～2002	System Development Survey on Road Maintenance	Development survey to study capacity development for road agencies responsible road maintenance	
Grant Aid	2003～2005	Study on Master Plan for Urban Transport in NMA	Master planning for urban transport for NMA and feasibility study on short term relief	
	2000～2001	Project for Rehabilitation of New Nyali and New Mtwada Bridges	5.70 Mill. Jyen	Bridge rehabilitation project
	2002～2004	Project for Construction of Ati and Ikusa Bridges	10.92 Mill. Jyen	Bridge replacement project
	2009～2010	Project for Construction of Nairobi Western Ring Roads	25.07 Mill. Jyen	Missing Link No3, 6 and 7
Soft Loan	2007	Port of Mombasa Development Project	267.11Mill. Jyen	Development of container terminal and stevedoring facilities for the Port of Mombasa

Assistance by other donor countries and agencies is summarized in Table 2.1-3. The World Bank is currently implementing the Northern Corridor Transport Improvement Project linking Mombasa, Nairobi, Kampala, Rwanda, Burundi and Sudan. Table 2.1-4 indicates project components of which C is the fund related to road maintenance.

Table 2.1-3 Commitment Values by Donor Agencies in Road Sector

(Unit: Million US$)

	Donor Agency	Commitment Value
1	European Union	171.50
2	World Bank	160.00
3	African Development Bank Group	159.20
4	BADEA/OPEC	65.85
5	Agence Francaise Developpement	56.06
6	KfW (Germany)	52.78
7	China	26.11
8	Korea	25.00
9	JICA	25.00
10	SIDA	20.00
	Total	761.50

Source: Nairobi – Thika Highway Improvement Project, Appraisal Report, AfDB, 2007.9

Table 2.1-4 Project Components for Northern Corridor Transport Improvement Project

(Unit : Million US$)

Component	Indicative Costs	% of Total	Bank Financing	% of Bank Financing
A. Rehabilitation of Northern Corridor	190.44	68.9	134.60	65.0
B. Roadside Amenities & HIV/AIDS Mitigation	4.36	1.6	3.62	1.8
C. Private Sector Participation in road Management & Maintenance	10.66	3.9	8.68	4.2
D. Road Safety Improvement	4.97	1.8	4.82	2.3
E. Institutional Strengthening in the Roads Sector & Technical Assistance	10.36	3.8	8.24	4.0
F. Support to KAA	41.54	15.0	34.82	16.8
G. Support to KCAA	10.11	3.7	10.02	4.8
H. Support to MOTC	2.26	0.8	2.20	1.1
Project Operating Cost (to be financed by the Borrower)	1.83	0.7	-	-
Total Project Cost	276.52	100.0	207.00	100.0

Source: Project Appraisal Report, World Bank, 30 April 2004

EU is active mainly in road rehabilitation and is implementing both the missing link section and NMT corridor section in the eastern part of Nairobi. EU completed the project for Consultancy Services for Updating of Road Design Manuals.

Both African Development Bank and China are assisting in Thika Road Project in Nairobi. China has also assisted financially and technically in Southern, Eastern and Northern Bypass Road projects.

2.1.2 Challenges for Road Maintenance Management using Performance Based Contracts

(1) Steady Introduction of Performance Based Contracts

Road maintenance service applying performance based contracts started in a pilot project under KURA in 2012. KeNHA followed suit by introducing pilot projects under its administration in 2013. The distance covered by such pilot projects extended to approximately 290km with each project ranging from 16 to 36km. In FY 13/14, the Thika Road has been contracted for a comprehensive road maintenance package utilizing a performance based contract (PBC). In 2014, application of PBC will extend to all four Road Authorities with total a length of 872km.

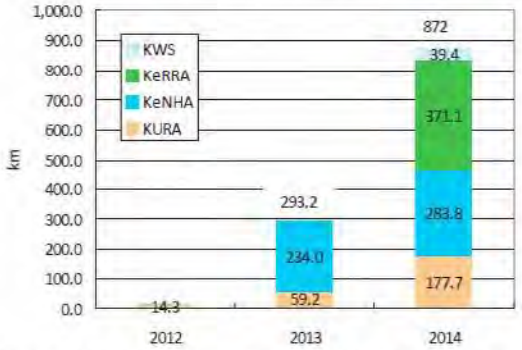

Figure 2.1 2 Road length maintained under PBC in Kenya (as of May 2014)

(2) User Satisfaction and Creation of Ingenuity Spirit

Although the scope of work for the original performance based contract introduced by KURA only included minor maintenance work without road pavement repair, the project was evaluated highly by end users as well as KURA. A rather small, but creation of ingenuity spirit was witnessed during the project when the contractor opted to apply a weed removal agent instead of relying on manual weed removal work, thus reducing manpower for such work.

(3) Issues on Cost Estimation and Actual Award Price

An accepted method for cost estimation for a project under a performance based contract has not been fixed. Estimation work by each organization is done by applying various parameters and conditions pertaining to each project. Price gap between owners estimation and offer in the pilot projects reached upto a difference of seven times.

For RAs, tender prices for projects under performance based contracts have been used in addition to use of the cost estimation software COSTES developed in phase 1 for estimation of term unit rates. Further scrutiny is necessary so that COSTES indicates values which are tuned to the ongoing market values.

2.1.3 Achievement in Phase 1 and Issues to be Reviewed in Phase 2

(1) Achievement in Phase 1

During Phase 1, various tools required for proper implementation of road maintenance management cycle have been developed. Such tools as indicated in Table 2.1-5 contribute greatly on efficient management as well as improvement on implementation capacity. In collaboration with KIHBT, teaching material, a syllabus and a curriculum have been developed.

Table 2.1-5 Achievement in Phase 1

	Stage under Road Maintenance PDCA Cycle	Manuals and System	Tools
1	Regular Inspection・Monitoring	RICS, ARICS (Annual Road Inventory and Condition Survey System)	
		VIMS (Vehicle Intelligent Monitor System)	o
2	Selection on Repair Sections Prioritization and Budgeting Annual Road Maintenance Plan	Cost Estimation Manual	o
3	Procurement Process	Standard Contract Documents for Term Contract Standard Contract Documents for Performance Based Contract	o
4	Road Repair	Road Maintenance Manual	o
5	Procurement Management Database	RMS (Road Management System)	
6	Site Supervision	Supervision and Contract Evaluation Manual (including supervision check list)	o
7	Contract Evaluation Quality Assurance		
8	Preparation, Renewal of Road Maintenance Plan	RSIP (Road Sector Investment Plan)	
9	Training Curriculum and Material		o

O: Tools developed in Phase 1

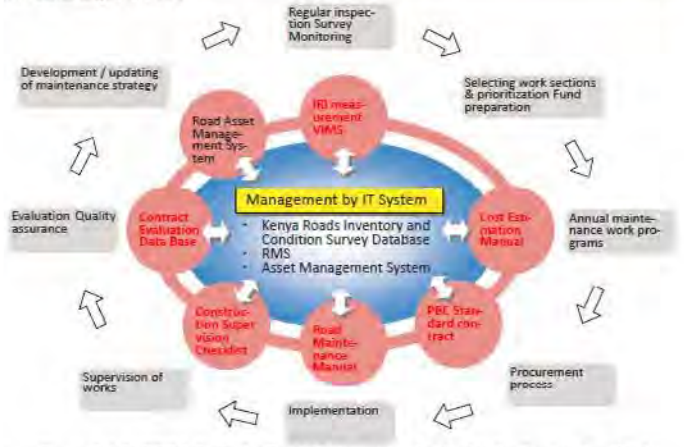

Figure 2.1-3 PDCA Cycle for Road Maintenance Applicable for Contracting Works

(2) Issues to be Reviewed in Phase 2

Table 2.1-6 summarizes issues requiring review relative to each output as indicated in PDM. It is of up most importance that collaboration and cooperation between the JICA Expert Team and Senior Experts in Kenya are fully maintained throughout the duration of the project.

Table 2.1-6 Issues to be Reviewed in Phase 2

	Output 1	Output 2	Output 3
Outputs	The public procurement system associated with road maintenance contacting is improved, making road maintenance procedures rationalized and its efficiency increased.	Road conditions are periodically monitored by Vehicle Intelligent Monitoring System (VIMS) and assessed to enable road agencies to prepare road maintenance plans based on objective information	An enabling environment is created for road agencies, contractors and other public institution to institutionalize the interventions introduced by the Project and the project outputs are shared with them through training opportunities offered at the Kenya Institute for Highways and Building Technology (KIHBT).
Issues	(1) General Guide organizational use of manuals Fix a regular updating system (2) Contract Documents for PBC Improve percentage of successful tender Provide a process to take care of design and construction related matters such as non working drains Public relations to private contractors to appreciate the new contact method Establish a standard method to derive at the Engineers' Estimate Even out contractors' tender prices (3) Supervision and Contract Evaluation Manual Field usage of manual Simplify process (4) Cost Estimation Manual Review ongoing market rates Disseminate system information Simplify operation Reflect regional parameters Revise to suit cost estimation system compatible to PBC	(1) VIMS Equipment ① Maintenance and repair of VIMS ② Enhance durability of VIMS ③ Retrain initial formatting of the system ④ Simplify analytical method (Software improvement) (2) VIMS Operation ⑤ Unified operation system ⑥ Apply VIMS for routine monitoring and road repair plan ⑦ Nomination of responsible officer in charge ⑧ Certification of training to ensure VIMS technical transfer ⑨ Integration of VIMS information to ARICS	Issues related to training of trainers. or TOT) Refer table 2.1-8

Table 2.1-7 Issues related to TOT under Output 3

(1)Obtaining Consensus on TOT Framework	(2)Implementation of TOT	(3)Collaboration with KIHBT	(4) Others
• Prepare framework on TOT amongst related agencies to ensure sustainable training • Fix curriculum • Identify clear demarcation of bearers of costs • Framework involving development of trainers with certification system • Formation of system so that what was trained is practiced on actual work	• A system of upon completion of the original, conduct a follow up TOT by trainees of the original TOT to be more effective. • Revise materials for TOT	• A system which would provide merits to both trainees and companies sending trainees similar to R2000 maybe useful • Enhance values of KIHBT training program,	• Find out possibility of collaboration with Nairobi University and other construction organizations • KIHBT is positive in introducing VIMS in a new road training program • Sustainability of TOT both from program contents and cost

2.2 Technical Approach of the Project

2.2.1 Technical Aspect: Output 1 on Standard Contract Documents for Term Unit Rate and Performance Based Contracts

Approach Point 1: Setting Standard Performance Levels for Diffent Types of Roads

It is the intention of the JICA Expert Team that multiple sets of standard performance levels for various road types under Road Authorities will be proposed considering existing road conditions in Kenya as well as service levels deemed fit by road users.

Approach Point 2: Mini Pilot Project for Repair Methods for Various Road Categories

It is the intention of the JICA Experts Team that in order to improve the level of road maintenance various road maintenance and repair methods required under performance based contracts will be proposed.

(1) Setting Standard Performance Levels for Different Types of Roads

While PBC is rapidly expanding in its application to different types of roads (paved roads to unpaved roads, city streets to express highways), the existing performance specification does not reflect different characteristics of roads. JICA Expert Team considers that introduction of a set of guidelines would be most useful if such indicates model patterns of performance specification to be applied when different road categories and different traffic conditions are expected whilst standard contract documents need to be used for all kinds of road. Performance indices for performance based contract are controlled by three parameters; ie 1) indices to be applied, 2) management level, and 3) tolerances. As such, the JICA Expert Team will carry out sampling of roads in Kenya and prepare samples based on modeling such samples in accordance with Figure 2.2-1. Table 2.2-1 shows proposition of the samples to assist PBC contract management.

		Road Conditions	
		Pavement Type	Road Category
		Asphalt / Earth	High Standard / Regional
Performance Standard	1. Number of index	Large ⇔Small	Large ⇔Small
	2. Service Level	Rigid ⇔Simple	Rigid ⇔Simple
	3. Time allowed	Short ⇔ Long	Short ⇔ Long

Figure 2.2-1 Concept of setting performance level

Table 2.2-1 Proposition of guidelines for PBC implementation

No	Samples	Objective
1	Performance Specification	Setting of standard performance specification according to road type
2	Work Procedure	Standard maintenance operation procedure recommendation in PBC
3	Evaluation of Performance	Standard methodology to measure performance in the contract

(2) Mini Pilot Project for Repair Methods of Various Road Categories

Road construction is carried out in Kenya using two broadly categorized techniques. The first is a labor based technique and the second is an equipment based technique. In small scaled road repair works, the work is mainly carried out under a labor based technique as many contractors do not own machinery equipment. In performance based contracts, both road management organizations and contractors share benefits the former by maintaining roads under a specific management level and the latter by introducing ingenuity and creativity enabling efficient operation and reducing costs. JICA Expert Team intends to introduce the repair methods and a small scale road structure which will motivate Kenyan contractors to have the idea of ingenuity and creativity for maintenance works. Table 2.2-2 indicates the current plan. For trainings to be offered under the project, the focus will be placed on urgent repair and the venue will be in Nairobi or its environ.

Table 2.2-2 Proposed Road Maintenance and Repair Methods

	Repair Method
(1) Asphalt Pavement	♦ Packed type cold mix asphalt materials from Japan for pothole repair
(2) Earth Track	♦ Use of Dono (Sand Bag) Method with support from NGO (Non Governmental Organization)
(3) Safety Measures/ Preventive Maintenance	♦ Cats' eyes from Japan ♦ Pavement demarcation, provide lane markings and hump painting, etc.,

Packed Type Cold Mix Asphalt

Cat's Eyes

Dono (sand Bag) Method

Figure 2.2-2 Sample of methodology for Pilot Project

2.2.2 Technical Aspect: Output 1 on Cost Estimation Manual

Approach Point 1: Review Cost Estimation Manual to be More Applicable for Performance Based Contracts

It is the intention of the JICA Expert Team to revise the cost estimation manual so that the contents of the manual are in line with the needs of organizations applying performance based contracts for road maintenance works.

Approach Point 2: Conduct Investigative Survey to Build Up Substantiation for Cost Estimation Manual

The JICA Experts Team understands that in order to assist development of performance based contracts in Kenya, an updating system and substantiation of basic data would be most useful. The JICA Expert Team plans to adopt such a system.

Approach Point 3: Improve Cost Estimation Manual to be User Friendly

It is the intention of the JICA Expert Team to improve the cost estimation manual so that the manual is simplified and becomes a user friendly tool.

(1) Review Cost Estimation Manual to be More Applicable for Performance Based Contracts

Performance based contracts have been in use with a positive effect. Issues affecting full implementation are that 1) no fixed and accepted method is endorsed, 2) a large variation exists between project budgets and actual award prices and 3) subsequently, participation motivation is gravely reduced by many contractors. The cost estimation manual prepared in phase 1 may be an effective tool. But, many users voice comments such as 1) too complicated, 2) the manual does not consider locality and 3) rates used may not be reflecting the market conditions.

For applying PBC, estimation of the quantity of the maintenance operation needs to be standardized to come up with reasonable estimation. A guideline for standard quantity estimation will be studied from the PBC contracts completed already and the on-going ones.

Table 2.2-3 Two approach for cost estimation manual for PBC

(1) Unit Rate	Review of the manual Phase I (cost composition, productivity)
(2) Standard quantity estimation for PBC	Statistical analysis for maintenance operation work under PBC

(2) Conduct Investigative Survey to Build Up Substantiation for Cost Estimation Manual

Upon perusal of the cost estimation manual prepared in Phase 1, an investigative survey will be conducted with the following considerations.

Point 1: Updating basic rates for labor, machineries and materials and assess reasonable productivity factors related to main work elements so that direct works are standardized.
Point 2: Asses and adopt a reasonable indirect cost overhead percentage from the investigative survey to the contractors contracting PBC.
Point 3: Asses and adopt a reasonable index for various localities, road categories and pavement conditions so that the manual maybe in line with such differences.

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2.2.3 Technical Aspect: Output 1 on Supervision and Contract Evaluation Manuals (Public Procuring System for Road Maintenance Operation)

Approach Point 1: Prerequisite

The JICA Expert Team understands that this technical aspect is a prerequisite for other technical aspects requiring consideration.

Approach Point 2: Focus from experience and practice of Japan's road authority

The JICA Experts Team understands that in order to effectively implement the project strong support will be provided by a team member originating from a Japanese road authority.

The Expert Team will focus on providing good practices for the following aspects;

- Technical and administrative practice to maintain quality of the work of the contractor (inspection system, defect liability control, court-case etc.,)
- Transparency

Approach Point 3: Understand Kenyan System

The JICA Expert Team believes that understanding the Kenyan system is also useful in the implementation of the project. Dialogue with counterparts will be maintained.

(1) Approach towards Improvement

The following steps will be used when proposing improvement measures. Table 2.2-4 indicates relevant offices where interviews are to be conducted.

Step 1: Interview relevant officers to ascertain issues
Step 2: Compare with the current system in Japan
Step 3: Propose improvement measures

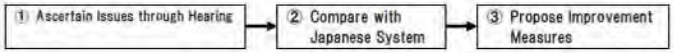

Figure 2.2-3 Proposed Steps on Identifying Improvement on Public Procurement System

Table 2.2-4 Interview Partners

Items	Responsible Party	Implemented by
Contractor registration system	NCA	Implementing agencies
Standard contract documents	PPOA	Implementing agencies
Construction process check, project evaluation	MoTI	Implementing agencies
Company profile, e-tender	KRB	Implementing agencies

(2) Application of Contract Evaluation Data on New Tenders

Further perusal will be made on construction process check lists and contract evaluation sheets to pinpoint bottlenecks. It is anticipated that the bottleneck will be the QA/QC section of each organization.

2.2.4 Technical Aspect: Output 2 on Vehicle Intelligent Monitoring System

(1) Basic Policy

Further improvement will be made from the viewpoint of 1) proper application technique, 2) organization and management, and 3) software and equipment. Table 2.2-5 indicates details of improvement.

Table 2.2-5 Issues and Proposed Improvement

	Proper Application Technique	Organization of Management
Issues	♦ Skills on the correct calibration method on the following points need to be improved, speed calibration requires sufficient time. ♦ Skills on ascertaining correctness of the initial set up. ♦ Skills on analytical method.	♦ VIMS are not controlled by a single office causing disruption in data management and other management issues. ♦ Sustainable training structure not yet established. ♦ Consistency in obtaining correct IRI measurement.
Proposed Improvement	For speed calibration, those skill would not be required because of the version up of the software.	Training program and certification from KIHBI.

(2) Possible Tie-up with KIHBT and Integration of VIMS in Inspection Required under Performance Based Contracts

An integrating IRI survey results by VIMS can be useful performance index for road surface under performance based contracts. Authorization system will be studied in the Project.

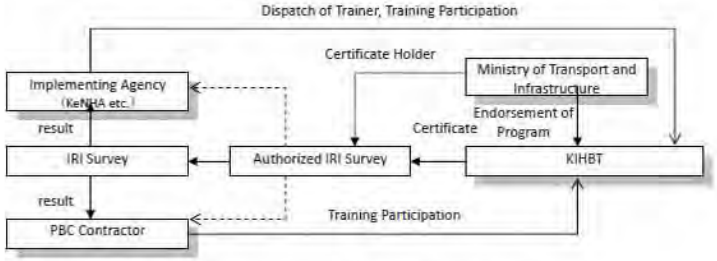

Figure 2.2-4 Draft Plan on Integrating IRI Survey Results as a Part of Inspection

(3) Establish IRI Management Levels using VIMS

Techniques using IRI indices for surface condition management is widely used in PBC. It is envisaged that road authorities will establish own IRI management levels according to the target service level. The practices in other countries can be good reference for this purpose.

Table 2.2-6 Management Levels in Other Countries

Paved (Asphalt Concrete)	IRI＜2.0 (Argentina) IRI＜2.8 (Uruguay)
Paved(DBST)	IRI＜2.9 (Argentina) IRI＜3.4 (Uruguay)
Earth Track	IRI＜6.0 (Uruguay) IRI＜11 (Chile)

(4) Calculate Annual Road Maintenance Costs based on ARICS

In Kenya, an annual road inventory and condition survey is carried out. IRI indices can be used objectively by integrating them into the result. The JICA Expert Team plans to propose its own calculation method of calculating annual maintenance costs based on use of data from ARICS and IRI data. In Table 2.2-7, a relationship between ARICS data and IRI indices is derived.

Table 2.2-7 Relationship between ARICS Data and IRI Data

	Annual Road Inventory Condition Survey(ARICS)		IRI Range	
	Paved Roads	Unpaved roads	Paved Roads	Unpaved roads
Excellent	Maintainable road with no pot-holes and no cracks.	Maintainable road with camber and drainage intact.	0.0-3.0	0.0-7.0
Good	Maintainable road with some cracks and under 5% potholes.	Maintainable road. Camber and drainage require light maintenance. Or flat sandy road.	3.0-5.0	7.0-9.0
Fair	Maintainable road with many cracks and potholes (more than 5%)	Maintainable road. Camber and drainage require some reshaping	5.0-8.0	9.0-12.0
Poor	Un maintainable	Passable but Un-maintainable. No camber Requires reinstatement.	8.0-	12.0-
Very Poor	Un-maintainable, failed	Impassable	Un-measurable	Un-measurable

2.2.5 Summary of the Activities for Phase II

From 2.2.1 to 2.2.4, various revisions which the JICA Expert Team plans to carry out in Phase 2 have been elaborated. Table 2.2-8 shows a summary of observation by the JICA Short Term Experts Team as of May 2014.

Table 2.2-8 Summary of observation by the experts of major challenge and area of technical assistance on PBC

	MOTI	KeNHA	KURA	KeRRA	KWS	KRB	KIHBT
PBC Contract km (contract Nos)	872km(57) FY13/14 *Total of RAs	283.8km(5) THKA ROAD PBC has started.	177.7km(6)	371.1km(45)	39.4km(1)	-	-
Policy on PBC	Promoting PBC Standard Contract	Expanding to trunk roads	Nairobi to other Regions	Expanding	Trial Stage		
Challenge on PBC	• Quality of work • Scientific cost estimation • Dissemination to private sector • Training	•Contract management (evaluation, instruction, safety, penalty) • Dissemination of private sector • Pavement • Structure and bridges	• Contract Management • Education, Especially SMCs • Carriage way	• Contract Management •SMC • Simple Manual • LBT • IRI		•Accountability •Education	Training Program Certificate
Area for technical assistance	①②	①②⑤	①②⑤	①②⑤		④	③

① Samples for PBC
Specification Setting, Work Procedure , Evaluation of performance for paved road (KeNHA, KURA) , for unpaved road (KeRRA, KWS)
② Cost Estimation Manual
Unit Rate (review of Phase 1), Standard quantity estimation for PBC
③ Training Program and TOT
PBC Training Program : ex. R2000, PBC training for private sector and quality PBC bidding
New program for KIHBT, Risk mitigation for RA
Registered IRI inspector , A system for qualifying IRI measurement (administrative and technical)
④ Introduction of Japan's Public Procurement System and Contract Management
Know –How to secure quality of the work
⑤ Mini Pilot Project
a)Pavement Repair (Packed Cold Mix and Inter Locking Pavement) , b) Unpaved Road (Dono) , c)Traffic Safety and Preventive Maintenance (Cat Eyes and Reflect Bean Lane marking etc.,)

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2.3 Management Approach of the Project

2.3.1 Management Basic Policy

Point 1: Full communication and cooperation will be maintained between the JICA Senior Experts in Kenya and the JICA Expert Team
Point 2: Issues related to the public procurement system will be treated by understanding how such issues have been overcome in Japan as well as necessary inputs from Senior Experts in Kenya.
Point 3: Overall management of the project will be the responsibility of JICA Senior Experts in Kenya

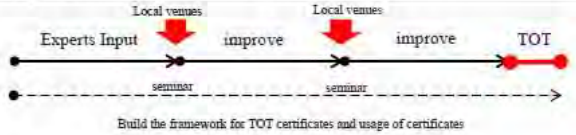
2.3.2 Points to be Understood for Seminars and Training of Traners (TOT)

The project requires organizing of seminars and TOT. The JICA Expert Team will endeavor to organize such events with the active participation by Kenyan counterparts and ensuring clear demarcation of roles and responsibilities between the team and JICA Senior Experts in Kenya.

The details of seminars and TOTs under the project is indicated in Table 2.3-1

Point 1 Identify the difference in objectives of seminars and TOTs

	Seminars	TOTs
Purpose	Introducing achievement Exchange comments and opinions Input from participants, Improve achievement	Developing Trainers
Participants	CPs and related organizations (may include donor agencies)	Those who are nominated as candidates for Trainers
Others	For the large scale version, the venues to be in Nairobi, For the small scale version, Experts will visit various areas	Curriculum will be determined prior to the training. Teaching materials will be prepared. Lasting more than a day.



Point 2 Key Points on TOT

It is most important to build the framework for provision of TOT certificates and repetitions performance of TOTs. Therefore, contact with MoTI and JICA Long term Experts at the early stage of the project is most essential.

Table 2.3-1 Seminars and TOTs to be Conducted (draft plan)

Subject	Seminars	TOT
1. Performance Based Contract	Twice (Small Scale)	4 times (Once 3 days total, 12 days) Once is on road repair
2. Cost Estimation Manual	Twice (Small Scale)	Twice (Once 3 days total, 6 days)
3. VIMS Road Monitoring	Once (Large Scale)	None
4. Public Procurement System		3 times (Once 2 days total, 6 days)
TOTAL	5 times	9 times (24 days)

2.3.3 Points to be Understood for Project Terminal Evaluation

JICA plans to dispatch a project terminal evaluation team in June 2015. The JICA Experts Team will provide information and data collected throughout the project and will endeavor to assist the evaluation team as much as practicable.

2.3.4 Points to be Understood for Investigative Surveys to be Undertaken

The JICA Expert Team plans to conduct two field surveys to identify information required for preparing the guideline required for ascertaining road management levels for performance based contracts and revision of Cost Estimation Manual. General criteria for conducting such surveys are indicated hereunder.

(1) Investigative Survey on Sampling of Roads

Investigative Survey on Road Conditions for Sampling	
Proposed Period : May 2014 in a rainy period and June 2014 for a dry period	Two team members from Kenya each 2 months

Objectives : Obtain sampling of roads which will be used as a guideline in a manual
① A guideline indicating how such roads are either suitable or unsuitable for PBC projects
② A guideline guiding applicable performance indices for such roads
③ A guideline guiding showing suitable levels are set for such performance indices

Methodology : Follow the list below

Investigation Items

For ①	a. road structures (surface, drain system, ancillaries), b. road condition (rainy, dry)
For ②	a. maintenance items (routine, regular) and frequencies (through interview with road agencies, both rainy and dry periods)
For ③	a. Maintenance conducted in PBC (method, frequency, shortcomings), through interview with PBC contractors

Selected Roads

Roads under PBC maintenance and typical roads for each road agency

1) PBC Maintenance Roads

No.	Agency	Route	Pavement	Locations	Distance (km)
1	KeNHA	A2	AC	Junction B8-Tana River Bridge(Garissa)-Modika	136
2	KeNHA	A3	AC	Junction B8-Tana River Bridge(Garissa)-Modika	25
3	KeNHA	C17	AC	Kisii-Kilgoris	57
4	KeNHA	A104	AC	Lane-Njoro Turnoff	16
5	KRRA	Nairobi	AC	Nairobi	14.25
6	KURA	Nairobi	AC	Nairobi	59.2

2) Typical Roads under Each Road Agency

No.	Agency	Route	Pavement	Locations (TBC)	Distance(km)
7	KeRRa	TBC	Non Paved	Regional gravel road near Nairobi	TBC
8	KeRRa	TBC	Bitumen Seal	Bitumensealed road near Nairobi	TBC
9	KWS	TBC	Non Paved	Road within Nairobi National Park	TBC
10	WS	TBC	Paved	Paved road under KWS	TBC
11	KeNHA	Thika Road	AS	High standard road	TBC
12	KURA	Western Ring Road	Paved	Road by Japanese grant aid within Nairobi	TBC
13	KURA	NMA	Interlocking	Interlocking paved road near Nairobi	

Others

Output :

For ①	Photo albums of sampled roads showing structures, damages and finding by the survey
For ②	Lists indicating details of maintenance being performed
For ③	Lists indicating details of maintenance being performed and good/bad practices

GP-2-16

(2) Investigative Survey on Cost Estimation Manual

Investigative Survey on Cost Estimation Manual	
Proposed Period : Sep 2014 to October 2014	Two team members from Kenya each 2 months

Objectives : To collect various data which would be required for adjusting Cost Estimation Manual towards the market condition and for integrating Cost Estimation Manual in performance based contracts

① A guideline for identifying contents of the current PBC Maintenance Service
② ①-1 Contract contents of PBC with details of offered prices, rates and indirect costs
①-2 Evaluation and payment record for PBC Maintenance Service
①-3 Inputs required by contractors for PBC Maintenance Service (Manpower, machineries and materials)
①-4 Record of Improvement Works and Emergency Works under PBC
③ A guideline for adjusting Cost Estimation Manual towards the market condition
②-1 Interview for obtaining productivity record
④ -2 material costs, labor costs, and equipment and machineries costs

Methodology : As outlined below

(1) Items of Investigation

Items	Target	No.	Investigation Contents	Method
①-1	All PBC contractors (covering multiple types of pavement)	Minimum 5 contractors	Contract details and prices (rates, quantities, indirect costs)	Interview
① 2	All PBC contractors (covering multiple types of pavement)	Minimum 5 contractors	Evaluation results and payment record of PBC maintenance service	Interview
①-	All PBC contractors (covering multiple types of pavement)	Minimum 5 contractors	Monthly input record of PBC maintenance service	Interview
①-4	All PBC contractors (covering multiple types of pavement)	Minimum 5 contractors	Record of improvement works and emergency works	Interview
② 1	All PBC contractors and other contractors in Nairobi	Minimum 5 contractors	Productivity record on main 3 items based on interview or field inspections	Interview, Field inspection
②-2	KNBS(Kenya National Bureau of Statistics, Ministry of Labor, Ministry of Roads	Detailed elsewhere in Work Plan	Current and past record on material prices, labor prices, and equipment and machineries prices based on different regions	Interview

(2) Selected Roads

1) Under PBC Projects

No.	Road Agency	Route	Pavement	Locations	Distance (km)
1	KeNHA	A2	AC	Junction B8-Taa iver Bridge(Garissa)-Modika	136
2	KeNHA	A3	AC	Junction B8-Tana River Bridge(Grissa)-Modika	25
3	KeNHA	C17	AC	Kisii-Kilgoris	57
4	KeNHA	A104	AC	Lanet-Njoro Turnoff	16
5	KURA	Nairobi	AC	City roads	1425
6	KURA	Nairobi	AC	City roads	59.2

Output

For ①	Data record on PBC maintenance service (rates, productivity, evaluation results, payment)
For ②	Data record for revising Cost Estimation Manual (KNBS data, list of rates for different regions, productivity)

2.4 Methodology

The JICA Expert Team plans to carry out necessary activities based on technical and management approaches as outlined in 2.2 and 2.3. The project flow chart attached as Figure 2.4-1 indicates how activities are related to each other.

Table 2.4-1 Component Breakdown

Components	Reference Required
1. Performance Based Contract	2.2.2, 2.2.3, 2.2.4
2. Cost Estimation Manual	2.2.5, 2.2.6, 2.2.7
3. VIMS Road Monitoring	2.2.8, 2.2.9, 2.2.10, 2.2.11
4. Public Procurement system	2.2.12, 2.2.13, 2.2.14

Table 2.4-1 indicates the component breakdown of various activities outlined under 2.1, 2.2 and 2.3. Other activities not elaborated in these sections are briefly covered in this section.

Work Plan: The JICA Expert Team is required to draft the work plan outlining policies and elaborating on how activities are planned to be implemented together with the project schedule and the man-months assignment sheet. The draft plan will be reviewed by JICA Senior Experts in Kenya, then exchange comments amongst the Ministry of Transport and Infrastructure, JICA and other related officials before submitting the final version for approval. The timing and the number of copies required are indicated in deliverables.

JICA Progress Report: The JICA Expert Team is required to submit the report. The timing and the number of copies required are indicated in Deliverables. Based on submission of the report, the contents will be presented during JCC meetings.

JICA Project Report: The JICA Expert Team is required to submit the report. The timing and the number of copies required are indicated in Deliverables. Based on submission of the report, the contents will be presented during JCC meetings.

Issuance of Project News: Project news including photo images will be prepared by the JICA Expert Team for the purpose of being utilized for JICA Website home page for technical cooperation projects every two months.

Deliverables: Deliverables are as follows;

Description	Submission Date	Copies Required
Work Plan	May 2014	10 copies in English
		1 copy of CD-R
JICA Progress Report	Dec. 2014	5 copies in Japanese
		15 copies in English
		1 copy of CD-R
JICA Project Report	Nov. 2015	5 copies in Japanese
		15 copies in English
		1 copy of CD-R

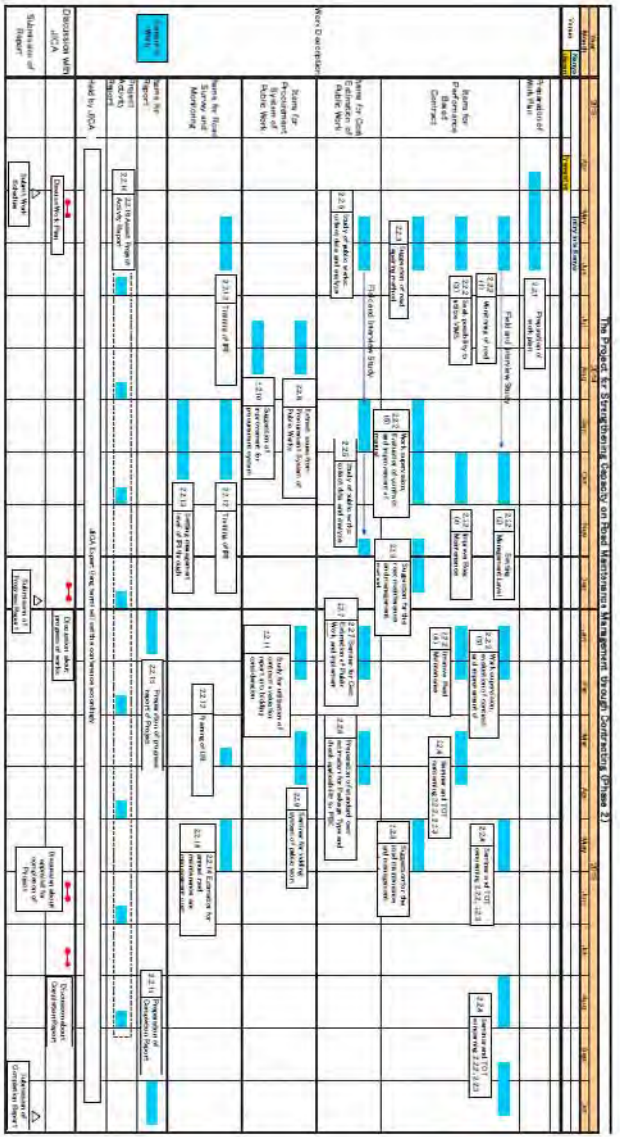


Figure 2.4-1 Work flow of the Project

2.5 Work Procedure

The project schedule is indicated in the next page.

Main points considered for scheduling and sequencing of activities are as follows;

1. Major milestones as instructed by JICA terms of reference have been considered.
2. The schedule considered for harmonizing durations required for expert oriented training and self training by counterparts.
3. In order to ensure that the JICA Expert Team is embarking on a realistic and effective technical transfer program, a baseline survey will be conducted at the initial stage of the project to con firm the status of projects under performance based contracts. At the same time, exchange of comments/opinions of JICA Senior Experts in Kenya and counterparts will be conducted.
4. The schedule has been drawn up to concentrate on performing investigative surveys, data collection, revision of manuals and discussions amongst project related persons in the first half of the project, whilst performing seminars and TOTs at the latter half of the project.

Activities will follow the sequencing below in Figure 2.5-1. 5 milestones have been plotted to direct the project satisfactorily.

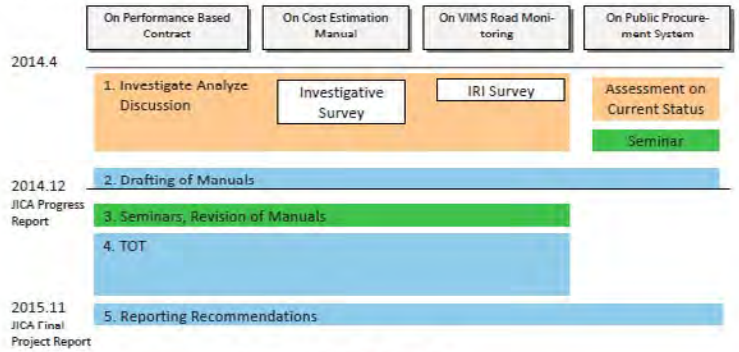


Figure 2.5-1 Work Procedure

2.6 Staffing Schedule

Staffing schedule is shown in Figure 2.6-1.

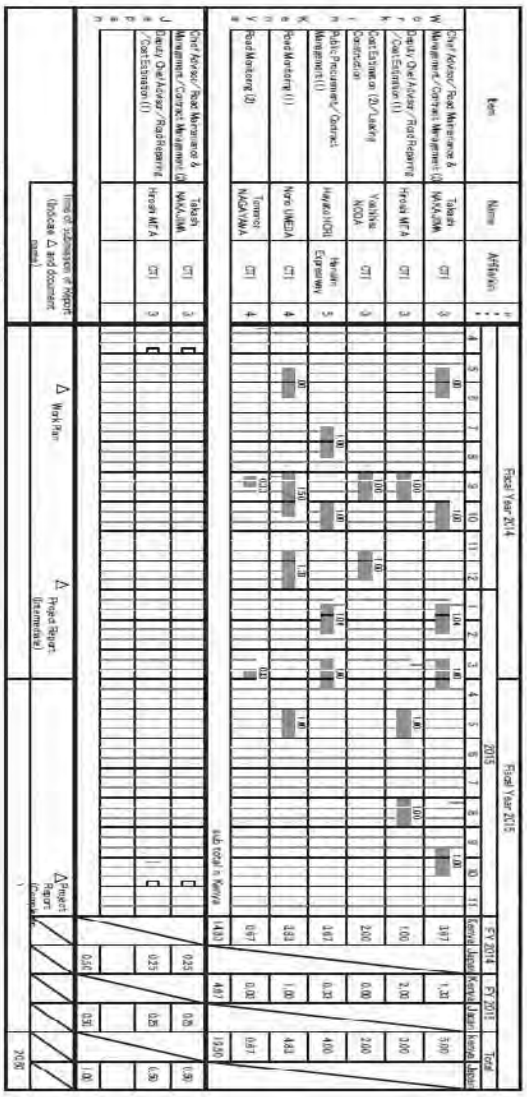


Figure 2.6-1 Work Procedure

3. Project Organization

3.1 Organization Chart

The Project Organization Chart is shown in Figure 3.1-1.

Table 3.1 1 Member List

No	Name	In Charge of	Company	Remark
1	Takashi NAKAJIMA	Chief Advisor/ Road Maintenance Management/ Contract Management 2	CTI Engineering International Co., Ltd.	PE
2	Hiroshi MITA	Deputy Chief Advisor/ Road Repair/ Cost Estimation 1	CTI Engineering International Co., Ltd.	PE 1st Class Civil Engineer (Japan) Former PMP
3	Yoshihisa NODA	Cost Estimation2/ Site Supervision	CTI Engineering International Co., Ltd.	PE 1st Class Civil Engineer (Japan)
4	Hayato HORI	Public Procurement/ Contract Management 1	Hanshin Expressway Co., Ltd.	
5	Norio UMEDA	VIMS Road Monitoring	CTI Engineering International Co., Ltd.	1st Class Civil Engineer (Japan)
6	Tomonori NAGAYAMA	VIMS Road Monitoring	CTI Engineering International Co., Ltd. (Tokyo University)	Associate Professor

3.2 Support to the Project

3.2.1 Support from Japan

The JICA Expert Team will have the following support from HQ in Japan.

Project Team

Task	Supportive Member	Supporting Item
Leader, Overall Support	Shingo Gose (Director)	Advisor for the operation of the project from his long experience of technical assistance project.
Road Management	Yuzo Mizota (General Manager)	Advisor for the operation of the project. He has project experience of project manager in a road maintenance project in South Sudan.
Road Repair/ Cost Estimation	Ryoici Watanabe (General Manager)	Long experience both in road repair and cost estimation. Working experience in East Africa.
Public Procurement System	Tomohiko Nishibayashi (Manager, International Affairs Dep't, Engineering Dep't))	Long experience working in Hanshin Expressway dealing with public procurement. He was the senior advisor with JICA for phase 1 of the project.
IRI measurement	Tomonori Nagayama (Associate Professor of Tokyo University)	He is one of the academic research group who developed VIMS. Technical and academic support
Project Management	Masakazu Maeda (Executive Officer)	Coordination with JICA Tokyo
	Motohiko Nishibayashi (Manager)	
Quality Control	Makoto Yajima (Quality Management Division)	Quality control under ISO 9001.
	Keiji Nishioka (Head of Engineering Dep't)	
Safety and Management	Kimio Shimomura (Executive Director)	Safe project operation and support from Japan to the Experts.
	Masaru Kawamura (Head of International Affairs Dep't)	
Review	Jovito Santos (Senior Expert)	Advise on reporting in English.

Figure 3.2-1 Support Organization

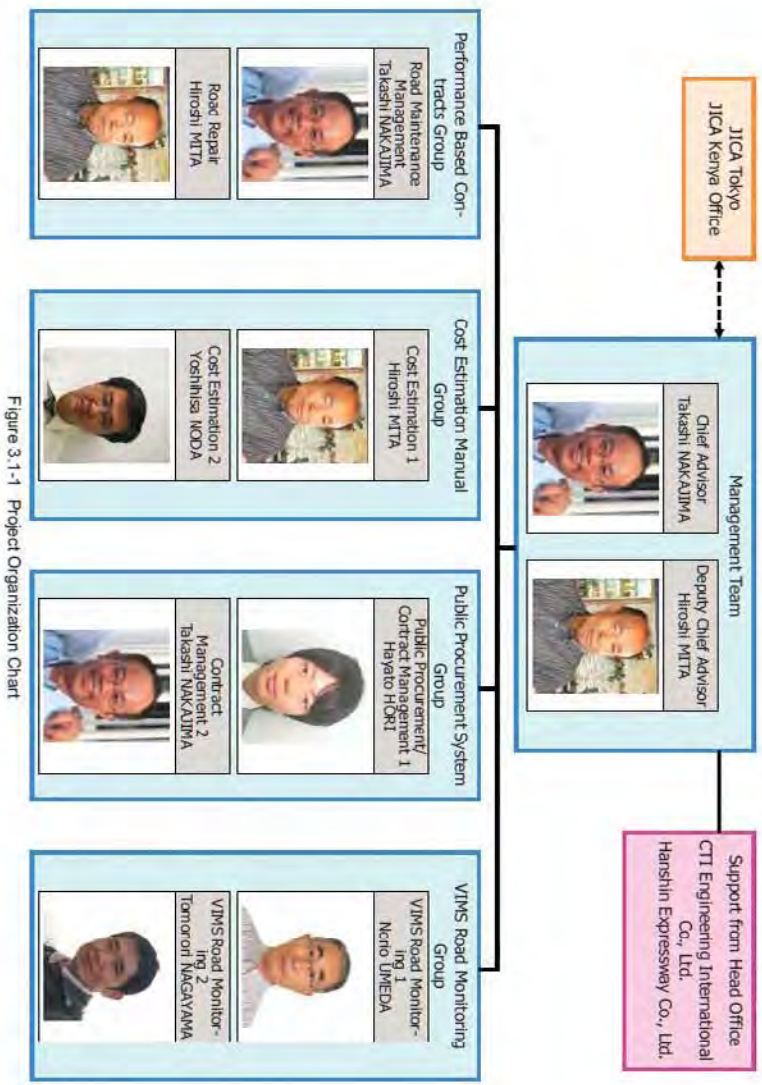


Figure 3.1-1 Project Organization Chart

3.2.2 Emergency Communication

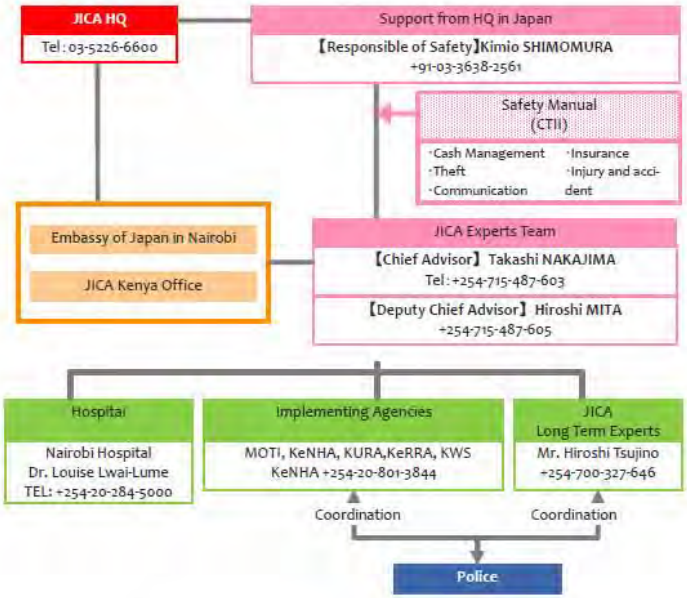


Figure 3.2-2 Emergence Communication Network

GP-2-20

GP-2-21

Appendix – 1 Project Design Matrix

A1-1

0.1

ANNEX 1 Project Design Matrix (PDM)

Project Name: The Project for Strengthening of Capacity on Road Maintenance Management through Contracting (Phase 2) Version draft

Target Area: Whole Country Target Group: Implementing Agencies: KRB, KeNHA, KURA, KeRRA, and KWS Date : 2nd August 2013

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal To maintain the existing road network in good condition	1. Length of road network damage decreases 2. Lifespan of roads increases 3. Customer satisfaction	Technical audit report Customer satisfaction survey report	National policy on the road sector does not change
Project Purpose The capacity of implementing agencies is strengthened on management of road maintenance through contracting	1. Number of roads maintenance projects contracted out increases 2. Proportion of Contract works completed on time increases 3. Quality of road maintenance works improves 4. Time taken between identification of Project to completion is reduced	Project implementation report Customer satisfaction survey report	Ongoing Roads sector reforms do not affect implementation of the project activities
Outputs 1. The public procurement system associated with road maintenance contracting is improved, making road maintenance procedures rationalized and its efficiency increased. 2. Road conditions are periodically monitored by Vehicle Intelligent Monitoring System (VIMS) and assessed to enable road agencies to prepare road maintenance plans based on objective information. 3. An enabling environment is created for road agencies, contractors and other public institution to institutionalize the interventions introduced by the Project and the project outputs are shared with them through training opportunities offered at the Kenya Institute for Highways and Building Technology (KIHBT).	Following indicators evaluated by self & externally 1-1. Road maintenance term contracts (both unit rate and performance based contracts) are tested and their improvements are identified. 1-2. The manuals and the standard tender documents are updated, unit prices are revised. 1-3. Contractor's performance data are accumulated and used in a tender evaluation process. 2-1. Frequency and coverage of road condition survey increases 2-2. Road maintenance plans reflect road condition survey results 3-1. A training course covering contract management, cost estimation and construction supervision is in place	1-1 Annual operation report 1-2 information from road agencies 1-3 information from KIHBT 2-1. information from road agencies 3-1. information from KIHBT	Adequate budget is secured and timely disbursed

A1-2

Activities	Inputs (Japan)	Input (Kenya)	Preconditions
Output 1. The public procurement system associated with road maintenance contracting is improved, making road maintenance procedures rationalized and its efficiency increased. (Standard contract documents for term unit rate & performance based contract) 1-1.Test unit rate term contract for road maintenance works and identify issues expected to be encountered when putting it into practice and make recommendations for improvement 1-2.Evaluate the results of pilot projects for performance based contract implemented during Phase 1 and make recommendations for improvement 1-3.Suggest revisions to be incorporated into the standard contract documents by reflecting pilot project experiences (Supervision and Contract Evaluation Manual) 1-4.Monitor the use of and ascertain applicability of the 'Supervision and Contract Evaluation System' created during Phase 1 to actual road maintenance contracts implemented by road agencies and prepare recommendations and findings 1-5.Suggest revisions to be incorporated into the 'Supervision and Contract Evaluation Manual for Road Maintenance (Nov 2012 version)' based on the Activity 1-4 1-6.Support road agencies for accumulating data of contractor's performance evaluation and suggest ways to make it available to other tender evaluation, including necessary revision of standard tender documents (Cost Estimation Manual) 1-7.Monitor and evaluate the use of the cost estimation manual prepared during Phase 1 for budgetary planning purposes as well as preparation of 'engineer's estimates' within road agencies. 1-8.Update the cost estimation manual by drawing upon the above activity and reflect to the updated manual the revised data to be obtained through a unit price survey for the items of work (labour, material, equipment). 1-9. Assist road agencies in making arrangement to periodically update the unit prices 1-10.Formulate standardized approach to determine, from project owner's perspectives, the quantities of work which constitutes engineer's estimates (Common to the above activities) 1-11.Assist road agencies in activities to scale up the use of the	1. Dispatch of Experts 1-1 Long-term Experts: 2 persons - Chief Advisor/ Road Maintenance Administration: 2 years - Public Procurement & Contract: 2 years 1-2 Short-Term Experts* - Contract Management - Road Construction Supervision - Cost Estimate * Short-Term Experts will be dispatched when necessity arises and their person months will be determined later. Expertise indicated above are tentative and subject to change during the course of the Project 2. Training 2-1 Seminars/workshops in Kenya 2-2 Counterpart training in Japan 3. Equipment and Tools 3-1 Project Car(s) for Road patrol and supervision 3-2 Personal Computer(s)	1. C/P Personnel -Project Director -Project Manager -General Manager and Manager of the agencies 2. Administrative Personnel -Supporting and Administrative Staff 3. Provision of facilities for the Project implementation -Project office -Expenses for electricity, Communication facilities, water service, etc 4. Administrative cost for running expenses of the project	Sufficient personnel to implement project activities is secured and retained Positive collaboration among all implementing agencies and stakeholders is maintained

A1-3

standard tender documents and the manuals mentioned above, and recommend on ways forward to enhance institutional arrangement for their regular use. **Output 2. Road conditions are periodically monitored and assessed to enable road agencies to make decision on road maintenance planning based on objective information.** 2-1. Monitor and assess how the Vehicle Intelligent Monitoring System (VIMS) are used in annual road condition surveys. 2-2. Assist road agencies in using the data obtained through VIMS for maintenance planning. **Output 3. An enabling environment is created for road agencies, contractors and other public institution to institutionalize the interventions introduced by the Project and the project outputs are shared with them through training opportunities offered at the Kenya Institute for Highways and Building Technology (KIHBT).** 3-1. Assist KIHBT in organizing the training course on "Comprehensive Road Work Management" using the training material prepared in Phase 1. 3-2. Provide support to set up a mechanism to periodically update the manuals, standard contract documents and related data, liaising with the National Construction Authority.			

Appendix – 2 Investigative Survey on Sampling of Roads

Collection of Typical sample of road maintenance to prepare PBC Manual

Item	Survey Slip	Point for survey	Information Source	Prepared by	Others
1. Road Monitoring about possible application index for PCB	1－1 Road conditions 1－2 Photos 1－3 Report about possibility for PBC work	format may be the same format as the study of cost estimation Make report from the interview of road administrator	Road Administrator	Kenya Consultan:	
2. Road Monitoring about guideline of Performance Index	2－1 Study of acual road conditions on going by PBC 2－2 Questionnaire	Format may be same one as the study of cost estimation. The importance is to get the experiences and good lesson from the road administrator and contractor.	Road Administrator Contractor	Kenya Consultan:	
3. Road Monitoring about Service Level	3－1 Study of samples about service level of PBC 3－2 Questionnaire	Literature research including internet for Performance Index Interview from road administrators and contractors	Internet/documents Road administrator Contractor	Kenya Consultan:	

Remark
Item 1

The survey aims to collect typical samples for preparation of Manuals
The survey will be on the road currently under PBC, and past roads under PBC, expected roads under PBC by roads authorities.

Item 2
Interview survey

Item 3
Collection of the experiences in other countries for reference

Appendix - 3 Investigative Survey on Cost Estimation Manual

Project Name : The Project for Strengthening Capacity on Road Maintenance Management through Contracting

Survey sheet for PBC Contract (No.) 1/3

A. Date			
B. Period			
C. Client			
D. Contractor			
E. Route name			
F. Length			
G. Grade of Road	A. International Trunk Roads	B. National Trunk Roads	C. Primary Roads
	D. Secondary Road	E. Minor Roads	Special Roads
H. Width (Carriage way, Shoulder)	Carriage way : Shoulder :		
I. Pavement type	As concrete, DBST, Gravel road, Earth road		
J. Contract Amount			
K. Breakdown of Contract	Item	Rate	Amount
Maintenance Services			
Rehabilitation Works			
Improvement Works			
L. Rate of indirect Cost			
M. Special Note			

Collection of basic information for the improvement of cost estimation manual of PBC work

Item	Monitoring Slip	Point of Monitoring	Information Source	Prepared by	Right/wrong for prior work
1. Study of actual situation of PBC	Slip ①-1 Study of actual situation of PBC(1/2,2/2)	1/2 is summary and 2/2 is BOQ and contract amount	Copy of contract document	Staff of Consultant (CTII)	Possible to collect data
	Slip ①-2 Evaluation of PBC	Length of road under the contract	Monthly payment report by employer	Staff of Consultant (CTII)	Possible to collect data
	Slip ①-3 Study of input for Maintenance Service	Check labor, equipment and material cost	Monthly report of contractor	Contractor	Possible
	Slip ①-4 Study Improvement and Emergency Work	Contract amount of Improvement Emergency Work	Employer	Staff of Consultant (CTII)	Possible
2. Work Efficiency	Slip ②-1 Study of Work efficiency	Study and report the actual work efficiency	Work at the site	Consultant	Not Possible
3. Check Unit Rate	Collection of data from Kenya National Bureau of Statistics (KNBS)	Confirmation of data from KNBS Verification of regional difference	KNBS	Staff of Consultant (CTII)	Possible
	Breakdown of cost estimation prepared by the contractor	Need the co-operation of the contractor	Breakdown from the contractor		

Project Name : The Project for Strengthening Capacity on Road Maintenance Management through Contracting

Survey sheet for PBC Contract (No.) 2/3

N. Breakdown of K	Item	Q'ty	Rate	Amount
Rate A	Labor			○○
	Equipment			××
	Materials			
	Indirect cost			□□
	Total			■■
Rate B				
Rate C				

Project Name : The Project for Strengthening Capacity on Road Maintenance Management through Contracting

Indirect Cost Check List 3/3

Item-1	Item-2	Description	Direct Cost	Indirect Cost
			Check the box(レ)	
Common Temp. Expenses	Hauling Expenses	Equipment, Machineries		
	Preparatory Expenses	Preparation, Cleaning		
		Sub-soil investigation. Survey, Stales		
		Clearing & Grubbing		
	Safety	Management, Facilities		
	Engineering	Tess for Quality Control		
	Maintenance Expenses	Site office, Logging House		
		Building Maintenance, Transportation of Staff		
Field Expenses	Personnel's	Personnel administration		
	Taxes	Property tax, Car tax, etc		
	Insurance	Car, All risk insurance, etc		
	Wage, allowance, retirement fee			
	Welfare			
	Stationaries			
Overhead	Wage, allowance, retirement fee			
	Welfare			
	Maintenance of building			
	Communication			
	Water, Power consumption			
	Benefit			

A3-7

Project Name : The Project for Strengthening Capacity on Road Maintenance Management through Contracting

Survey Sheet for Evaluation and Payment Record of Maintenance Services on PBC Contract (No.)

Route name : Length : Width :

Pavement Type : Contract Amount :

Year & Month	Deducted Amount	Breakdown (km)			Paid Amount	Date of Inspection
		Safety	Durability	LD		
Feb. 2014						
Mar. 2014						

Attachment : Monthly Statement of Contract

A3-8

Survey Sheet for Actual Input for Maintenance Services on PBC Contract (No.)

Route name : Length : Width :

Pavement Type : Contract Amount :

Year Month	Skilled Labor		Unskilled Labor		Other ( )		Equipment-1 ( )		Equipement-2 ( )		Material-1 ( )		Material-2 ( )	
	Q'ty	Unit	Q'ty	Unit	Q'ty	Unit	Q'ty	Unit	Q'ty	Unit	Q'ty	Unit	Q'ty	Unit
Feb. 2014														
Mar. 2014														

A3-9

Survey Sheet for Actual Input for Maintenance Services on PBC Contract (No.)

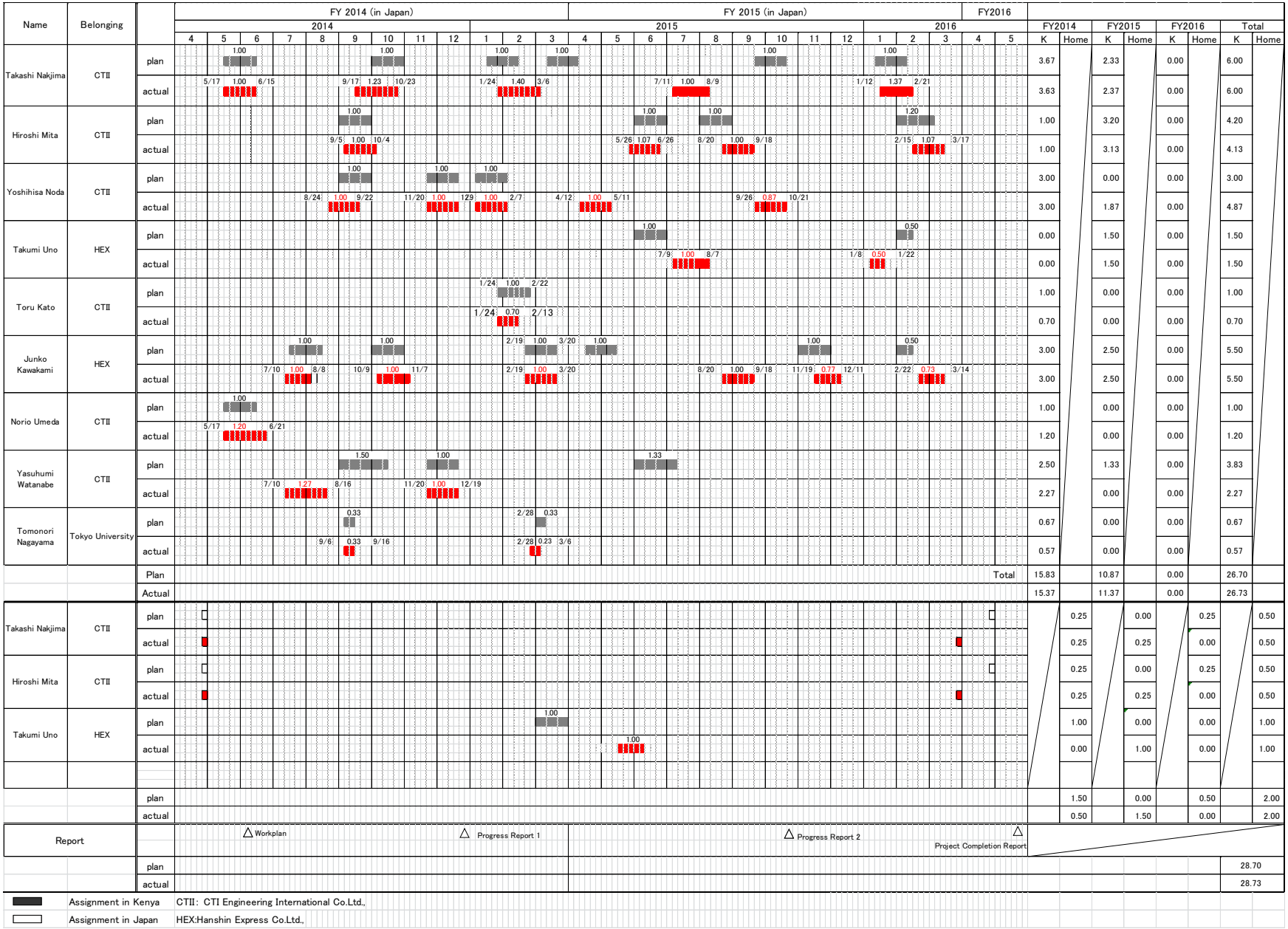
Year Month	Major Activities
Feb. 2014	
Mar. 2014	

A3-10

Survey Sheet for Work Records of Improvement & Emergency Works on PBC Contract (No.)

Year Month	Item (Improvement /Emergency)	Outline	Work Item	Q'ty	Rate	Amount
			Work Item-1			
			Work Item-2			
			Work Item-3			
			Work Item-4			
			Work Item-5			
			Work Item-6			
			Total			
			Work Item-1			
			Work Item-2			
			Work Item-3			
			Work Item-4			
			Work Item-5			
			Work Item-6			
			Total			

Attachment GP-3 Person Month Plan and Actual



Name	Belonging		FY2014 K	FY2014 Home	FY2015 K	FY2015 Home	FY2016 K	FY2016 Home	Total K	Total Home
Takashi Nakjima	CTII	plan	3.67		2.33		0.00		6.00	
		actual	3.63		2.37		0.00		6.00	
Hiroshi Mita	CTII	plan	1.00		3.20		0.00		4.20	
		actual	1.00		3.13		0.00		4.13	
Yoshihisa Noda	CTII	plan	3.00		0.00		0.00		3.00	
		actual	3.00		1.87		0.00		4.87	
Takumi Uno	HEX	plan	0.00		1.50		0.00		1.50	
		actual	0.00		1.50		0.00		1.50	
Toru Kato	CTII	plan	1.00		0.00		0.00		1.00	
		actual	0.70		0.00		0.00		0.70	
Junko Kawakami	HEX	plan	3.00		2.50		0.00		5.50	
		actual	3.00		2.50		0.00		5.50	
Norio Umeda	CTII	plan	1.00		0.00		0.00		1.00	
		actual	1.20		0.00		0.00		1.20	
Yasuhumi Watanabe	CTII	plan	2.50		1.33		0.00		3.83	
		actual	2.27		0.00		0.00		2.27	
Tomonori Nagayama	Tokyo University	plan	0.67		0.00		0.00		0.67	
		actual	0.57		0.00		0.00		0.57	
		Plan	15.83		10.87		0.00		26.70	
		Actual	15.37		11.37		0.00		26.73	
Takashi Nakjima	CTII	plan		0.25		0.00		0.25		0.50
		actual		0.25		0.25		0.00		0.50
Hiroshi Mita	CTII	plan		0.25		0.00		0.25		0.50
		actual		0.25		0.25		0.00		0.50
Takumi Uno	HEX	plan		1.00		0.00		0.00		1.00
		actual		0.00		1.00		0.00		1.00
		plan		1.50		0.00		0.50		2.00
		actual		0.50		1.50		0.00		2.00
Report		△ Workplan; △ Progress Report 1; △ Progress Report 2; △ Project Completion Report								
		plan							28.70	
		actual							28.73	

Assignment in Kenya
Assignment in Japan

CTII: CTI Engineering International Co.Ltd.,
HEX:Hanshin Express Co.Ltd.,

Attachment GP-4 List of the Equipment (including handover certificate)

(Form12)

DATE: MARCH 9, 2016

CERTIFICATE OF HANDOVER

PROJECT TITLE: The Project for Strengthening Capacity on Road Maintenance Management through Contracting (Phase 2)

This is to certify that the equipment in the attached list procured by the Short Term Expert Team for the above-mentioned project was handed over properly as of March 9, 2016 to Kenya Institute of Highways and Building Technology.

(Signature) _____
for Mr. Takashi Nakajima
Team Leader
Short Term Expert Team
HIROSHI MITA

(Signature) _____
Eng. M.O. Ontomwa
Principal
Kenya Institute of
Highways and Building
Technology

(Form12)

(Attachment)

List of Equipment

No.	Name of Item	Qty	Place of Installment	Date of Handover
1	HP laptop computer Sr. Nos. 5CB4074C77, 5CB4091CNC, 5CB4091D79	3	KIHBT Office	March 9, 2016
2	DRIMS (Dynamic Response Intelligent Monitoring System) Acc. Sr. No. 1912 DAQ Sr. No. 196FB92 Activation Code 32DF724	1	KIHBT Office	March 9, 2016

Attachment GP-5 Minutes of the Meeting (JCC and NWG)

Ref: KeNHA / MTCE/ JICA/ MIN/52

7th JCC

THE PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING (PHASE 2).

MINUTES OF THE 7TH JOINT COORDINATION COMMITTEE (JCC) MEETING HELD ON WEDNESDAY 11th JUNE 2014 AT 9.00AM, 9th FLOOR BOARDROOM,WORKS BUILDING.

1.0 PRESENT

1.	Eng. Joseph N. Nkadayo	Director General KURA – Chairman.
2.	Eng. Edwin Muchugia	Head Roads/ fleet Management, KWS
3.	Eng. P.M. Mundinia	General Manager (M) KURA
4.	Eng. Margaret W. Ogai	Manager, Planning Dept. K.R.B
5.	Peter B. Kusimba	Director of Administration
6.	Eng. N. N. Nganga	M(P & R 2000) KERRA
7.	Eng. Okeyo C.D	GM(M) KeNHA
8.	Eng. Francis Gitau	Ministry of Transport and Infrastructure
9.	Mr. Koji Jitsukaua	JICA
10.	Dr. Steve Mogere	JICA
11.	Mr. Hiroshi Tsujino	JICA Long Term Expert Chief Advisor
12.	Mr. Hidetsugu Ikeda	JICA Long Term Expert
13.	Mr. Takashi Nakajima	JICA Short Term Expert Team Leader
14.	Mr. Robert Mutai	JICA Short Term Expert Team
15.	Mr. Jared Onyoni	JICA Short Term Expert Team -Taking minutes

APOLOGY

1. Eng. John Musuni (P.S)

3.0 AGENDA

1. Opening remarks
2. Introduction of members.
3. Adoption of the agenda.
4. Confirmation and approval of 6th JCC Minutes.
5. Project Design Matrix (PDM).
6. Activity Plan from the JICA short term expert team.
7. Results of the VIMS Audit
8. Any Other Business.

The chairman called the meeting to order at 9.10 a. with a word of prayer from Eng. Gitau.

MIN	Deliberations	Action
1/8	Opening remarks by the Chair/ JICA chief adviser The Chairman said he was representing Eng. John Musuni (P.S). He conveyed the apologies of the absence of the P.S who had to attend another meeting. He took the opportunity to thank the JICA experts for their work which is enhancing supervision of road work and the entire National Working Group for attending.	INFO JICA
2/8	Introduction of members. The chairman welcomed members to the meeting and asked for self-introduction.	
3/8	The meeting adopted the draft agenda for the meeting.	
4/8	Confirmation of the 6th JCC minutes/ Matters arising The minutes were confirmed as reflecting a true record of what transpired. There were no matters arising.	
5/8	Project Design Matrix (PDM). The JICA chief expert outlined revised PDM. The revised PDM was seconded in the meeting. He enumerated the following in his presentation; • The overall goal of PDM is to maintain existing road networks in good condition • In order to maintain the good road conditions, maintenance operation systems have to implement performance based contract (PBC) effectively. • Road conditions are to be monitored by I.R.I. (International Roughness Index) by VIMS (Vehicle Intelligent Monitoring System) so that annual road maintenance plan is formulated by the amalgamation of ARICS. • It was noted the importance to build sustainability of the operation of VIMS	INFO

	system via training and certification.	
6/8	Activity plan from JICA short term expert team. The activity plan was seconded in the meeting. The JICA expert outlined the activity plan. He enumerated the following in his presentation; • The rapid expansion of PBC among KWS, KeNHA, KeRRA and KURA • The technical approach of the project. I. Setting up the performance index/level to be defined under PBC conditions by solving issues from the current PBC, integrate IRI into PBC, VIMS training and certification. II. Performance based contract cost estimation manual to be improved and simplified. III. Share Japan's procurement systems with Kenya IV. Road monitoring and evaluation.	
7/8	Results of the VIMS audit. The JICA expert outlined the results of the VIMS audit. He enumerated the following in his presentation; • VIMS is cheaper than visual check which not quantitative and road profiling which is quantitative but time consuming. • IRI data processing is clearer than plotted on the map and usable for accumulating data • VIMS Equipment audit showed that there was a lack of trained people, equipment challenges as well as software which needed improvements. This challenges are hindering proper implementation if VIMS. For VIMS following points were suggested ; • The use of VIMS (IRI) needs to have a policy approach with guidelines and manuals to clarify any arising problems during data collection. • VIMS equipment to be standardized and certified by Kenya Bureau of Standard (KEBS) but subject to further discussion between the Chief Engineer and KEBS. • Engineering Certification is to be given by Engineers Board of Kenya. • The training program is to be certified by Ministry of Education.	INFO
8/8	A.O. B No AOB	

The meeting ended at 11.50 a.m.

Minutes confirmed as a true record of what transpired.

Chairman…… Date…….

Member…… Date ……

Ref: KeNHA / MTCE/ JICA/ MIN/52

8th JCC

THE PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING (PHASE 2).

MINUTES OF THE 8TH JOINT COORDINATION COMMITTEE (JCC) MEETING HELD ON THURSDAY 10TH MARCH 2016 AT 9.00AM, 9th FLOOR BOARDROOM,WORKS BUILDING.

1.0 PRESENT

	NAME	**ORGANIZATION**
1	Peter Kusimba	MoTI – Chairman
2	Eng. Francis Gitau	MoTI
3	Julius Kaliti	KIHBT
4	Caroline Kamunya	KIHBT
5	Eng. Maurice Akech	N.C.A
6	Ruth Makau	N.C.A
7	Walter Ochien'g	K.W.S
8	Grace Mathai	KeNHA
9	Eng. Philemon Kandie	KeNHA
10	Eng. B. K. Maingi	K.R.B
11	Eng. Margaret Ogai	K.R.B
12	Eng. John K. Mwangi	KeRRA
13	Kenji Yokota	JICA Kenya
14	Koji Noda	JICA Kenya
15	Keiko Sano	JICA Kenya
16	Hiroshi Tsujino	JICA Chief Advisor
17	Hidetsugu Ikeda	JICA Expert
18	Hiroshi Mita	JICA Expert
19	Yoriko Kawakami	JICA Expert
20	Robert Mutai	JICA
21	Jared Onyoni	JICA – Taking minutes

2.0 APOLOGY

1. Eng. John Mosonik (P.S)

3.0 AGENDA

1. Opening address from the chair.
2. Introduction of members.
3. Project Activities and Achievements-(JICA Chief Advisor).
4. Post project action-How PBC training will be managed-(KIHBT).
5. Launching of PBC Guideline and Cost Estimation Manual for PBC-(MoTI)
6. Comments about Phase 2-(C/Ps)
7. Phase 3 Project (JICA Office)
8. Closing Remarks from the Chair

The chairman called the meeting to order at 9:20 am. with a word of prayer from Grace Mathai.

MIN	Deliberations	Action
1/8	**Opening remarks by the Chair/ JICA chief adviser**	
	The Chairman said he was representing Eng. John Mosonik (P.S). He conveyed the apologies of the absence of the P.S who had to attend other matters. He took the opportunity to note that phase 2 project has been successful as it has delivered a PBC guideline, cost estimation manuals and training materials. He said that the documents will be launched by the cabinet secretary soon. He also added that the documents will become standard for road maintenance works and cost estimation for better sustainability of roads.	
2/8	**Introduction of members.**	
	The chairman welcomed members to the meeting and asked for self-introduction.	
3/8	**Project Activities and Achievements-(JICA Chief Advisor).**	
	In presenting the final reporting for the project, Mr. Tsujino enumerated on the following points. **1.** Overall goal; 1) Performance level of roads maintenance operation contracts by performance based road maintenance contracts (PBC) is improved both in RAs and other	

	related industry. 2) Existing road network maintained in good condition Project purpose; The capacity of implementing agencies is strengthened on management of road maintenance through contracting Outputs; 1) The maintenance operation procedure associated with PBC is reviewed and improved and implemented properly. 2) Capacity is built in RAs. 3) To build sustainability of the proper PBC operation procedures, trainers on PBC operation are fostered. 4) To build sustainability of the operation of DRIMS, experts on DRIMS are fostered. **2.** Organization for implementation of the project which are the JCC, NWG and the SWG for cost estimation and PBC guideline formulation **3.** Methodology for the PBC Guideline/Cost Estimation Manual creation, COSTES for PBC 2015 contents, input parameters & the outputs. **4.** DRIMS road monitoring system, IRI configuration parameters, and data storage/usage. He added that DRIMS trainings are to be conducted periodically in order to refresh the DRIMS team. **5.** He expounded on the steps to take for sustainable development of PBC by the master training team. **6.** He noted that mini-pilot project (road marking, road studs, Do-Nou technology & YK-Pack) meant to improve road conditions and safety was implemented. **7.** Finally he gave recommendations/necessary steps needed for the sustainable development of PBC, cost estimation and DRIMS. In concluding his presentation, Mr. Hiroshi expressed JICA's deepest appreciation to everyone who participated/contributed to the project. He hoped that the project's outputs will be utilized continuously and contribute to the development of the road sector.	
4/8	**Post project action-How PBC training will be managed-(KIHBT).**	
	In his presentation on the Post Project Action, Mr. Kaliti informed the meeting that KIHBT has been prepared enough by the JICA team to roll out PBC training in Kenya. The preparation has taken four forms: 1.) Development of PBC Guideline and Cost Estimation Manuals 2.) Preparation of Training Materials 3.) Training of PBC Masters Trainers 4.) Training of PBC Trainers He provided the 2016/2017 Proposed KIHBT PBC Tentative Training Programme which runs from 11th April, 2016 to 20th January, 2017. He noted that by 20th January, 2017 KIHBT would have completed one circle of training in all the counties. He further noted that the programme would be managed by KIHBT PBC training team and a PBC training committee made up of counterparts. Ms. Kamunya presented on cost estimation for the PBC training headed by KIHBT. She noted that the key components of cost estimation are the trainer's fees, stationary (training materials), snacks/lunch, hiring of the venue, administrative costs, training equipment's/tools and safety gear. She added that KIHBT plans to train 60 trainees per training session which will cover both theory and practical sessions. The trainer's fees per session will be 2,000 Ksh. The total cost of training per person was calculated to be 42,000Ksh. Eng. Ogai noted that KIHBT needs to find more funding sources so that trainers are well paid and the training is well funded by increasing the training fee per person. Also she asked if contractors/engineers and technical staff will pay to be trained. Mr. Kaliti said that KIHBT is a non-profit institution and the cost of training will be absorbed	

	by the government. Also trainers from respective counterpart organizations will be paid by their organization for traveling allowances/accommodation and any other costs associated to traveling as per the standards of their organization. Mr. Kusimba asked KIHBT to clearly indicate that the cost of training will be shared by all stake holders. Eng. Gitau noted that all this matters will have to be handled later by all stake holders through the training committee which is going to be formed in the week of 14th March and hold it's first meeting on the same week.	
5/8	**Launching of PBC Guideline and Cost Estimation Manual for PBC-(MoTI)**	
	Eng. Gitau noted that MoTI is preparing for the launching of the documents. The initial agreed date of launch was in the week of 14th March but the minister was on another assignment. A tentative launch date has been set for the 24th of March. He noted that county governments, engineering consulting firms, road authority counterparts & relevant stake holders in the sector will be invited for the launch. He added that he will consult with the P.S road for the venue which will be communicated to everyone. Also invitation letters will be drafted in the office of the Chief Engineer (Roads).	
6/8	**Comments about Phase 2-(C/Ps)**	
	Eng. Mwangi noted that phase 2 project has been very successful because of what was accomplished (including the training of master trainers/trainers, development of training materials, PBC guideline and the cost estimation manuals). He also added that the Japan training was an eye opener for those who participated. He asked all stake holders especially master trainers/trainers to do their best through trainings in order for the road conditions to improve. He also noted that this concept of maintenance offers a chance to repair/maintain the road network in an economical way. Mr. Ochien'g said that phase 2 project met all of it's objectives, it also came in a good time because the road sector needed a better way of doing maintenance. He thanked the JICA experts for all the work they have done and the way they encouraged C/P's to take initiative/ownership of doing all the work because they are the ones who will be doing implementation. He added that the manuals and guidelines need to be revised periodically. Eng. Akech said that a great job has been done by all stake holders and the JICA experts. He noted that NCA's role is to build capacity of contractors in all sectors and the developed documents will help NCA going forward in capacity building. He added that NCA will give all the needed support to make sure that implementation is done properly. He asked JICA to help Kenya develop a cost estimation manual for works in the construction industry including new works in all sectors as a guide in construction cost estimation. In conclusion Eng. Akech said that PBC training will be a requirement for all contractors in the annual renewal of their construction license as per new NCA regulations. Mr. Kaliti was thankful to the Japan government for their assistance in building capacity in the road sector. He called upon all master trainers/trainers to commit them-selves to training and for all counterpart organizations to support the cause. He noted that the new road maintenance concept will improve roads and save lives. Eng. Maingi was thankful for the introduction of PBC in maintaining the Kenyan road network. He was also thankful for the cooperation KRB has had in working together with JICA in all aspects of the project including DRIMS. He said that KRB has been able to do DRIMS measurements on a total of 9,000km of the road network and going forward they will continue to collect data and have it available on the main server. He added that KRB is committed to updating the cost estimation manual yearly. He noted that the training committee needs to address the funding issue properly for the success of training. He asked all road authorities to keep collected data well so that it can be shared with others. Eng. Ogai expressed her gratitude to having worked together with JICA for many years and noted of the achievements the collaboration has produced.	

	Eng. Kandie noted that phase 2 project has had a lot of success and the way forward would be proper implementation of the concept and training for more tangible results. He noted that without proper road maintenance, a lot of money, resources and assets will be lost. He added that any new KeNHA road will automatically be under PBC maintenance as per the new policy by KeNHA, thus this concept will provide excellent guidance in maintaining roads. Eng. Gitau recognized the great effort by all counterparts and the JICA experts to achieve all the objectives set forth in phase 2 project. He noted the achievements and how they have set a solid foundation in capacity building of the road sector. He appreciated the knowledge imparted into Kenyan counterparts and urged them to use it to better the road sector. He concluded by saying that a committee will be set in the week of 14th March to work the way forward in training.	
7/8	**Phase 3 Project (JICA Office)**	
	Mr. Kenji Yokota informed the meeting that Phase 3 project has been approved by the Japanese government and will commence in September/October 2016. He said that there have been several great achievements in phase 2 including the development of a PBC guideline, training materials, PBC master trainers and cost estimation manuals. He added that a JICA mission team will arrive in Kenya in May 2016 to formulate the actual terms of reference for Phase 3 project. Ms. Sano added that this project has been the most successful project JICA has carried out. She attributed the success of the project to the hard work and passion of the counterparts and the JICA experts. She noted that the road network is increasing year after year, thus proper training of contractors/engineers and proper implementation of PBC will be key to the success of road maintenance. She asked Kenyan counterparts to assume their roles in training, implementing and advancing the PBC concept	
8/8	**Closing Remarks from the Chair**	
	Mr. Kusimba said that the meeting has been an eye opener and now it's time to get to work and transform the sector through the knowledge imparted to Kenyan counterparts. He thanked the Japan government and the JICA experts as well as the JICA representatives noting that the PBC concept is a great way to do road maintenance. He urged all counterparts to embrace the road maintenance concept for better roads that will lead to an improved economy. He welcomed the JICA experts back to Phase 3. This marked the end of the 8th JCC meeting.	

The meeting ended at 11.40 a.m.

Minutes confirmed as a true record of what transpired.

Chairman…… Date…….

Member…… Date ……

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING.

MINUTES OF THE 21ST NWG MEETING HELD ON 16TH JANUARY, 2014 AT THE MINISTRY OF ROADS-NORTHERN CORRIDOR BOARDROOM.

1.0 PRESENT

1. Eng. Francis Gitau	SPSE (ROADS) - Chairman
2. Mr. Hiroshi Tsujino	JICA Chief Adviser, P.E.Jp
3. Eng. Monica A. Abonyo	KeNHA (M)
4. Mr. Chris Gachanja	Principal Policy Officer, PPOA
5. Eng. Peter Mwaniki	Engineer (M) - KURA
6. Eng. Titus S. Koote	Engineer (M) – KURA
7. Mr. Isaac Kigen	Procurement officer, KURA
8. Dr. Steve Mogere	JICA Kenya Office
9. Mr. Koji Jitsukawa	JICA Kenya Office
10. Mr. Hidetsugu Ikeda	JICA expert
11. Mr. H. G. Owino	Chief Supt. Roads, KeNHA – Taking Minutes

2.0 APOLOGY

1. Eng. Margaret Ogai	Manager (Contracts)-KRB
2. Eng. Okeyo C.D.	Manager (M) – KeNHA
3. Eng. Edwin Muchugia	H/ Roads & Fleet Management – KWS
4. Eng. N. N. Nganga	Manager (M) – KeRRA
5. Eng. Amos O. Ombok	Manager (M) - KURA
6. Eng. P. M. Mundinia	General Manager (M) – KURA

3.0 AGENDA

1. Opening address from the chair.
2. Introduction of members.
3. Confirmation and approval of 20th NWG minutes/ Matters arising.
4. Project Design Matrix (PDM)
5. Progress report of the Pilot Project (PBC, VIMS, Training etc)
6. Any Other Business.

The chairman called the meeting to order at 09.30 a.m.

MIN	DELIBERATIONS	ACTION
1/21	**Opening remarks from the chair** The chairman welcomed members to the meeting and Wished them Well in the New Year. He also took the opportunity to welcome the new JICA experts in the Working Group. He commended members for their performance in the 1st Phase of the Project and asked them to show even more commitment in the 2nd Phase.	INFO
2/21	**Introduction of members** The chairman asked for self introduction of members.	
3/21	**3.1.0 Confirmation of minutes** The minutes were not confirmed since a minimum number of (two) 2 members who attended previous Meeting were not in attendance.	
	3.2.0 Matters arising	
	3.2.1 The Chairman said the Ministry was currently reviewing all the Manuals before issuing official letter on policy guidance for all Road Authorities to adhere to the JICA project Manuals. He stressed the importance of training of Road sector technical staff before issuance of the letter.	WG
	3.2.2 The meeting mandated the JICA Project secretariat to be in full control of the Training programme. The meeting further resolved that each Road Authority to finance their staff nominated for the Training.	ALL AUTHs
	3.2.3 The meeting noted all Authorities have commenced implementing PBC Pilot projects.	ALL AUTHs

	3.2.4 The Chairman called on all the Road Implementing Agencies to educate their technical staff and the Contractors on the JICA Manuals at any available forum.	ALL AUTHs
	3.2.5 The JICA chief Advisor informed the meeting that he had visited two PBC projects in Nakuru (Lanet-Njoro turn off (A104) Road) and Kisii (Kisii-Kilgoris). He said despite the initial challenges the projects were very suitable for the maintenance operation especially for the newly completed roads. He said he would focus on implementation of PBC pilot projects and review of the JICA manuals for PBC. He also stressed the importance of the Vehicle Intelligence Monitoring System (VIMS). He informed the meeting that KeNHA Nakuru regional office had covered all their roads by VIMS & presented the results in Google Earth/Map.	AUTH
	3.2.6 The Chairman asked if the Head offices of the implementing Agencies are able to access the information (Data on Contract evaluation). However the meeting was informed the Data base was still being developed by JICA and KRB.	JICA
	3.2.7 The Chairman asked what the cost estimation manual in Japan is like. The estimation with the cost estimation manual is considered high here. The JICA chief Advisor said the cost estimation manual in Japan is more complicated than that made here, and that JICA will think of simplification of the manual because only regional manager estimates the cost in some regional offices.	
4/21	**Project Design Matrix (PDM)** The JICA expert Mr. Ikeda took members through the Project Design Matrix for Phase 2 of the Project. He illustrated the three (3) expected outputs and related activities. The chairman thanked him for his presentation but urged that timelines for the Various activities and outputs be reflected. The JICA Kenya Office representative Mr. Koji Jitsukawa pointed out that the PDM was still tentative and more changes/amendments were expected.	JICA
5/21	**5.1.0 Progress Report Of the Pilot Project (PBC, VIMS, Training etc.)** **5.1.1** The KeNHA Regional Manager (Nairobi), on behalf of KeNHA presented progress report for PBC. She said KeNHA had four (4) PBC pilot projects for Maintenance as enumerated: 1. Isiolo – Merille (2) Road 2. Lanet – Njoro Turnoff (A104) Road 3. Kisii – Kilgoris (C17) Road 4. Junction B8 –Tana River Bridge (Garissa) – Modika (A3) Road **5.1.2** The KeNHA Regional Manager said the projects were experiencing a number of challenges which were being addressed. **5.1.3** The KWS report was not presented but meeting was informed that KWS had a PBC project around lake Nakuru which ended on 3rd October 2013 after many challenges due to flooding. They (KWS) have since commenced 2nd phase of PBC. **5.1.4** Eng. Koote (KURA) gave a commitment to submit PBC report to JICA secretariat. He	KWS KURA

	however informed the meeting that KURA completed the 1st Phase of the implementation of the Pilot projects and was due to commence the 2nd phase. **5.1.5** The Engineer (M) KURA said that PBC had made a lot of savings in the maintenance of KURA roads under (PBC). **5.1.6** The meeting asked KURA to consider putting the newly completed Western ring road under Pilot PBC. **5.1.7** The Chairman urged members to have a standard reporting format to inform evaluation. **5.1.8** The Principal Policy Officer, PPOA suggested that KeRRA should strive to be on board (Pilot Projects). **5.1.9** The Chairman urged the Authorities to do a baseline survey.	INFO KURA AUTHs KeRRA AUTH
6/21	**Any Other Business** The Chairman thanked Members for attendance and said the next meeting would be by notice.	

There being no other business the meeting ended at 12.30 p.m.

Minutes confirmed as a true record of what transpired.

CHAIRMAN…….. DATE……

MEMBER…… DATE…….

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING.

MINUTES OF THE 22ND NWG MEETING HELD ON 6TH JUNE 2014 AT THE MINISTRY OF ROADS – NORTHEN CORRIDOR BOARDROOM

1.0 PRESENT

1.	Eng. P.M Mwinzi	Chief Engineer (Roads) – Chairman
2.	Eng. Francis Gitau	SPSE (Roads)
3.	Mr. Chris GachanjaPrincipal	Policy Officer, PPOA
4.	Eng. Margaret Ogai	Manager (Contracts), KRB
5.	Eng. N.N Nganga	Manager (M) – KeRRA
6.	Eng. S. Omuono	Manager (M) – KENHA
7.	Eng.Robert Mutai	CTI Eng. International Co. Ltd
8.	Eng.Takashi NAKAJIMA	JICA Expert, CTI Eng. International Co. Ltd
9.	Mr.Hidetsugu Ikeda	JICA Expert
10.	Eng. Hiroshi Tsujino	JICA Chief Adviser, P.E.Jp
11.	Dr. Steve Mogere	JICA Kenya Office
12.	Mr. Koji Jitsukawa	JICA Kenya Office
13.	Eng Amos O. Ombok	Manager (M) – KURA
14.	Julius M. Kalifi	KIHBT
15.	Walter Ochieng	KWS

2.0 APOLOGY

There were no apologies

3.0 AGENDA

1. Opening address from the Chair
2. Introduction of Members
3. Confirmation and approval of 21st NWG/Matters arising
4. Project Design Matrix
5. Activity Plan from the JICA short term expert and approval of the same
6. Result of the VIMS audit
7. A.O.B

The Chairman called the meeting to order at 10.00am. He requested

MIN	DELIBERATIONS	ACTION
1/22	The chairman welcomed members to the meeting. He requested Eng. Margaret Ogai to open the meeting with a word of prayer. He thanked the JICA experts for their work in the implementation of phase 2. HE commended members for their performance in the 1st Phase of the project and asked them to show even more commitment in the 2nd Phase.	INFO
2/22	**Introduction of Members** The Chairman asked for self-introduction of members	
3/22	**3.1.0 Confirmation of minutes** The minutes of 22nd NWG were confirmed with the following amendment; a) Item 5.1.8 was expunged from the minutes Proposed by Dr. Steve Mogere and seconded by Mr. Hiroshi Tsujino	
	3.2.0 Matters arising	
	3.2.1 The Chairman clarified that under phase 1, four manuals were developed; a) Procurement of road maintenance works under PBC b) Procurement of road maintenance works under Unit Rate based term contract c) Supervision and Contract Evaluation Manual for Road works d) Cost Estimation Manual He requested that all documents developed should be domiciled and utilised. He however noted that there were some challenges of using the documents from phase 1.	WG
	3.2.2 With regard to Training programme, it was noted that there was no clear structure for training.	ALL AUTHs
	3.2.3 The Chairman asked the Authorities to start take initiative for training staff on Vehicle Intelligent Monitoring System (VIMS). It was noted that KeNHA already have trained engineers. KeNHA also had scheduled a training to start from 22nd June 2014. KeRRA and KWS were advised to acquire the equipments. It was noted KIBHT also was advised to acquire VIMS for training. The Chairman clarified that Materials Department will be in charge of calibration, standardisation and certification. JICA experts informed meeting that the developer who is expected in the country sometime in Septemer 2014.	JICA AUTH
	3.2.6 The chairman asked authorities to train staff on Contract Evaluation. The Data Base System has been developed by KRB and the chairman urged KRB to share the data on contract evaluation with other agencies, stressing for official submission. Eng. Margaret Ogai, on behalf of KRB, informed the meeting that the data is being collected and would be shared.	KRB JICA
	3.2.7 The project team reported that the authority's engineers tend not to use the cost estimation manual because the cost arrived at using it are higher than the present engineer's estimate. Manager KeRRA noted that unit rates were derived from RMS in KeRRA. He noted that estimation using cost estimation manual sometimes results in approximately 20% more than the present engineers estimate. The Chairman noted that more capacity building is needed for statistical and scientific way of cost estimation. He further noted that indirect costs need to be looked at further with a view to adjusting Bill No. 1. He urged the authorities to provide case studies on cost estimation in the next	JICA ALL AUTHs

	meeting for further discussion.	
4/22	**Project Design Matrix PDM** The JICA expert Mr. Hiroshi Tsujino took members through Project Design Matrix version 2 of the project. He illustrated the four (4) expected outputs and related activities. The Chairman advised him to amend for clarification of the activity of items 1-3, 1-9 and 1-10 in the PDM. The PDM was approved with above correction.	JICA
5/22	**5.1.0 Activity Plan from the JICA Short Term Expert** **5.1.1** The JICA short term team leader Mr. Takashi NAKAJIMA took members through work plan for the Project, illustrating technical approaches in implementation of the project. He requested for adoption and approval of the Work Plan. The meeting advised him to make amendments as follows; a) Transfer Kenya Institute of Highways and Building Technologies from Authority Concerned to Implementing Agency. b) Include Materials Department as the Implementing Agency. The work plan was approved with above correction.	JICA ALL
6/22	**6.1.0 Result of the VIMS audit** **6.1.1** The JICA expert Mr. Hidetsugu Ikeda took members through result of the VIMS audit. The Chairman requested him to send the result of the audit to all members.	JICA
7/21	**Any Other Business** It was noted that there was need for a forum for sharing of experience and lessons learnt of PBC. It was also suggested that a joint site visit to one of pilot projects of PBC to be arranged. JICA is to organise the forum and site visit. The Chairman thanked Members for attendance and said the next meeting would be by notice	ALL

There being no other business the meeting ended at 12.30 p.m

CHAIRMAN……..
Date…….

Member……
Date……..

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING.

MINUTES OF THE 23rd NWG MEETING HELD ON 7TH AUGUST 2014 IN THE CONFERENCE ROOM 8TH FLOOR OF THE TRANSCOM HOUSE BUILDING

1.0 PRESENT

1. Eng. P.M Mwinzi — Chief Engineer (Roads) – Chairman
2. Mr. Chris Gachanja — Principal Policy Officer, PPOA
3. Eng. Margaret Ogai — Manager (Contracts), KRB
4. Eng. S. N Gichuri — KeNHA
5. Ms Yoriko Kawakami — JICA
6. Mr. Robert Mutai — JICA – Taking minutes
7. Mr.Hidetsugu Ikeda — JICA Expert
8. Eng. Hiroshi Tsujino — JICA Chief Adviser, P.E.Jp.
9. Mr. Yasufumi Watanabe — JICA, P.E.Jp.
10. Mr. Jared Onyoni — JICA
11. Eng. Michael Walela — NCA
12. Eng. C. Ondinyo — NCA
13. Mr. George Juma — KRB
14. Mr. Peter Ngamau — KIHBT/MoTI
15. Eng. Edwin Odwesso — KURA
16. Mr. Walter Ochieng — KWS

2.0 APOLOGY

1. Eng. C. D. Okeyo – GM Maintenance, KeNHA
2. Eng Amos O. Ombok - Manager (M) – KURA

3.0 AGENDA

1. Opening address from the Chair
2. Introduction of Members
3. Confirmation and approval of 22ND NWG minutes.
4. Contract Evaluation System (KRB).

5. Activity report from the JICA Short Term Expert Team. (Mr. Watanabe & Ms. Kawakami)

6. Progress and plan of the project.

The Chairman called the meeting to order at 10.30am.

MIN	DELIBERATIONS	ACTION
1/23	The chairman welcomed members to the meeting. He requested Eng. Margaret Ogai to open the meeting with a word of prayer. He then explained briefly the agenda of the meeting. The agenda was adopted.	INFO
2/23	**Introduction of Members** The Chairman asked for self-introduction of members	
3/23	**3.1.0 Confirmation of minutes** The minutes of 22nd NWG were confirmed as a true reflection of the deliberations. Proposed by Eng. Walter Ochieng and seconded by Eng. Margaret Ogai.	
	3.1.0 Matters arising	
	3.1.1 The chairman thanked the members for their commitment, noting that the project was doing well. He thanked the JICA team for the achievements made in phase 1 and urged them to continue with the same spirit in phase 2 of the project.	
	3.1.2 With regard to Training programme, the chairman proposed that substantive deliberations on training be put as one of the main agenda in the next meeting. Matters touching on training include, amongst others, technical, contract evaluation, undertaking by NCA or KIBHT for training of contractors. He also noted that KeRRA have special training programme, R2000 program being undertaken by KIHBT. Small working group will be formed to look into modalities for the training.	KIHBT NCA
	3.2.3 With regard to PBC project joint site visit, the JICA team will organise for the visit and informed the members of the date and the project to be visited.	
4/23	**Contract Evaluation System (KRB).** **4.1.0** Mr. George Juma, on behalf of KRB, presented the "Road Contract Evaluation System". He said that the program will be officially rolled out to all road authorities, noting that so far there was no data from road authorities. KWS had acquired the software but had not started using it. It was noted that currently there are no trained staff to operate the software in all road authorities. The chairman observed that that there was need to train road authority staffs by KRB on how to use the program. The contractors should be informed of the contents of evaluation system so that know how they will be evaluated. The data from this program will be sent to a central database. The chairman noted that installation of central database is in progress with assistance of EU project and it will be managed by either KRB or MoTI. Mr Ochieng (KWS) suggested that it's possible to eliminate the cowboy contractor using this contractors evaluation system, if the contractor always scores poorly in the evaluations, he/she will lose evaluation points and will be disqualified from participating in the same type of contracts. Representative from KeNHA Eng. S. Gichuri noted that conditions of contract in FIDIC be retained when carrying out contract evaluation.	KRB ALL AUTHS

	Representative from NCA informed the meeting that another register of contractors for 2015 is being prepared. He said that data developed from contract evaluation system will be useful to upgrade/downgrade status of contractors.	
5/23	**Activity report from the JICA Short Term Expert Team. (Mr. Watanabe)** **5.1.0** Mr Watanabe illustrated that the following guidelines will be developed; 1. Guideline for setting Performance specification for road maintenance 2. Guideline for road maintenance work under PBC 3. Guideline for evaluation of performance specification for road maintenance 4. Cost estimation manual for PBC (standard unit rate) 5. Cost estimation manual for PBC (standard work volume) On issue of safety, the chairman noted that many contractors do not take measures of safety in work areas seriously and there should be a clear plan for safety. He gave an example of Thika Road project in which a safety committee was formed to formulate inspection system for safety. Mr. Watanabe said that the issue of safety will be looked at in the project, suggesting that traffic regulation be included in inspection.	JICA ALL AUTHS
	5.1.1 Mr. Mutai presented lessons learnt through survey of ongoing PBC pilot projects. One of the major issues was the illegal dumping of garbage on some of the project roads which cause blockage of drains. The chairman noted that there was need for more discussions with Nairobi County government with a bid to address the issue of solid waste management in the City. There should be strict guidelines on timely garbage collection and disposal. The chairman also noted that public education be promoted to sensitize the public on importance of proper solid waste management. County government should endeavour for reinforcement of the stipulated laws.	JICA ALL AUTHS
	5.1.2 Ms. Kawakami made presentation on challenges of public procurement and the possible solutions referring to system in Japan. She highlighted the challenges faced in Kenyan public procurement system. She also noted that in Japan, each Procurement Entity accepts contractor's registration for relevant work area based on business license in 28 areas issued by the Government. For example, highway authority offers 15 categories. The chairman noted that clear comparison issues between Japan and Kenya should be highlighted with a view to improving the Kenyan system. Ms. Kawakami informed the meeting that she will make presentation in a seminar sometime in October 2014, during which she will make comparison and share the public procurement system adopted in Japan.	JICA

6/23	**Progress and plan of the project.** **6.1.0** Mr Tsujino presented the Progress/plan of the project. He highlighted the progress made in road monitoring by DRIMS and the training/seminars conducted for DRIMS. He also said that a total of 10 persons from all authorities, MoTI, KRB, KIBHT, PPOA, KWS and NCA will be dispatched to Japan for training from 15th November to 14th December 2014. The chairman reiterated that he will pick a team to prepare list of members who will go for training. The list will then be forwarded to JICA. **6.1.1** It was noted that the cost estimation manual currently used does not work well in Kenya. The chairman said that he will organise a small working group to look into issues/discrepancies in the manual and recommendation will be forwarded to JICA for further analysis and review of the manual. The Chairman thanked Members for attendance and said the next meeting would be by notice	JICA ALL AUTHS

There being no other business the meeting ended at 12.30 p.m

CHAIRMAN……..

Date…….

Member……

Date……..

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING.

MINUTES OF THE 24th NWG MEETING HELD ON 15TH OCTOBER 2014 IN THE NORTHERN CORRIDOR BOARDROOM

1. PRESENT

1.	Eng. P.M Mwinzi	Chief Engineer (Roads) – Chairman
2.	Eunice Wanjiru	KeNHA
3.	Ephraim Opuge	KeNHA
4.	Ms Yoriko Kawakami	JICA
5.	Mr. Robert Mutai	JICA –
6.	Eng. Hiroshi Tsujino	JICA Chief Adviser, P.E.Jp.
7.	Mr. Takashi Nakajima	JICA Team Leader of Short Term Expert,P.E.Jp
8.	Eng. Wilson K. Kosgei	KRB
9.	Mr. Julius Kaliti	KIHBT/MoTI
10.	Eng. Edwin Odwesso	KURA

2. APOLOGY

1.	Eng. C. D. Okeyo –	GM Maintenance, KeNHA
2.	Eng Amos O. Ombok	Manager (M) – KURA
3.	Mr Chris Gachanja	Principal Policy Officer ,PPOA
4.	Eng. Joachim Mbarua	MoTI (Materials Dept.)
5.	Eng Michael Walela	NCA
6.	Eng. Walter Ochieng	KWS
7.	Eng.Nganga	KeRRA

3. AGENDA

1. Opening address from the chair
2. Member Introduction
3. Confirmation and approval of 23rd NWG minutes

4. Result of PBC survey
5. Guidelines on Performance Based Maintenance
6. Mini pilot project
7. Site visit to PBC pilot projects
8. Seminar on public procurement
9. Training
10. AOB

The Chairman called the meeting to order at 10.20am.

MIN	DELIBERATIONS	ACTION
1/24	The chairman welcomed members to the meeting. He noted that the meetings attendance was poor and he reminded members of the importance of their attendance, consistency and punctuality. He said a letter would be sent to the various entities to remind them the importance of the Nation Working Group committee. Eunice Wanjiru opened the meeting with a word of prayer. He explained briefly the agenda of the meeting he noted that the agenda had a lot of heavy and important material touching on PBC The chair advised that it's important for the various Roads Authorities to share their experience on PBC because once you don't get the correct level of service the you never really get the value for your money. The agenda was adopted with recommended changes.	INFO
2/24	**Introduction of Members** The Chairman asked for self-introduction of members	
3/24	**3.1.0 Confirmation of minutes** The minutes of 24th NWG were confirmed as a true reflection of the deliberations. The minutes were proposed by Mr Robert Mutai and seconded by Eng. Michael Odwesso and confirmed as reflecting a true record of what transpired.	
	3.1.0 Matters arising	
	3.1.1 The chairman thanked the JICA team for the commitment and for the two successfully conducted seminars on PBC and on DRIMS noting that their presentations were very good and informative.	
4/24	**4.0 Result of PBC Survey**. Mr Robert Mutai took the meeting through a presentation on the results obtained after conducting the PBC survey. The survey involved visiting selected on going PBC projects, interviewing contractors and road authorities'Engineers.20 projects were selected from all authorities. From the survey it was clear that at the beginning most contractors had not fully understood the concept of PBC and	JICA

hence there was need for guidelines for PBC works execution.

The JICA team had the following Proposals in the report presented:

- Partnering –More coordination of road authorities and county governments to address challenges of solid waste, encroachments and vandalism
- Simple Contract- simplifying contract/bidding documents as much as possible in order to be understood by Contractors.
- Patrol – Consider inclusion of daily patrolling as a part of PBC Contract, especially for urban roads so that road safety is taken as the top important item to be dealt with by road authorities.
- Pure PBC – Transition from Hybrid type of contract to pure PBC maintenance towards 2020.
- Contract Package –Extension of timespan of contract from 12/18 months to 24 months.

  Length of road to be covered to be
  Paved roads :30-60 KM
  Unpaved roads :20-30 KM

This presentation also had important feedback from contractors and road Authorities obtained in the PBC workshop held at KIHBT in the month of October.

A summary of the feedback included:

- Better Preconditions
- Policy –a policy should be developed stating what type of roads should be put on PBC contract, it should also state the standards of

  Performance and Contract monitoring.
- Trainings and sensitization –There is need for Training Manuals for pure PBC contracts.

  Contractors should hire qualified personnel.
  PBC contract documents should be improved, clarified and simplified so that contractor's bidding for the jobs get a clear indication of what is expected of them.
- Rates-a standard Cost estimation manual should be developed for PBC contracts.

5/24	**Guidelines on Performance based Maintenance** **5.1.0** Mr Nakajima Informed the meeting that three Draft Guidelines have been developed, these includes; 1. Guideline for Setting Service Levels for road maintenance 2. Guideline for Road Maintenance Work Procedure under PBC 3. Guideline for Evaluation of Service Level for road maintenance Members were given each a copy and were asked to go through the drafts and give their feedback to the JICA team. The JICA would arrange for meetings with Engineers from each Authority to discuss their View on the three drafts. The chair noted that there was need to form a subcommittee on PBC The secretariat would draft a letter for the Chief Engineer (Roads) office,to be issued to all Authorities should be done to all Director Generals requesting them to appoint members to the Sub working Group .The objectives of the committee is to Revise the Draft Guidelines and come with a Draft 1 Manual.	JICA & RA
6/24	**6 Mini Pilot Project** Mr. Nakajima Had a presentation on Pilot Project, he informed the meeting that Materials to be used in the Mini Pilot Project was being shipped from Japan and is expected to arrive in Kenya in December 2014. The material includes: • YK Pack • Road studs • Road marking Paint He informed the meeting that ,JICA intends to do a mini pilot project on St Daniel Comboni Road, using the DONO Method .There will be a three days training done through demonstration. The road marking paint and road studs will be used on the Western Ring Road. The chair thanked Mr Nakajima for the presentation. He noted that there were a lot on accidents on the kileleshwa round about and asked if there is anything that could be done about it when doing the mini project. Mr Nakajima informed the meeting that there are plans in the Mini pilot Project to do Road marking on the roundabout to prevent motorist from squeezing on a lane ,put stopping road studs on the stopping lanes and on the climbing lane put reflective stud type to show the centre of the road. This measures should put a stop to this incidents if not reduce the number of incidents. The chair requested that all roads authorities and the MoTI (material Department) be involved when doing the pilot project. Mr. Opuge kindly requested that the material remaining from the mini pilot	JICA ALL AUTHS

	project be used in KeNHA's Thika Road Project especially the Road Studs.	
7/24	**7.Site Visit to PBC Project** The chair asked member to schedule a date that was convenient for the site visit. Member agreed on 4th November 2014 they would visit PBC Projects. Members would visit a road from the Three Authorities ie KeNHA, KURA and KeRRA. A letter of invitation would be sent from MoTI to the Participants. The roads to be visited should be near Nairobi for convenience.	ALL
8/24	**8 Seminar on Public Procurement** The chair welcomed Ms. Kawakami back to Kenya and reminded members that in the last NWG meeting we agreed that we would have a seminar on Public Procurement Japan System. Members were asked to propose a date for the seminar and they all agreed on 28th October 2014. Ms. Kawakami gave an overview on the presentation she would do at the seminar. She said noted that her Target attendees in the seminar were Officials from all RA procurement entities officials.	JICA ALL AUTHS
9/24	**9. Training and Capacity Building** Mr Opuge informed the meeting that as much as KIHBT is mandated and well suited to do all training in this project, KIHBT is not adequately resourced in human capacity to undertake the mandate. He requested if it was possible for incorporation of consultant trainers. Mr.Kaliti informed the meeting that, KIHBT had made a curriculum with JICA but had not implemented it, He told the meeting that they are planning for JICA to do a Training of Trainers (ToT) and then have the trainers train the other Roads Authorities. Resource persons in the key players should be trained by JICA. The chair asked the JICA team what their plan was. The JICA team, said once they establish who is taking care of training then if for example its NCA then they should prepare the trainer for JICA to train. JICA should then have meeting with NCA,KIHBT,KWS,KRB,KURA,KeRRA,KeNHA and decide who is to train. Mr. Kaliti suggested that the sub working group-committee be involved in organising training; the chair suggested it becomes the committees mandate after JICA finds a way forward on which Authority is training.	

There being no other business the meeting ended at 12.40 p.m.

CHAIRMAN……..
Date…….

Member……
Date……..

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING.

MINUTES OF THE 26th NWG MEETING HELD ON 18TH MARCH 2015 IN THE NORTHERN CORRIDOR BOARDROOM

1. PRESENT

1.	Eng. P.M Mwinzi	Chief Engineer (Roads)	Chairman
2.	Eng. S. Omuono	KeNHA	
3.	Mr. Ephraim Opuge	KeNHA	
4.	Ms. Yoriko Kawakami	JICA	
5.	Hidetsugu Ikeda	JICA Expert	
6.	Eng. Hiroshi Tsujino	JICA Chief Advisor, P.E.Jp.	
7.	Eng.N.N Nganga	KeRRA	
8.	Mr. Peter K. Ndung'u	PPOA	
9.	Mr. Livingstone Karanja	KRB	
10.	Eng. Edwin Odwesso	KURA	
11.	Ms. Winnie Owiti	KeNHA	Taking Minutes

2. APOLOGY

1.	Eng. Francis Gitau	Dep. Chief Engineer (R)
2.	Eng. George Kiiru	GM Maintenance, KeNHA
3.	Eng. Amos O. Ombok	General Manager (M) – KURA
4.	Eng. Margaret Ogai	KRB
5.	Mr. Chris Gachanja	Principal Policy Officer ,PPOA
6.	Eng. Joachim Mbarua	MoTI (Materials Dept.)

7. Eng. Maurice Aketch NCA
8. Eng. Walter Ochieng KWS
9. Ms. Eunice Wanjiru KeNHA
10. Eng. Julius Kaliti KIHBT

3. AGENDA

1. Member Introduction
2. Opening address from the chair
3. Confirmation and approval of 24th NWG minutes
4. Report on Project Activity (Training, Seminar, Cost estimation)
5. Public Procurement

The Chairman called the meeting to order at 9.43am.

MIN	Member Introduction	ACTION
1/26	The chairman welcomed members to the meeting and asked for a self-introduction of members and a word of prayer from a volunteer. Eng. Omuono of KeNHA opened the meeting with a word of prayer.	INFO
2/26	**Opening address from the Chair**	
	The chair thanked members for attending the meeting. He thanked Ms. Kawakami for her continuous consistency and input into the project. He noted that the meetings attendance was poor and he reminded members on the importance of their attendance, consistency and punctuality. He briefly explained the agenda of the meeting which covered project activity and public procurement. The chair noted that the project has been useful and an eye opener and that practical output of the project are visible and commendable. He stressed on the importance of documentation on PBC. He echoed the development of the guidelines which show the evidence of the work that the JICA Team is carrying out and encouraged members to ensure that whatever documentation they come up with, they should be able to put it into practice.	ALL
3/26	**Confirmation and approval of 24th NWG minutes**	
	The minutes of 24th NWG were confirmed as a true reflection of the deliberations. The minutes were proposed by Mr. Ephraim Opuge and seconded by Eng. Edwin Odwesso as a true reflecting and record of what transpired.	
	3.0 Matters arising	
	Ex Min. 1/24 The chairman noted that the letter which was to be drafted for his signature and sent to the various road entities to remind them on the importance of the NWG Committee had not reached him. He asked for the member who was tasked to draft the letter to do so.	Eunice KeNHA

	Ex Min. 4/24 The Chair inquired who was tasked with the responsibility of developing the policy. This policy entailed the development of the various types of roads which should be put on the PBC Contract and the standards of performance and contract monitoring. Mr. Opuge of KeNHA clarified that there was no specific person who was tasked with the responsibility of developing the policy. The chair noted that there is a need of drafting a policy statement by the Road Authorities.	ALL RA'S
	Ex Min. 5/24 The Chair confirmed that he had dispatched a letter to all authorities requesting them to appoint members to the sub working group.	INFO
	Ex Min. 6/24 The Chair confirmed to the members that he had seen some work on the mini pilot project like the paintings on the bumps and the road studs. Mr. Hiroshi confirmed that some authorities attended the 3 days training that was conducted at Shalom House - Dagoretti Corner using Do Nou method. The Chair inquired if KeNHA had been supplied with the remaining road studs from the mini pilot project. Mr. Opuge informed the meeting that they had not received the road studs. He said they were carrying out some works on Thika Road and they intended to use the road studs. Mr. Hiroshi assured the members that they had some remaining road studs from the mini pilot project and that they will give them to KeNHA.	JICA & KeNHA
	Ex Min 8/24 The Chair inquired if the seminar on Public Procurement Japan System was conducted and the level of attendance of the seminar. Ms. Kawakami confirmed that the seminar was held and a total of 20 participants attended.	INFO
	Ex Min 9/24 The Chair inquired if there is a working group on Training. Mr. Opuge informed the meeting that a working group on Training had not been constituted. The Chair asked KIHBT to organize for a meeting with NCA and JICA so that they can determine who to take the lead on the training issue.	KIHBT, NCA & JICA
4/26	**Report on Project Activity (Training, Seminar, Cost estimation)**	
	Mr. Hiroshi took members through a power point presentation on the report on project activity. The presentation entailed the following aspects:- • improvement of the procurement systems, drims, and training in Japan • Project progress from October, 2014 to March, 2015 • A highlight of the activities carried out during the period. In his presentation, he emphasized on the importance of cost estimation to understand the productivity rate. He informed members on the activity of road marking and road studs that had been carried out on the Western Ring Road; an exercise which he said is contributing to	ALL

	road safety. The Chair inquired about the finished surface of Do Nou mini pilot project. Mr. Hiroshi explained that the finishing is murram and the project was labour intensive hence best suited for the rural areas. In his presentation he explained the concept of the use of the YK Pack. He explained that YK Pack is used for the emergency repair works and is not a permanent material since its durability is about 6 months.	
	He informed the members that the material is stored at the Nairobi Regional Offices Yard and that it is accessible to all the Roads Authorities through coordination with the JICA team. In his presentation, Mr. Hiroshi informed the members of the DRIMS measurement exercise that was carried out from 1st February, 2015 – 14th February, 2015. The total KM of the road covered was about 3,600KM. IRI of three different countries (Kenya, Uganda and Rwanda) were recorded with the Kenyan condition being relatively high and the Rwandan condition being low. The IRI condition of the 3 countries were as follows:- Kenya - 3.04 Uganda – 2.75 Rwanda – 2.05 The Chair tasked KeNHA to explain where they were failing since the Northern Corridor is under their jurisdiction. Mr. Opuge explained that the results of the IRI are as a result of the big size of road network on the Kenyan side and the fact that some sections of the northern corridor were still under rehabilitation, these sections including Voi – Mariakani and Webuye – Malaba. Eng. Omuono also pointed out that Waiyaki Way is in bad shape and the traffic loading as being some of the contributing factors into the high IRI results. The Chair reiterated that as much as they are able to justify the reasons of the high IRI on the Kenyan side, they should aim at improving the road condition and the results of the IRI. In relation to determining the IRI of a road, Mr. Hiroshi took members through a movie on the Registrator Viewer that helps highlight the road condition. He informed members that during the drims seminar held on 3rd – 5th March, 2015, a proposal was made on the adoption of the DRIMS Master Certificate which is a framework for accurate measurement. He further informed the members about the PBC guideline and the Cost Estimation Manual being some of the tasks that the JICA team were currently working on. He informed the members that the cost estimation manual would be finalized by the end of April, 2015 and that it required to be updated annually. He informed the meeting that Eng. Gitau advised that KRB is best placed to handle the annual updating of the cost estimation manual once it's completed. The Chair informed the meeting that the manuals should emanated from the parent ministry and that Eng. Gitau would steer the process Mr. Hiroshi asked Mr. Opuge to take the meeting through the contents of the draft PBC guideline which included:- • Service Level Setting for Road Maintenance under Performance Based Contract • Road Maintenance Work Procedure under Performance Based Contract • Inspection of Service Level under Performance Based Contract • Contract Evaluation for Performance Based Contract • Recommendations Mr. Hiroshi informed the meeting that they intend to distribute the draft PBC guideline to the stakeholders for feedback and use the feedback to prepare a final document of the PBC guideline. The Chair asked for a clarification if the work procedure is based on what is to be	JICA ALL RA'S

	done and not how it is to be done. Mr. Hiroshi explained that the work procedure entails both what is to be done and how it is to be done. However, "how it is to be done" is highlighted in the document as an example of the work procedure. The Chair emphasized that PBC should highlight what is to be done. He thanked Mr. Hiroshi for his presentation and welcomed comments from the members. Eng. Nganga pointed out that the guideline does not cover quality control and reporting on quality control.	
5/26	**Public Procurement** The Chair invited Ms. Kawakami to take the meeting through Public Procurement. He also informed the meeting of the Executive Order on all procurements for government which should be on e - procurement. An order which he said should be implemented within 2 weeks of the date of the order. Ms. Kawakami took members through a power point presentation on Public Procurement. She gave an overview of the investigation and procedure that was carried out to aid in the development of the Contract Evaluation for PBC. She took the meeting through the formula of arriving at the non – compliance rate and the data of reduction rate for non-compliance carried out in KeNHA and KURA. Ms. Kawakami asked for the members' opinions and comments on the criteria for contract evaluation for PBC Road Maintenance. She asked for a trial on the criteria for at least 3 months so as to gauge the effectiveness of the process. The Chair informed the meeting that the only way to master contract evaluation is through implementation in the contract management. He said that it is important that contract evaluation be included as part of contract management. The Chair seeked clarification from the representative of PPOA if it is allowed under the current regulations for a project to be put under a contract period of 5 years. Mr. Ndungu from PPOA advised that there is no outright provision that limits a contract period. However, it is upon the user to determine the contract period. The only thing that should be factored in is MTEF so that money can be provided. The Chair welcomed comments from the members. Mr. Opuge informed the meeting that R2000 working group is proposing the revision of the contract period. The KRB representative informed the meeting that R2000 working group's main purpose is to harmonize the documents and come up with one document. The Chair instructed that the issue to be discussed in the PBC sub working group. He asked KeRRA to invite the donors to attend the meeting and forge the way forward on which document to be adopted. He also added that if KeRRA wants manuals which are specific to R2000, then they should be separated. The KRB representative asked for the inclusion if KRB into the sub working group. Eng. Margaret Ogai of KRB was proposed to join the sub working group to represent KRB. The Chair asked for the inclusion of a termination clause and a dispute resolution mechanism. He called for due diligence in the supervision of works. Eng. Omuono asked for clarification from PPOA representative if there are any evaluation criteria that have been outlined in the procurement regulations. Mr. Ndungu of PPOA explained that it is the obligation of the procuring entity to come up with the evaluation criteria. The law does not prohibit, so long as it is objective. He further explained that a clause should be included to show transition from one phase to another. The Chair added that there should be measurable performance indicators and clarity on the extension phase.	ALL

	Eng. Odwesso asked for considerations on the inclusion of the scoring criteria. Eng. Nganga asked the members to consider moving to the contract evaluation manual since it will be used as a score in the e-procurement. The Chair asked members to look into how they were going to tie in the e – procurement since each road authority will take charge of their own e- procurement systems. The Chair informed the members on the need to seek for an extension of the project for another 5 months so as to allow room for implementation and monitoring of the project's activities.	

There being no other business the meeting ended at 12.05 p.m. The date of the next meeting will be by notice.

CHAIRMAN……..

Date…….

Member……

Date……..

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING

MINUTES OF THE 27TH NWG MEETING HELD ON 27TH MAY, 2015 IN THE NORTHERN CORRIDOR BOARDROOM (MOTI)

1. PRESENT

1.	Eng. P.M Mwinzi	Chief Engineer (Roads)	Chairman
2.	Dr. Steve Mogere	JICA	
3.	Mr. Kanji Yokota	JICA	
4.	Eng. Sheikh Takoy	KeNHA	
5.	Eng. Maurice Akech	NCA	
6.	Mr. Ephraim Opuge	KeNHA	
7.	Mr. Hidetsugu Ikeda	JICA	
8.	Mr. Hiroshi Tsujino	JICA	
9.	Eng. Margaret Ogai	KRB	
10.	Eng. Walter Ochieng	KWS	
11.	Mr. Obadiah Muthoka	(MOTI)Materials Dept	
12.	Ms. Eunice Wanjiru	KeNHA	
13.	Eng. Edwin Odwesso	KURA	
14.	Ms. Winnie Owiti	KeNHA	Taking Minutes

2. APOLOGY

1.	Eng. Francis Gitau	Dep. Chief Engineer (R)
2.	Eng. George Kiiru	GM Maintenance, KeNHA
3.	Eng. Amos O. Ombok	GM Maintenance, KURA
4.	Mr. Chris Gachanja	Principal Policy Officer ,PPOA
5.	Eng. Joachim Mbarua	MoTI (Materials Dept.)
6.	Eng. Julius Kaliti	KIHBT

3. ABSENT WITHOUT APOLOGY

1.	Eng.N.N Nganga	KeRRA

4. AGENDA

1. Opening address from chair
2. Member Introduction
3. Extension of present JICA Project
4. Progress of the current JICA Project
5. Next JICA project on Road Maintenance

The Chairman called the meeting to order at 10.30am. He requested for a volunteer to offer an opening prayer. Mr. Ephraim Opuge of KeNHA offered a word of prayer to start the meeting.

MIN	Opening address from the Chair	ACTION
1/27	The chairman welcomed members to the meeting and appreciated the members' attendance. He noted that the attendance was good and asked all authorities and counterparts to ensure that they are consistent in their attendance. He called for the adoption of the agenda; an agenda item was added into the program as agenda no. 4 - Progress of the current JICA Project.	ALL
2/27	**Member Introduction**	
	The chairman asked for a self-introduction from the members.	ALL
3/27	**Extension of present JICA Project**	
	The Chair informed the meeting that the extension of the present JICA Project had been discussed in the 26th National Working Group and members consented that there was need for the current Phase 2 Project to be extended for another 5 months so as to complete the monitoring of the accomplished projects and to have new activities undertaken. The new activities to be conducted during the extension of phase 2 project include:- • Training of Trainers (TOT) on PBC maintenance method improvement including cost estimation • DRIMS training for constructing the road condition database. • Development of PBC monthly inspection and monitoring tools. The period of proposed extension runs from 2nd November 2015 to 2nd April 2016. The secretariat already drafted a letter on the extension of the phase 2 project for Chief Engineer's signature and onward transmission to JICA - Kenya.	ALL
4/27	**Progress of the Current JICA Project**	

	The Chair welcomed Mr. Hiroshi, the JICA Chief Advisor to highlight to the members the progress of the current phase of the JICA Project. Mr. Hiroshi in his presentation explained the progress of activities that had so far been undertaken under phase 2 of the project. These activities included:- • Evaluating the results of pilot projects under performance based contract (PBC) implemented and making recommendations for improvement. • Monitoring and evaluating the cost estimation for PBC and picking up challenges for the formulation of the cost estimation manual for PBC. • Reviewing the public procurement system for the maintenance operation (mainly tendering system) and making recommendations for improvement of the system. • Monitoring and assessing how the Dynamic Response Intelligent Monitoring System (DRIMS) which was introduced during phase 1 is being used in annual road condition surveys. • Proposing the maintenance and repair methods in both paved and unpaved roads in order to improve the actual state of roads. • Conducting counterpart training in Japan to deepen the knowledge on maintenance operations. Mr. Hiroshi also highlighted the development of the PBC Cost Estimation Manual and the finalization of the draft PBC guideline as some of the activities under phase 2 of the project that were currently underway. He explained that the cost estimation manual consisted mainly of 2 parts:- • How to carry out Annual Revision. This consists of activities like site survey, analysis and determining the productivity rate. • How to use the cost estimation manual by the end user. This explains the actual process of carrying out the cost estimation of various roads. Mr. Hiroshi pointed out the need of developing a cost estimation unit in each and every authority for sustainability of the Cost Estimation process developed. He further informed the meeting that the PBC Cost Estimation manual would be finalized in July, 2015 and the draft PBC guideline would be finalized in a retreat that is scheduled to take place from 2nd June, 2015 – 6th June, 2015. The Chair thanked Mr. Hiroshi for his presentation and welcomed comments from the members. In response to Mr. Hiroshi's presentation, the members had the following	ALL

	comments:- **Mr. Ephraim Opuge - KeNHA** • Highlighted the need to train field officers on data collection procedures on the cost estimation manual. • Pointed out the need for data on DRIMS to be housed by either KRB or MOTI so as to ensure ease of accessibility by different Road Authorities and counterparts. • Explained that the institutionalization of the process of cost estimation will depend on each and every authority establishing a Systematic Cost Estimation Unit and surveying accurately yearly the market prices of various items. **Eng. Walter Odira – KWS** • Noted that the progress on DRIMS was very impressive, however; considerations should be made to connect the ARICS and DRIMS data. • Highlighted the need for evaluation criteria of contractors to be domiciled at NCA so as to ensure that all the roads authorities can access the data. **Dr. Mogere - JICA** • Explained to the meeting that training is an expensive undertaking and there was need to invert their time in ensuring that they attend the trainings when the experts are around so as to ensure continuity in the implementation of the projects even after the experts have left. **Eng. Ogai – KRB** • She explained to the meeting that there is a study under World Bank collecting data for condition of data survey. This is separate from the work plan which is working on a GIS platform. Under GIS, there is linear referencing and roads have different ID's. However, there is a discussion on the procedure of transferring the data. • Inquired who will be tasked with the harmonization of the DRIMS data before it can be migrated to KRB. **Eng. Edwin Odwesso - KURA** • He emphasized on the need to review the element of deduction and to enforce penalty and non-compliance deductions on the contractors. This will ensure compliance to the service levels. • Mr. Hiroshi Tsujino in response to Eng. Odwesso explained that the component of deduction has been taken care of in PBC document and once the document is finalized, that aspect will be taken care of. **Eng. Sheikh Takoy – KeNHA**	ALL

	• Inquired on the progress of JICA's project on the decongestion of Nairobi and the extent of implementation of the Nairobi Master plan that was developed by JICA. **Mr. Obadiah Muthoka - (MOTI) Materials Dept** • He raised concerns that they were getting very poor results from the contractors, hence a concern on how NCA evaluates such contractors. He pointed out the need to sensitize the contractors on the importance of quality. **Eng. Maurice Akech - NCA** • He informed the meeting that NCA was developing a new system of evaluation and they were seeking comments from stakeholders so as to help develop a system that is acceptable to all. He also asked the members with views that can help in the development of the system to feel free and share with him so that the same can be considered during the development of the system. • Highlighted the need to train contractors on PBC so as to ensure that proper bidding is achieved. **Eng. Mwinzi – Chair NWG** • In response to the training aspect, the Chair emphasized the need for the trainings to be an all-inclusive exercise where all the counterparts are invited to take part. He further assured the meeting that he will see to it that all the road authorities and counterparts attend the various trainings organized by the JICA team so that none of them is left behind. • The Chair informed the meeting that there is a data centre being developed by the Ministry. In the meantime, all data which can be shared relating to the road authorities can be domiciled at KRB, however, once the development of the data centres is completed, all the data will be transferred to MOTI. • Chair inquired if there is a relationship between the DRIMS and ARICS systems and how the two systems can be interrelated. • Tasked members to identify a certification body which can certify DRIMS so as to ensure that it is acceptable across the East African Community States. • In response to the data collecting exercise for condition of data survey being carried out by World bank under KRB, the Chair explained that there was need for the consultant to look at what other organizations are doing in relation to data collection and storage e.g DRIMS and find a way forward on how the data can be interlinked. He said that their main concern is the interlinkage of	ALL ALL

	the various data being collected. • The Chair explained to the meeting the importance of the various guidelines that were being developed by JICA. He gave an example of the cost estimation manual which will help in deriving the rates. He further explained that there was no essence of developing a manual which cannot be implemented. • He further directed that the subcommittee on cost estimation should sit and give a report and recommendations on the way forward on how to handle issues to deal with cost estimation. • In response to the inquiry on JICA's master plan, the Chair informed the meeting that JICA's master plan was good but it was just shelved. He asked the secretariat to get a copy of the Nairobi Master plan and send it to him so that he can share it with the donor partners under ICBTRS who are undertaking a similar project.	
5/27	**Next JICA Project on Road Maintenance**	
	The Chair asked members to deliberate and give recommendations on the projects that they needed to be undertaken in phase 3 of the JICA project. Dr. Mogere explained to the meeting that when recommending projects for phase 3, they needed to identify areas where there were risks which needed to be sealed. He further explained that it is good to have a project that builds on the weaknesses of the previous phase and which also seeks to expand the projects of the previous phase. The members had the following recommendations for phase 3 of the JICA project:- **Eng. Ogai - KRB** • Requested for further extension of PBC into phase 3 so as to ensure that the PBC guideline is institutionalized and the categorization of PBC document on different types of roads. • The need to extend cost estimation manual into phase 3 so as to institutionalize it and ensure that updating of the manual is carried out annually. **Eng. Walter Odira – KWS** • Proposed that Phase 3 should incorporate the reviewing of the PBC tender documents so that it can reflect on the different categories of roads.	ALL

	• Proposed that proper training of contractors should be handled in phase 3 since lack of training and poor supervision are contributing factors to poor workmanship. **Mr. Ephraim Opuge – KeNHA** • **DRIMS Certification and Integration with ARICS and other systems**. He proposed that phase 3 should liaise with KIHBT and develop a Training and Certification scheme that would ensure that those who undertake measurements are technically qualified and certified to undertake the measurements so as to ensure accuracy and reliability of the data. • **Contract Execution Database**. He explained that currently the Supervision Checklists is utilised but there is no Database where these and other contract execution records are kept. If implemented in phase 3, such a database will ensure that Contractor's whose performance in one contract has been questioned or poor would be barred from undertaking jobs in other contracts. The Database would carry the records of Site Agents and other staff to ensure that staff deployment in Contracts is as stipulated in the contract and no double agent registration is done which makes the contract execution and workmanship poor. • **PBC Document Revision.** He proposed the revision of the current PBC Document to incorporate critical components of service levels that are more representative of the quality and safety stipulations. • **Cost Estimation Manual Revision.** He explained to the meeting that the feedback from various users of the current cost estimation manual is that it is scientific and representative but it gives high rates. Hence the need for a revision of the manual in Phase 3 of the project so as to make it both responsive to changes and dynamic to the market changes and price fluctuations of various critical road materials that guide the cost assignment. • **Bridge/Structures Evaluation Exercise**. He explained that the current status of the Bridges and other water way and water retaining structures is not known. Japan has numerous systems that can be used in the monitoring, mapping and even logging into a database for maintenance purposes. The Bridge logging for example would guide the rehabilitation of the current aging bridge structure and	ALL

	guide the rehabilitation process in the next phase. Hence the need to consider carrying out the bridge / structures evaluation exercise in phase. • **Establishment of Highway Control Centres**. He explained that currently KeNHA has through the PBC Contract on Thika Road established a Highway Control centre dedicated to Thika Road. While this effort is greatly applauded it has become necessary to establish a similar system not only for the management of a few links but for the management of all the highways in the Country. He proposed that JICA should consider implementing this project in phase 3 by providing finances for the centres establishment at various locations in the country and also by providing the needed highway patrol cars. These Centres will not only reduce the cost of rehabilitation from vandalised items but will also serve as accident reporting locations and monitoring locations. They will improve the overall performance of service on the highways. • **Intelligent Traffic Systems**. He proposed a support in the area of ITS to help in knowledge dispensation and system establishment even on pilot basis to learn more of how to control the Kenyan traffic.	ALL
	Eng. Mwinzi – Chair NWG • The Chair proposed the development of a manual that will guide the evaluation of the contractors and also guide the Engineers on how to carry out the evaluation. • Proposed the incorporation of traffic decongestion into phase 3 of the project. Dr. Mogere informed the meeting that JICA had received a request from the Kenyan government to help on ITS. However, questions had arisen on the technicalities of the management and maintenance of the system. JICA is currently carrying out trainings on ITS. The Chair requested the secretariat to get a copy of the ITS that is being procured by KURA under world bank so as to act as a guideline while giving a proposal to JICA on the same. Mr. Yokota appreciated the need to decongest traffic and raised concerns on the relationship between the traffic decongestion concepts in line with the current projects that JICA is carrying out. Mr. Yokota also informed the meeting that an evaluation team to carry out the terminal evaluation of the phase 2 project would arrive in the country on the 10th June, 2015.	ALL

	The Chair informed members that any more ideas on what should be incorporated in phase 3 of the JICA project should be forwarded to the secretariat.	

There being no other business the meeting ended at 12.15 p.m. The date of the next meeting will be by notice.

Chairman……..

Date…….

Member……

Date……..

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING

MINUTES OF THE 28TH NWG MEETING HELD ON 23RD JUNE, 2015 IN THE NORTHERN CORRIDOR BOARDROOM (MOTI)

1. PRESENT

1.	Eng. S.O Ogege	KeNHA	Chairman
2.	Eng. G.M Kiiru	KeNHA	
3.	Eng. Amos Onyango	KURA	
4.	Dr. Steve Mogere	JICA	
5.	Ms. Keiko Watanabe	JICA / MURC	
6.	Mr. Jitsuya Ishuguro	JICA	
7.	Mr. Kenji Yokota	JICA	
8.	Mr. Robert Mutai	JICA	
9.	Mr. Hiroshi Mita	JICA	
10.	Mr. Jared Onyoni	JICA	
11.	Mr. Hidetsugu Ikeda	JICA	
12.	Mr. Hiroshi Tsujino	JICA	
13.	Eng. P. Amiani	KeRRA	
14.	Mr. Chris Gachanja	PPOA	
15.	Eng. Wilson Kosgei	KRB	
16.	Mr. David Mathu	NCA	
17.	Eng. Walter Odira	KWS	
18.	Ms. Caroline Kamunya	KIHBT	
19.	Mr. Ephraim Opuge	KeNHA	
20.	Ms. Eunice Wambui	KeNHA	
21.	Ms. Winnie Owiti	KeNHA	Taking Minutes

2. APOLOGY

1.	Eng. Margaret Ogai	KRB
2.	Eng. Joachim Mbarua	MoTI (Materials Dept.)
3.	Eng. Maurice Aketch	NCA
4.	Eng. Julius Kaliti	KIHBT

3. AGENDA

1. Opening address from the Chair
2. Member Introduction
3. Confirmation and approval of 26th and 27th NWG minutes
4. Progress Status on PBC
5. Presentation of draft evaluation report on the project by terminal evaluation team from Japan
6. A.O.B

The Chairman called the meeting to order at 9.30am.

MIN	Opening address from the Chair	ACTION
1/28	The Chair welcomed the members to the meeting. He relayed his apologies for getting late to the meeting and explained that he was holding brief for the DG – KeNHA and that he had requested Eng. Kiiru to Chair the meeting before his arrival as he had to attend to some office matters. He informed the meeting that he had interacted with the JICA projects while he was the GM – Maintenance at KeNHA. He pointed out the need of sharing the documentations that were being developed by JICA with other departments like Special Projects and Design and Construction so as to reap the benefits of the documents. He thanked the members for the good attendance.	INFO
	Opening Remarks from JICA	
	The Chair welcomed Mr. Ishuguro, a member of the Terminal Evaluation Team of JICA to give an opening remark. Mr. Ishuguro in his opening remarks noted that maintaining roads in good condition was one of the challenges that many countries were facing and Kenya in its quest to ensure that good maintainable roads is achieved had started implementing the Performance Based Road Maintenance Contracts (PBC). He further explained that the Kenyan government engages the development partners in the improvement of the road conditions in Kenya and it is the will of the Japanese government to support the noble initiatives by the Kenyan government in ensuring that its citizens have good roads.	INFO
2/28	**Member Introduction**	
	The chairman welcomed members to the meeting and asked for a self-introduction of members and a word of prayer from a volunteer. Ms. Eunice of KeNHA opened the meeting with a word of prayer.	ALL
3/28	**Confirmation and approval of 26th and 27th NWG minutes**	
	The minutes of the 26th NWG were proposed by Mr. Ephraim Opuge of KeNHA and seconded by Ms. Winnie Owiti of KeNHA as a true reflection and record of what transpired. The minutes of the 27th NWG were proposed by Eng. Walter Odira of KWS and seconded by Dr. Mogere of JICA as a true reflection and record of what transpired.	INFO
	3.0 Matters arising	
	Ex Min. 3/26 Eng. Kiiru inquired about the minutes of the 25th NWG since the previous minutes that were confirmed in the 26th NWG were those of the 24th NWG. Mr. Hiroshi informed the meeting that the 25th NWG was basically a presentation from the counterpart participants who attended training in Japan. **Ex Min. 4/24** Dr. Mogere inquired if the policy which entailed the development of various types of roads which should be put on PBC and the standards of performance and contract monitoring had been developed. Mr. Opuge informed the meeting that there was no progress on the same. Eng. Onyango explained that in Maintenance, they use the policy that was developed by KRB. He further explained that they can harmonize it to incorporate the PBC aspect. The Chair requested the General Managers (Maintenance) of the various roads authorities to coordinate so as to harmonize the process. He asked Eng. Onyango to	ALL GM'S (MTCE)

	coordinate and give a report during the next NWG meeting.	RA's
	Ex Min. 6/24 Mr. Opuge informed the meeting that they had received the studs and installed 3. He further explained that they could not install all of them since they required excavation before they are installed, hence the challenge.	INFO
	Ex Min. 9/24 Mr. Hiroshi informed the meeting that they had not held a meeting with NCA and KIHBT to deliberate on the training issue. He assured the meeting that he will organize for a meeting once the PBC guideline is finalized so that they can determine what aspects of PBC needs to be incorporated in the training guide that they will develop together with KIHBT.	JICA, KIHBT & NCA
	Ex Min 4/26 The Chair pointed out that the high IRI along the northern corridor on the Kenyan side is normal since the traffic load of the trucks is high on the Kenyan side. Mr. Opuge added that the Kenyan side had a vast road network as compared to the 2 other countries. The Chair agreed to the fact that the cargos generated inland were a contributing factor to the deterioration of our roads on the Kenyan side. Hence the trend on the high IRI is expected as things stand. Dr. Mogere inquired what steps KRB had made in ensuring that the previously developed Cost Estimation Manual is updated and what they were putting in place to ensure that the Cost Estimation Manual for PBC that is being developed is updated annually. Eng. Kosgei informed the meeting that KRB is ready to receive the Cost Estimation Manual for PBC being developed by JICA and that they would see to it that the previously developed cost estimation manual is updated. Eng. Onyango inquired what would happen to the first cost estimation manual that was developed in 2011 and no revision had since taken place. Chair reiterated that there was need to revise the manuals since a lot of things had changed. Eng. Kosgei informed the meeting that KRB would convene a meeting and forge a way forward on the revision of the cost estimation manual. He noted that inputs from the relevant counterparts would be required to ensure that each and every agencies input are taken into consideration. Mr. Hiroshi highlighted the need of KRB establishing a cost estimation unit to ensure that the manual is updated annually.	INFO KRB INFO LL KRB

	Ex Min 5/26 Mr. Hiroshi informed the meeting that Ms. Kawakami had requested the road agencies to implement the procedure on contract evaluation for PBC road maintenance as a trial and give feedback on the same. KeNHA and KURA informed the meeting that they had not done a trial. The Chair requested the concerned authorities (KeNHA, KeRRA, KURA and KWS) to take up the matter seriously so as to give feedback when Ms. Kawakami returns. Chair inquired who had been tasked with ensuring that a termination clause and a dispute resolution mechanism are included in the PBC Guideline. Mr. Hiroshi informed the meeting that it would be taken care of during the final stage of the finalization of the PBC Guideline under the section for recommendations.	ALL RA'S & KWS
	Ex Min 3/27 Eng. Kiiru inquired on the status of the extension of the present JICA project. Mr. Ishuguro informed the meeting that they would recommend for an extension of the present project; however, there was need to receive a formal request on the same from the Kenyan side. Ms. Owiti of KeNHA informed the meeting that she had drafted a letter on the extension of the phase 2 project of JICA and forwarded it to the Chief Engineer (Roads) for signature. The Chair asked Ms. Owiti to do a follow up on the letter and ensure that it is signed and delivered to JICA office. Mr. Hiroshi informed the meeting that during the retreat on the finalization of the PBC guideline held between 2nd June – 6th June, 2015, there were a lot of input from the participants and time was not sufficient enough to finalize the document. He informed the meeting that they intend to hold another retreat in July to finalize the remaining two sections. (Work Procedure and Contractual Recommendations).	ALL
	Ex Min 4/27 Eng. Odira informed the meeting that the Chair tasked the members during the 27th NWG Meeting to identify a body that would certify DRIMS. He pointed out that DRIMS is an important system that should be given priority and certified to enhance regional acceptance. Mr. Opuge recommended KIHBT as being best placed to handle the certification process. He however noted that there would be challenges of Regional acceptance. Dr. Mogere informed the meeting that during the terminal evaluation meeting with KIHBT, KIHBT informed them that they had the capability to certify DRIMS. Eng. Odira explained that in his view, it was necessary for the JICA team to identify a suitable body to spearhead the process of certification since they are the originators of the system. The Chair concurred with Eng. Odira and informed the meeting that it would be a challenge for the road agencies as consumers to also spearhead the certification process. Hence the need to certify the technology from Japan. He said this would avoid inbreeding of the process. He also noted that the acceptance would be much wider if the certification originates from Japan. JICA informed the meeting that they would hold deliberations on the same and give feedback. Eng. Amiani informed the meeting that Nairobi Master Plan had not been shelved	INFO JICA

	and the current developments in Nairobi were an output of the Nairobi Master Plan.	
4/28	**Progress Status on PBC**	
	The Chair welcomed Mr. Hiroshi Mita to take members through the progress status on PBC. In his presentation, he highlighted the outline of the progress of the development of the PBC guideline. These included:- • Background • PBC guideline composition • SWG Retreat (2nd – 5th June, 2015) • Role of self-control unit • Service Level Setting • Service Level Inspection • Contract Evaluation • Next Step Forward – Work procedure and Contractual Recommendations. He pointed out a resolution from the retreat that PBC should stand for **"Performance Based Road Maintenance Contract**." Mr. Mita also highlighted some of the matters arising from the Retreat held in Naivasha to finalize the PBC guideline. The following were the matters arising from the retreat:- • A total of 19 participants took part in the retreat for the finalization of the guideline. • Due to time constraints, part 2 (Work Procedure) and part 5 (Contractual Recommendations) were not covered. • Key points agreed during the retreat were:- i. Establishment of a functional self-control unit ii. Establishment of Execution Units • It was agreed that the above units would be under the Project Manager and the Road Manager. • It was agreed that the service criteria should have a service level together with time allowed for repair and permissible tolerance. • Standard service levels for the following 4 categories were proposed:- i. Paved Road with AADT over and under 50,000 ii. Unpaved Road with AADT over and under 1,000 (AADT – Average Annual Daily Traffic) • Paved would further be categorized into:- i. Paved High ii. Unpaved High • Unpaved would be categorized into:- i. Unpaved Standard ii. Unpaved Fair • In addition to the proposal from the JICA team, the retreat agreed that Self Control Unit Performance should be top on the list in contract evaluation.	ALL ALL ALL ALL

	• Statutory compliance and accident occurrence were also agreed to be key when awarding marks in contract evaluation. The Chair welcomed comments from the members. Eng. Onyango noted a major shift from the client to the contractor in terms of responsibility in the draft PBC guideline. He however noted that there was a major concern in terms of laxity from the contractor's side and the notion that the main responsibility lied heavily with the client. Mr. Mita explained that there was a training schedule being developed that would guide the contractor's and the client in terms of PBC implementation. Eng. Amiani informed the meeting that KeRRA is undertaking AfD programmes and it is an evaluation criteria that each contractor bidding should have undergone training on PBC for them to be eligible to bid. This trend has seen contractors who are interested in carrying out PBC works ensure that they have undertaken training. The Chair asked for an inclusion of the training component in phase 3 so as to ensure capacity building on the contractors side. Mr. Tsujino informed the meeting that JICA would invite NCA to a meeting to discuss the contractors work procedure. The Chair asked JICA to consider inviting Special Projects and Design and Construction Departments to their meetings since it's now a requirement from donor partners for organizations to provide a maintenance plan after the completion of a road project. The Chair further explained that donor partners were now reluctant to provide funds for Roads without proper maintenance plan after the completion of the road construction project.	ALL JICA
5/28	**Presentation of draft evaluation report on the project by terminal evaluation team from Japan**	
	The Chair welcomed Ms. Watanabe, a member of the terminal evaluation team to present to the meeting the report on terminal evaluation for the Phase 2 project of the Project for Strengthening of Capacity on Road Maintenance through contracting. Ms. Watanabe thanked the members who participated in the terminal evaluation interviews. She noted that there was great cooperation and assistance from the JICA side and the Kenyan side as well. In her presentation, Ms. Watanabe highlighted the objectives of the terminal evaluation exercise. These included:- • To improve projects through feedback from findings into decision making process. • To assess the termination of the project or the necessity of extension of cooperation period. • To disclose information extensively for the sake of improvement of transparency and accountability of JICA's projects. She further explained to the meeting the methodology that was used during the terminal evaluation. Some of the methodologies that were used included:- • Verification of achievement compared to the plan (PDM) • Analysing according to the five evaluation criteria i. Relevance	ALL ALL

	ii. Effectiveness iii. Efficiency iv. Impact v. Sustainability • Extract Recommendations • Draw lessons learned Ms. Watanabe also explained the outline of the project that encompassed the following aspects:- i. Overall goal ii. Project Purpose iii. Project Outputs She listed and explained the points that were considered during the terminal evaluation exercise. These included:- • Achievement of the project • Achievement of the 4 project outputs • Implementation process • Relevance of the projects to Kenya's policy (Vision 2030, Medium Term Plan) and Japanese assistance policy and strategy (County Assistance Policy, TICAD V) • Effectiveness of the project • Impact of the project • Sustainability of the project in terms of policy, institutional and technical aspects and financial needs. In their conclusion, they noted the following:- • The project had steadily progressed • It had high prospects to achieve its purpose • It had a high level of relevance, effectiveness, impact, efficiency and sustainability • There was need to extend the project's period so as to enhance the monitoring of the projects accomplishments and to have new activities undertaken Some of the recommendations that were derived from the terminal evaluation exercise were as follows:- • Complete on-going and planned activities • Efforts should be made to consolidate the capacity built in the individuals into institutional capacity • Responsibility and ownership of the guidelines and manuals should be designated Ms. Watanabe welcomed Mr. Ishuguro to give his remarks on the terminal evaluation exercise that they had jointly carried out. Mr. Ishuguro inquired who will be the custodian of the documents and where the documents will be domiciled. He also noted that the capacities of contractors were different and the manuals being developed might not cater for the needs of all	ALL ALL

	contractors, hence the need for a review of the documents in phase 3. He welcomed some ideas that had been proposed for phase 3 and asked the counterparts to deliberate and agree on the key areas that needed JICA's intervention. The Chair asked the members to appreciate Ms. Watanabe and Mr. Ishuguro and noted that the evaluation report was impressive. He then welcomed comments from the members. Mr. Tsujino informed the meeting that the evaluation team had noted that there was a need to modify the PDM since some of the indicators did not reflect their objectives and outputs. He asked members to go through the revised PDM and give recommendations. The Chair in response to Mr. Ishuguro informed the meeting that the documents would be under the custody of the Ministry of Transport and Infrastructure as the parent ministry. Eng. Onyango reiterated that it would be good for MOTI to have custody of the documents as it has always been a practice with the other documents that have been developed.	ALL ALL
6/28	**A.O.B**	
	Eng. Kiiru thanked the JICA team for the cooperation they had accorded the counterparts during the implementation of the project and he said that they were looking forward to working with JICA in many more years to come. The Chair thanked the members for their cooperation and noted that without their cooperation and commitment, they would not have achieved the progress that had been reported by the evaluation team.	

There being no other business, the meeting ended at 12.22 p.m. with a word of prayer from Eng. Amos Onyango of KURA. The date of the next meeting will be by notice.

CHAIRMAN……..

Date…….

Member……

Date……..

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING

MINUTES OF THE 29TH NWG MEETING HELD ON 4TH AUGUST, 2015 IN THE NORTHERN CORRIDOR BOARDROOM (MOTI)

1. PRESENT

1.	Eng. Francis Gitau	MOTI – Chairing
2.	Eng. G.M Kiiru	KeNHA
3.	Mr. Hiroshi Tsujino	JICA Chief Advisor
4.	Mr. Hidetsugu Ikeda	JICA
5.	Dr. Steve Mogere	JICA
6.	Takashi Nakajima	JICA
7.	Takumi Uno	JICA
8.	Eng. Michael Walela	NCA
9.	Eng. Tom Omai	KRB
10.	Opuge Ephraim	KeNHA
11.	Eng. Edwin Odwesso	KURA
12.	Stephen Kipngetich Koech	PPOA
13.	Robert Mutai	JICA – Taking Minutes

2. APOLOGY

a.	Eng. P. Mwinzi	Chief Engineer (Roads)
b.	Eng. Margaret Ogai	KRB
c.	Eng. P. Amiani	KeRRA

3. AGENDA

1. Opening address from the Chair
2. Member Introduction
3. Confirmation and approval of 28th NWG minutes and matters arising.
4. Progress status on PBC guideline

5. Progress status on Cost Estimation
6. Up-coming Activity and Proposal to NWG
7. A.O.B

The Chairman called the meeting to order at 9.30am.

MIN	Opening address from the Chair	ACTION
1/29	The Chair welcomed the members to the 29th NWG meeting and requested them to actively engage in deliberations. He reiterated that the JICA project of strengthening of capacity has provided us a new way of doing road maintenance. He noted that the concept of PBC is a challenge for all of us and that this project is one of the greatest achievements we have had in road management and maintenance.	INFO
2/29	**Member Introduction**	
	The chairman asked for a self-introduction from the members.	ALL
3/29	**Confirmation and approval of 28th NWG minutes. Matters arising**	
	Mr. Mutai took the members through the minutes of the 28th NWG. **<u>Matters arising</u>** In Ex. Min. 6/24, Eng. Gitau inquired if KeNHA had installed the road studs. In response, Mr Opuge informed the meeting that the studs had been installed. In Ex. Min. 9/24, Mr. Tsujino noted that JICA had held a meeting with NCA and KIHBT to discuss TOT and the way forward. In Ex. Min4/26, the chair inquired from KRB regarding updating of Cost Estimation Manual. In response Eng. Omai noted that a unit has been put place to look into the exercise of updating of Cost Estimation Manual. In Ex. Min. 5/26, Mr Opuge said that KeNHA had done the contract evaluation trials. He pointed out that minus 20 points allocation for accidents when evaluating the contractor was too extreme, noting that sometimes accidents occur as a result of careless third party motorists and not necessarily the fault of the contractor. In Ex. Min 4/27 Eng. Gitau noted that the issue of a certification body was very important. He pointed out that we need to formalize the standards before we think of certifications. Mr. Opuge observed that the issue of certification should be adequately addressed by KIHBT. In Min. 5/28, Mr. Hiroshi informed the meeting that he had finalised the revised PDM. There being no comments from the members, the revised PDM was adopted. The minutes were confirmed as a true reflection of what was discussed, proposed	KRB RAs

	by Mr. Opuge Ephraim and seconded by Hiroshi Tsujino.	
4/29	**Progress status on PBC guideline**	
	The Chair invited Mr. Nakajima to take the members through a presentation on the progress status on PBC guideline. In his presentation, Mr. Nakajima outlined the objectives of PBC guideline as follows; • To support expansion of PBC in line with vision 2030 • To enhance practical knowledge on PBC both to employer and the contractors • To provide standards and samples to be applied in PBC • To provide directions in future application of PBC He noted that the guideline is composed of; i) Introduction – concept of PBC, objective of the guideline ii) Part 1 Service level Setting – standard service level iii) Part 2 Work Management – Adhoc inspection, Formal inspection, payment reduction iv) Part 4 Contractor's Evaluation – Criteria for evaluation v) Appendices – sample forms for PBC Part 5; Contractual Recommendations was discussed and the conclusions reflected to the other parts during discussion in the retreat. In order to develop the guideline, two retreats were conducted in Lake Naivasha to review the draft. 24 SWG members from relevant authorities participated in the retreats. Also members from AfD, ICBTRS, KfW participated in the retreats. Mr. Nakajima noted that regarding the issue of Risk Allocation JICA concluded to have advice from ICBTRS and the response was being awaited. Mr Nakajima noted that JICA will finalise the guideline as edition 1 which will include all the comments from members and will be distributed to all SWG members. The guideline will have a preface, foreword and list of names of all members who contributed to development of the guideline. JICA will also engage services of a professional for grammar/linguistics corrections and do thorough formatting of the document which will take about one month. He also noted that JICA is preparing for a TOT for master trainers retreat which will commence in early September. The next step will be the launching of the document. Mr. Opuge inquired about the timelines for the launching of the document. Mr. Nakajima noted that TOT will be conducted in January and February 2016 and therefore it was preferable to launch the documents within this year. He said that	INFO JICA ALL

	JICA proposes that launching be conducted in December 2015.	
5/29	**Progress status on Cost Estimation**	
	Mr. Uno took the members through a presentation on COSTES for PBC 2015. He elaborated the concept of the system as; 1) Less input, quicker calculation 2) Three input method based on the road data collected by authorities/contractors 3) Both RAs and Contractors can use the system He noted that the program is still being improved with incorporation of comments from members of Cost Estimation SWG from the last retreat.	ALL
	In the most updated version of the COSTES system, changes have been made to make it easy for data input. The version has IMP, dry/wet seasons inputs, the user can input data for the SCU and its transportation logistics (haulage expenses). The users can also manually input the precise/target size/area of maintenance, unit prices for the SCU. Miscellaneous cost was set at 5%, indirect cost is 30%, overheads & profits is 10% while VAT is 16%. Unit prices will be given as default values but can be changed manually as deemed necessary. The user can input data for the 6 major labour based work items along with additional work items available in the "other PBC works" data bank. The system also include instructed work window for input of instructed works items. Mr. Uno enumerated the future works as follows; 1) Harmonization with PBC Cost estimation Manual 2) Training for Data administrator 3) Trial use and feedback 4) Price/work item tables update 5) Improve program stability and usability 6) Additional training of trainers in January 2016	JICA
	The Chair thanked Mr. Uno for the presentation. He Inquired to know how the productivity rates were produced for the COSTES. Mr. Uno noted that P/R survey was conducted for ongoing PBC works from January 2015 to April 2015 and P/Rs (SRUQs) from the survey are used in the program, but the indirect costs and overheads and profits ratio surveys were done but data was not reliable. Mr Uno said that he will update the system and send it to all members as soon as it is complete. Eng. Gitau said that the system will help the engineer's estimates to be more accurate and transparent.	JICA INFO

	Mr. Tsujino noted that KRB is the custodian of data. Therefore they are to review/revise and update the rates for the road authorities.	JICA
6/29	**Up-coming Activity and Proposal to NWG**	
	Mr. Tsujino took the members through a presentation on the upcoming activities as follows; • Preparation of PBC training program/TOT • Cost Survey Training • Contract Evaluation • DRIMS training On preparation of Training, he noted that the 1st step would involve joint work between JICA team and Master Trainers to develop curriculum and training materials. In January 2016, TOT will be commenced by Master Trainers with support of JICA team. The pilot training to RA staff and contractors will be conducted in February 2016 with the support of JICA Team. He informed the meeting that training will be on the contents of the PBC guideline and Cost Estimation manuals. With regard to Cost Survey training, Mr. Tsujino noted that the objective is to learn how to conduct survey and analyse the productivity rates. He pointed out that the target group for this training will be least two trainees from KRB. The methodology involves conducting cost survey with JICA team on PBC, fill out survey form and calculation of productivity rates from survey results. He said that the schedule for conducting this training will be in October 2015 and will run for 3 weeks. On the training in Contract Evaluation, Mr Tsujino noted that the objective was to carry out trial of Contract evaluation and the training targets RA and KWS. The methodology for carrying out training on contract evaluation entails filling out contract evaluation tally sheet (evaluation Scoring). He informed the meeting that Dr. Kawakami had requested the RAs to conduct trial on contract evaluation on 19th March 2015. The JICA team would collect data of the trial. He noted that there would be a follow up from Mid-August when Dr. Kawakami will arrive in the country. On DRIMS training, Mr Tsujino noted that training was conducted in June 2014, Sept 2014 and March 2015. Improvement of DRIMS equipment was done on Oct. 2014 – April 2015. Drive Recorder has been introduced into the system. Mr. Tsujino noted that continuous measurement and accumulation of data need to be carried out to build sustainability of the operation of DRIMS in Kenya. The Chair thanked Mr. Tsujino for the presentation. He noted that RAs have a lot of work to do as phase 2 comes to an end, saying that RAs have to nominate Master	INFO JICA/RAs JICA/RAs JICA/RAs JICA/RAs

	trainers on time. He then opened the floor AOB. In regard to selection of master trainers, Mr. Opuge noted that the trainers selected should have interest in PBC and also have knowledge in PBC. General managers should be able to identify those people to be selected as master trainers. Mr. Tsujino clarified that the master trainers will be selected from the SWG members because they have been involved in PBC capacity building from the early stages and they have knowledge of the concept already.	
8/30	**A.O.B**	
	Mr. Opuge thanked JICA for the effort they have put in capacity building of road maintenance; they have helped Kenyan engineers develop the institution/capacity through trainings. He informed the meeting that he would be proceeding to Japan to pursue a two-year Master's degree course in Road Condition Monitoring, with support from JICA under the ABE program. The Chair congratulated him and wished him well in his studies. He advised him to cascade the knowledge/experience gained from the course to other Engineers across the authorities. Eng. Michael Walela of NCA wanted to know the number of Master Trainers who would be nominated from NCA. Mr. Tsujino clarified that 2 persons from NCA had already been nominated in consultation with Eng. Akech. Eng. Omai noted that in the COSTES there are 6 major labour based work items but in the previous meeting with JICA it was realized that more work items should be added for the sake of updating the cost estimation manual 2011. He also noted that KRB has nominated 2 engineers to be part of the master trainers. He further noted that it is important that much of the funds should go to direct costs of the project instead of indirect costs, saying that it is the concern of KRB that indirect costs allocations may be used inappropriately for items that may not be for the purpose of the project. Mr. Stephen Koech of PPOA informed the meeting that Mr. Gachanja who had been representing PPOA was no longer with the authority and that he replaced him as a member of NWG. Eng. Owesso inquired how a large number of contractors can be convinced to attend the trainings. Eng. Gitau said that contractors will attend at their own will and by choice. He also noted that NCA will play a big role in the training of contractors. He further noted that there is a paradigm shift to move to asset management. Thus in order to participate in PBC road maintenance, contractors will be mandated to have training and certification for PBC works. This will compel more contractors to be trained and certified as PBC contractors. Mr. Tsujino noted that as the number of PBC contracts is rapidly increasing, more contractors would have a chance to get tenders, but they must first be trained and certified. He said that training of contractors is very crucial. If contractors perform	INFO

	well, the work of RAs in PBC will be minimal. Eng Kiiru noted that the government is moving towards e-procurement. He then inquired if COSTES for PBC 2015 can be used by contractors/bidders to submit their bids. Mr. Tsujino said that the COSTES system will be available to contractors as well as road authorities, so contractors can use COSTES system to prepare the bidding prices/cost estimation. Mr. Tsujino noted that KRB should upload the COSTES system in their website. The Chair observed that the contractors should understand the algorithms behind the cost estimation manual development, noting that it is a good tool in estimation of cost for PBC works. Mr. Nakajima pointed out that those who supervise PBC works should be nominated for training because they are the ones who would directly deal with PBC on site. Mr. Uno noted that if there are P/R for ”other PBC works” other than the 6 major labor based works, then they should be included, he also said that he will work to improve the system to include P/R for “other PBC works”. He however pointed out that with the increased number of items the interface will be complicated but he would try to improve on simplicity. The Chair inquired if we can have customization model of the COSTES. Mr. Uno said that the program can produce output both in PDF and in Excel formats. The Excel format can easily be edited if need be. In his closing remarks, the Chair stressed the need for training of contractors. He noted that our goal is to develop categories of contractors for PBC, such that we have contractors registered as Performance Based Contractors. He thanked the members for their participation.	

There being no other business, the meeting ended at 12.00PM with a word of prayer from Mr. Opuge Ephraim. The date of next meeting will be by notice.

CHAIRMAN……..

Date…….

Member……

Date……..

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING

MINUTES OF THE 30TH NWG MEETING HELD ON 18TH NOVEMBER, 2015 IN THE NORTHERN CORRIDOR BOARDROOM (MOTI)

1. PRESENT

1.	Eng. Francis Gitau	MOTI – Chair
2.	Eng. G.M Kiiru	KeNHA – Co-Chair
3.	Mr. Hiroshi Tsujino	JICA Chief Advisor
4.	Mr. Hidetsugu Ikeda	JICA
5.	Boniface Maithya	MOTI
6.	Eng. David Orwenyo	KRB
7.	Eng. John Kagochi Mwangi	KeRRA
8.	Ms. Winnie Owiti	KeNHA
9.	Edwin Odwesso	KURA
10.	Mr. Robert Okuku	KWS
11.	Peter K. Ndungu	PPOA
12.	Hillary Cherop	MTRD
13.	Kennedy Okoth	KeNHA
14.	Mr. Robert Mutai	JICA – Taking Minutes
15.	Mr. Jared Onyoni	JICA

2. APOLOGY

7.	Eng. Walter Odira	KWS

3. AGENDA

1. Opening address from the Chair
2. Member Introduction
3. Progress Status on PBC Guideline and Cost Estimation Manual for PBC
4. PBC Training Schedule

5. Presentation by the 2015 Japan Trainees
6. Planned activity on DRIMS
7. Launching of the PBC Guideline & Cost Estimation Manual for PBC
8. A.O.B

The Chairman called the meeting to order at 9.15am.

MIN	Opening address from the Chair	ACTION
1/30	The Chair welcomed the members to the 30th NWG meeting and thanked them for the attendance. He pointed out that we are aiming at operationalisation of performance based approach in road maintenance and institutionalisation of periodic data collection. He also stressed the need for cementing of training of PBC in this country. He appreciated the progress which has been made in development of PBC documents. He took the opportunity to welcome back the trainees who had gone to Japan for one month's training and said that he was looking forward to their presentation under agenda No. 5 on the lessons learnt while in Japan. He informed the meeting that the minutes of the 29th NWG meeting will be confirmed during the next meeting together with these minutes.	INFO
2/30	**Member Introduction**	
	The chairman asked for a self-introduction of members and a word of prayer from a volunteer. Eng. Kagochi opened the meeting with a word of prayer. The chair informed the members that during the course of the meeting he would attend a ministerial tender committee meeting and Eng. Kiiru would chair the meeting in his absence. The Chair also noted that there was no representation from KRB and KURA.	ALL
3/30	**Progress Status on PBC Guideline and Cost Estimation Manual for PBC**	
	Mr. Hiroshi Tsujino took the participants through a presentation on the progress on PBC guideline and Cost Estimation Manuals. He elaborated the major activities which were undertaken since 29th NWG meeting as follows; – COSTES Training in KRB - 6th Aug 2015 – Contract Evaluation Meeting in KURA – 28th Aug 2015 – DRIMS Calibration – 1st Sept 2015 – Contract Evaluation Meeting in KURA – 2nd Sept 2015 – Cost Estimation 6th SWG – 11th Sept 2015 – PBC Master Trainer Retreat in Naivasha – 14th – 16th Sept 2015	INFO

	– Contract Evaluation Seminar in KIHBT – 17th Sept 2015 – Cost Estimation Manual(Vol.1) Training in KRB – 28th Sept – 19th Oct. 2015 – PBC Master Trainer Retreat in Naivasha – 5th – 9th Oct 2015 – Training in Japan – 17th Oct – 12th Nov 2015 He outlined the stages of formulation of PBC guideline as; 1) Work Shop - 1st October 2014 2) Site Visit - 4th November 2014 3) Sub Working Group meetings - 4 meetings The Editing & Formatting of the guideline have been finalized. Regarding progress of Cost Estimation Manuals, he noted that the sub-working group held 6 meetings. Editing of the manuals has been finalized and they are now under formatting stage. He pointed out that the manuals include instructions for operation of computer program COSTES2015, noting that the program is easy to understand and will be used to determine the cost of PBC works per km per month. He also informed the meeting that booklets for both PBC guideline and Cost Estimation manuals will printed as follows; 1) Cost Estimation Manuals Vol.1 – 50 Copies 2) Cost Estimation Manuals Vol.2 – 300 Copies 3) Cost Estimation Manuals Vol.3 – 300 Copies 4) PBC Guideline – 300 Copies TOT training will cover both PBC guideline and Cost Estimation Manuals.	
4/30	**PBC Training Schedule**	
	Mr. Hiroshi outlined the PBC training schedule as follows; • Master Trainer appointment – early September 2015 • First meeting – Mid – Sept 2015 • Training Materials – Mid-sept to Mid –nov 2015 • Training in Japan - 17th Oct – 12th Nov 2015 • Retreat for Training Materials – 23rd -27th Nov 2015 • PBC guideline & Cost Estimation Manual publication – Dec 2015 to Jan 2016 • TOT (training by Master Trainer) – January 2016	ALL

	• Training to Road Authorities and Contractors by PBC trainer team – Feb – Mar 2016 • NWG, JCC meeting – March 2016 He noted that after expiry of Phase 2 of the project and for sustainability, KIBHT will continue with the training from April 2016 onwards. There will be a follow-up during Phase 3 of the JICA road maintenance project. Eng. Kiiru took over the chairmanship from Eng. Gitau who was attending another meeting.	
5/30	**Presentation by the 2015 Japan Trainees**	
	Eng. Kagochi took the members through a presentation of report prepared by the team which had gone to Japan for training. The report outlines experiences and key learning points gathered during training in Japan. The report includes action plan developed from the lessons learned. The training period was from 18th October to 10th November 2015. Eng. Kagochi presented the report under the following topics, highlighting key points and action plan on each and what can be implemented in the Kenyan context; a) Maintenance Management systems b) Damage & Repair of Bridges, Specialised Measurement Techniques & Non Destructive Testing c) Intensive Lane closures in Hanshin Expressway Co. Ltd d) Public Procurement System Improvement in Japan e) Construction management, Quality control, Construction Technology f) Drive-by infrastructure assessment, Strategic maintenance philosophy for matured infrastructure g) Asphalt pavements, Asphalt concrete mixing plant h) Akashi City Road Maintenance , Akashi Kaikyo Bridge i) Road infrastructure management efforts in Nara Prefecture j) The damage of large scale collapse by Typhoon at Tenkawa Village k) Tanize Suspension foot bridge Totsukawa village l) Demonstration of Disaster Prevention Technology – Hiroshima MLITT office m) Traffic Congestion control, Demonstration of highway patrol tools and equipment	ALL

	n) Traffic control during removal of obstacle, Overloaded vehicle control o) Operation & Maintenance of Parking Area (PA) p) Yokogawa Bridge Fabrication Plant q) Weigh in Motion Sensors r) Mountain Tunneling for vehicular roads in Japan In concluding his presentation, Eng Kagochi noted that the team learnt a lot from the visit to Japan. He noted that apart from the technical training, the team also learnt about the Japan culture. He further noted that the information and experiences gained should be shared with all the road agencies and other stakeholders. He noted that in Kenya we should emphasize on planning, road safety and quality control. He particularly pointed out that the contractors must be fully involved in quality control and that the quality checks should be done at the source of materials. The video on the lives and times/experiences of the team while in Japan was played out after the presentation of the report. Mr. Hiroshi expressed his gratitude for the presentation, noting that the team learned a lot that they can be integrated into the Kenyan situation. Hillary Cherop said that he was encouraged by the presentation and noted that the information/experiences need to be shared across the board. He also noted that in Kenya the resident engineers are the ones who are concerned with quality control but it should be the responsibility of the contractor. On behalf of the team, Eng. Kiiru thanked the Governments of Kenya and Japan for facilitating the trip to Japan. He also thanked JICA, Hanshin Expressway and all the other Japanese staff who provided the training and experience.	
6/30	**Planned activity on DRIMS**	
	Mr. Hidetsugu Ikeda outlined the planned activities on DRIMS. He noted that DRIMS team has been established in KENHA. In order to build sustainability of the operation of DRIMS in Kenya, there is need for follow-up on DRIMS users and give them proper advice when they experience difficulties and continuous training. Mr. Ikeda gave the hierarchy of the DRIMS team as follows; – DRIMS Consortium – Japan – Dreams Team – KeNHA HQ – DRIMS team member – Regional offices, 1 in each regional office – User The plan for DRIMS team is as follows;	ALL

	• Nominate DRIMS team member – HQ 9, Regional office 1 each • Retreat – 18 Nov. – 20 Nov. 2015 • Road survey – Dec 2015 • Training – Jan 2016 Mr. Ikeda proposed that re-classification of IRI will be carried out. Mr. Hiroshi noted that KeNHA had procured ten DRIMS equipment and they had measured the IRI of their road network and data uploaded to the main server. He also said that JICA have two DRIMS equipment while KRB had procured two equipment. KWS was in the process of procuring three equipment. Eng. Orwenyo wanted to know why there was need for re-classification of the IRI threshold. In response, Mr. Hiroshi pointed out that re-classification need to be done to respond to Annual Road Inventory Survey (ARICS). Currently IRI thresholds do not correspond to the ARICS description.	
7/30	**Launching of the PBC Guideline & Cost Estimation Manual for PBC**	
	Ms. Winnie explained that the PBC documents are in the final phase of development. The project team are currently liaising with the printing company tasked with printing of the documents. The documents are PBC guideline and Cost Estimation Manuals Vol. 1, 2 & 3. After all documents have been printed, launching will be conducted sometime in January 2016. The date for launching will be set by MOTI. Ms Winnie noted that the President or Deputy President will be invited to preside over the launching ceremony. She however noted that the invitation will only be done by the Minister in charge of Transport and Infrastructure. Proper planning is therefore necessary. The project team will coordinate with MOTI in preparation for the launch. Ms Winnie noted that during the launch the members who contributed to development of the documents will be presented with certificates. She requested the NWG members to provide ideas from previous launches on how the launch will be conducted. Eng. Kiiru observed that since the launch will be done before end of current project, the time is limited. An external event organiser may be needed for organising this event. Eng. Orwenyo noted that preparation for launch is not difficult and MOTI being responsible for standards must be involved. He also inquired whether the contractors and the common road user have been involved in these documents. Eng. Kiiru clarified that the documents are basically for Road Authorities and contractors. Mr. Mutai informed the meeting that contractors were invited to a PBC workshop held on 1st October 2014 and their views were incorporated in the PBC guideline. Also Volume 3 of the Cost Estimation Manuals was specifically	ALL

	developed for contractors. Further, Ms. Winnie observed that trainers will be teaching the contractors on Cost Estimation Manuals and PBC guideline during training period. She also noted that the contractors will be invited to attend the official launch of the documents. Eng. Kiiru advised that a launching committee should be set up. Ms. Winnie noted that the committee will be set up after briefing the CE (Roads).	
8/30	**A.O.B**	
	Mr. Robert Okuku reported that COSTES2015 was giving errors in computation of cost for PBC works. He inquired whether the updated version has been released. Mr. Hiroshi said that Mr. Uno will finalize within a few days and distribute the updated version. Ms. Winnie reminded the members who are part of Master Trainer team to travel to Naivasha on Sunday 22nd November 2015 for the retreat on training materials scheduled to commenced on 23rd November 2015 at 10.00AM The Chair thanked the members for their participation.	

There being no other business, the meeting ended at 11.00AM with a word of prayer from Mr. Jared Onyoni. The date of next meeting will be by notice.

CHAIRMAN……..

Date…….

Member……

Date……..

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING

MINUTES OF THE 31ST NWG MEETING HELD ON 3RD FEBRUARY, 2015 IN THE NORTHERN CORRIDOR BOARDROOM (MOTI)

1. PRESENT

1.	Eng. P.M Mwinzi	MOTI Chief Engineer (Roads) – Chairing
2.	Eng. Francis Gitau	MOTI
3.	Eng. G.M Kiiru	KeNHA
4.	Eng. John K. Mwangi	KeRRA
5.	Eng. Amos Onyango	KURA
6.	Walter Ochieng	KWS
7.	Rose Ndirangu	PPRA
8.	Muthoka Obadiah	MTRD
9.	Grace M. Mathai	KeNHA
10.	Julius M. Kaliti	KIHBT
11.	Kenji Yokota	JICA
12.	Hiroshi Tsujino	JICA Chief Advisor
13.	Hidetsugu Ikeda	JICA
14.	Hiroshi Mita	JICA
15.	Dr. Yoriko Kawakami	JICA
16.	Mr. Jared Onyoni	JICA
17.	Mr. Robert Mutai	JICA –Taking Minutes

2. APOLOGY

No apologies

3. AGENDA

1. Opening address from the Chair
2. Member Introduction

3. Phase 2: Final Reporting

   3.1 Project Activities and Achivements

   3.2 Development of PBC Guideline & Cost Estimation Manual for PBC

   3.3 Outcome on PBC Training held in January/February 2016

   3.4 Launching of PBC Guideline and Cost Estimation Manual for PBC

   3.5 Post Project Action – How PBC Training will be managed by KIHBT

4. Comments from C/Ps

5. Phase 3 Project

6. Closing Remarks from the Chair

The Chairman called the meeting to order at 9.00am. The meeting commenced with a word of prayer from Eng. Francis Gitau. The agenda of the meeting was adopted.

MIN	Opening address from the Chair	ACTION
1/31	The Chair welcomed the members to the 31st NWG meeting and thanked them for their consistency in attending the meeting. He pointed out that he was proud of the JICA project now that the manuals have been developed, noting that he has been chairing steering committees of other projects but they were yet to produce manuals. He informed the meeting that the manuals produced by JICA meet objectives for PBC road maintenance and management.	INFO
2/31	**Member Introduction**	
	The chairman asked for a self-introduction of members. He then invited Mr. Hiroshi to make presentation on Phase 2 Project: Final Reporting	ALL
3/31	**Phase 2 Project: Final Reporting**	
	3.1 Project Activities and Achievements In presenting the final reporting for the project, Mr. Tsujino enumerated on the following points. 1. Overall goal; 1) Performance level of roads maintenance operation contracts by performance based road maintenance contracts (PBC) is improved bot in RAs and other related industry. 2) Existing road network maintained in good condition Project purpose; The capacity of implementing agencies is strengthened on management of road maintenance through contracting Outputs; 1) the maintenance operation procedure associated with PBC is reviewed and improved and implemented properly. 2) capacity is built in	INFO

RAs. 3) to build sustainability of the proper PBC operation procedures, trainers on PBC operation are fostered. 4) to build sustainability of the operation of DRIMS, experts on DRIMS are fostered.

2. Organization for implementation of the project which are the JCC, NWG and the SWG for cost estimation and PBC guideline formulation
3. Methodology for the PBC Guideline/Cost Estimation Manual creation, COSTES for PBC 2015 contents, input parameters & the outputs.
4. DRIMS road monitoring system, IRI configuration parameters, and data storage/usage. He added that DRIMS trainings are to be conducted periodically in order to refresh the DRIMS team.
5. He expounded on the steps to take for sustainable development of PBC by the master training team.
6. He noted that mini-pilot project (road marking, road studs, Do-Nou technology & YK-Pack) meant to improve road conditions and safety was implemented.
7. Finally he gave recommendations/necessary steps needed for the sustainable development of PBC, cost estimation and DRIMS.

In concluding his presentation, Mr. Hiroshi expressed JICA's deepest appreciation to everyone who participated/contributed to the project. He hoped that the project's outputs will be utilized continuously and contribute to the development of the road sector.

The Chair thanked him for the presentation.

3.2 Development of PBC Guideline & Cost Estimation Manual for PBC

Mr. Mita took the members through a presentation on development of PBC guideline & cost estimation manuals for PBC. He noted that his presentation would mainly touch on the output no. 1 & 3 i.e development of manuals and TOT. He thanked KIHBT for their preparation to roll out the training after completion of phase 2 project at the end of march 2016. He also thanked Mr. Kenji Yokota of JICA for the extension of the project period for 5 months, thus enabling the project team to conduct TOT.

In his presentation, he highlighted the objectives of development of PBC guideline, then enumerated the processes followed in development of guideline and confirmed on objectives and contents of Cost Estimation Manuals
He also informed the meeting that computer software known as COSTES for PBC 2015 was developed and operation procedures are included in the cost estimation manuals.
He concluded his presentation by giving proposals on the way forward as follows;

- Effective training to human resources, contractors and RAs is essential.
- Periodic renewal/update of PBC Guideline and Cost Estimation Manual is

vital

3.3 Outcome on PBC Training held in January/February 2016

Dr. Kawakami took members through presentation on outcome of PBC training held in January/February 2016. She noted that training was conducted in 3 stages;

1) Master Trainers meeting;
   - Sept 14-16 2015, Oct 5-9 2015, Nov. 23-27 2015
   - Work allocation, program planning, training material preparation, teaching practice
2) TOT (training by Master Trainers)
   - Jan 11-15 2016 (Theory) – 28 participants
   - Feb 1-5 2016(Practical) – 26 participants
3) Training to Road Authority Staff

   - Feb 22-26 2016 - 64 participants consisting of;
     i) 7 Master Trainers
     ii) 8 Trainers
     iii) 39 Trainees
     iv) 9 JICA team

She noted that the purpose of training was to;

- Train and develop Trainers well versed in the field of PBC on road maintenance
- Train RA staff to develop skills and knowledge for PBC road maintenance by Trainers
- Make way for the official training to be developed by KIHBT upon project completion

She outlined the outcome of training as;

- Master trainers/Trainers need to understand the concept
- Trainers also needed to have Practical/field training, incorporating more case studies so that students can easily relate to the theories.
- Trainers should be trained on teaching etiquette and professionalism.
- Participants to keep improving their materials and style of presentation/teaching. Trainers should also evaluate their lesson plans and scheme of works
- Contractors should be taught on basic business management
- Cross Cutting issues to be incorporated in the training materials
- COSTES system was still under improvement

The purpose of practical training was for trainers to undergo practical training, having been trained on the theory aspect and also to enable them to understand how to fill the various forms in the PBC guideline and Cost Estimation Manuals.

3.4 Launching of PBC Guideline and Cost Estimation Manual for PBC

Eng. Gitau noted that MoTI is preparing for the launching of the documents. The initial agreed date of launch was in the week of 14th March but the minister was on another assignment. He noted that county governments, engineering consulting firms, road authority counterparts & relevant stake holders in the sector will be invited for the launch. He added that he will consult with the P.S road for the

launch date which will be communicated to everyone. Also invitation letters will be drafted in the office of the Chief Engineer (Roads).

Mr. Kenji Yokota asked if there were more measures needed to make the documents official other than the scheduled launch by the cabinet secretary. The Chair clarified that the launch by the CS and the fact that the documents would be circulated with a forwarding letter from MOTI would be sufficient enough.

Eng. Onyango suggested that the Engineers Board of Kenya and Institution of Engineers of Kenya should also be involved in the launching of the documents. The Chair noted that EBK and IEK will be brought on board during the launch of the documents.

3.5 Post Project Action – How PBC Training will be managed by KIHBT

In his presentation on the Post Project Action, Mr. Kaliti informed the meeting that KIHBT has been prepared enough by the JICA team to roll out PBC training in Kenya. The preparation has taken four forms:

1.) Development of PBC Guideline and Cost Estimation Manuals

2.) Preparation of Training Materials

3.) Training of PBC Masters Trainers

4.) Training of PBC Trainers

He provided the 2016/2017 Proposed KIHBT PBC Tentative Training Programme which runs from 11th April, 2016 to 20th January, 2017. He noted that by 20th January, 2017 KIHBT would have completed one circle of training in all the counties.

He further noted that the Programme would be managed by KIHBT PBC Training Committee made up of Master Trainers and Trainers.

Eng. Gitau noted that the training schedule is very tight, thus participation/attendance can be low given that training is for 5 days. He asked if KIHBT has developed a resource/budget plan, also how the logistics of training have been made. Mr. Kaliti noted that originally the training was to be for 2 weeks, but was condensed to 5 days. He noted that resource/budgetary matters have not been discussed yet but KIHBT principal will convene a meeting next week to discuss this matter. He said that logistical matters will not be a problem. He said that many engineers have not grasped the PBC concept properly yet they are managing PBC contracts, therefore they need to attend the training.

Eng. Gitau asked if KIHBT has set the minimum entry level for training. Mr. Kaliti said that KIHBT will not lock out people who are not from the road sector from being trained but the minimum requirement is a diploma in civil engineering or any related course.

	Ms. Grace Mathai noted that since training will be made mandatory for contractors to be awarded PBC contracts, they need to be made aware of the training. Therefore KIHBT need to consider putting advertisement in advance so that the targeted groups can be made aware and prepare to attend. Also training need to be expedited so that contractors would not be locked out of upcoming contracts. In addition Eng. Gitau said that this course will have to be offered in KIHBT institutions country wide so that more contractors continue to be trained without having to wait until the course is offered in their region according to the proposed schedule. This will also give contractors a choice of taking the course anywhere at any time. The Chair advised KIHBT to sit down and rework on the training schedule provided and address all issues raised before commencing the training. Eng. Onyango noted that KIHBT needs to take initiative of rolling out the training and create mechanisms of motivating contractors/road authorities to want to take the course. Mr. Kaliti said that this initiative should come from MoTI through making the training mandatory for all contractors, thus rolling out the exercise will be easy. The Chair noted that guidelines/manuals have been developed meaning that the way forward has been set and we must impart knowledge/build capacity on how to utilize the documents in the road sector. Eng. Onyango noted that there were some training modules which were developed but never used in phase 1, therefore we should keep track of where we reached with those modules before going forward with the new documents. It is because of the needs identified in phase 1 which led to development of current documents. Dr. Kawakami noted that the documents developed in phase 1 are with various RAs, thus they should follow up. Eng. Ochieng noted that the identified problems from phase 1 have been solved with the documents developed in phase 2, especially with regards to cost estimation of PBC works.	
4/31	**Comments from C/Ps**	
	Mr. Kaliti noted that PBC is a very good concept of road maintenance compared to the traditional method. Kenyan roads are often poorly maintained which leads to costly rehabilitation and a high number of road accidents. Eng. Onyango said that phase 2 project addressed the new way forward in road maintenance which will help the road sector achieve vision 2030. Ms Rose Ndirangu of PPRA (public procurement regulation authority) noted that PBC is a very good concept. It is also being launched at the same time with the new regulations from PPRA. Mr. Muthoka Obadiah of MTRD said that the progress has been very commendable and going forward PBC concept will be adopted to improve road maintenance in Kenya. Eng. Kiiru said that the fruits of phase 2 are the documents at hand and the JICA	ALL

	team has done a good job. KeNHA is grateful to have worked closely with JICA. He noted that KIHBT is to spearhead the way forward in training road authority engineers, contractors and other stake holders. Also KRB need to update the cost estimation manual periodically. He urged all stakeholders to continue to work together. Eng. Gitau said that there has been a very good working relationship with JICA for both phase 1 and phase 2 project. He noted that one of the greatest challenges was not having a scientific method of cost estimation in Kenya, but now JICA has given Kenya a technical platform of doing cost estimations properly. Also DRIMS has been a game changer in the road sector, as it provides an inexpensive way of monitoring road conditions. Phase 2 has also produced the PBC guideline which should be put into good use. All these tools will help relevant stakeholders to do proper sector planning. He thanked the JICA experts and was looking forward to Phase 3 of the project. Ms. Mathai said that phase 2 project was a success because by going forward on this direction, roads will be safer and more adequate. Also road authorities now have enough capacity to manage ongoing maintenance contracts. Road maintenance budgets are also going to decrease now that scientific way of estimating cost for PBC works has been developed.	
5/31	**Phase 3 Project**	
	Mr. Kenji Yokota informed the meeting that Phase 3 project has been approved and will commence in September/October 2016. He noted that there will be a gap of 6 months between the end of Phase 2 and the start of Phase 3 project. He noted that the training will be ongoing during the gap and JICA would be receiving reports on progress of training. He also noted that JICA would consider providing some funds for supporting the training. He informed the meeting that phase 3 will be essentially continuation of phase 2 but he clarified that a JICA mission team will arrive in May 2016 to formulate the actual terms of reference for Phase 3 project. In his final remarks, he thanked the Kenyan side for collaboration with both short term and long term JICA experts in developing the guideline and cost estimation manuals. He was impressed by the C/Ps consensus that phase 2 project was a success and hoped that the C/Ps would extend the same collaboration to the JICA expert team during phase 3 of the project.	JICA
6/31	**Closing Remarks from the Chair**	
	In his closing remarks, Eng. Mwinzi thanked all the members for their attendance and participation in the NWG. He particularly expressed gratitude to the JICA team for continued support in road maintenance, noting that phase 2 has been fruitful. He reiterated that he was proud of the project since the manuals were developed which would play a crucial role in future road maintenance. He	ALL

	however noted that there is a tendency of shelving the manuals in the cabinets without using them. He therefore urged all the RAs to make use of the manuals which have been developed. He noted that PBC concept gives contractors a chance to be innovative at the same time holds them accountable in maintaining specified service levels at all times. He also said that manuals developed in phase 2 would be disseminated to all county governments and other road stakeholders by MOTI.	

There being no other business, the meeting ended at 11.30AM with a word of prayer from Eng. Amos Onyango.

CHAIRMAN……..

Date…….

Member……

Date……..

Attachment GP-6 Minutes of TOT

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING.

MINUTES OF THE TOT for PBC NAIVASHA RETREAT HELD ON JANUARY 11TH – 15TH 2016

1. **PRESENT:**

	Name	Organization
1	Winnie Owiti	KeNHA – Chair-lady
2	Mr. Hiroshi Tsujino	JICA Chief Advisor
3	Mr. Ikeda Hidetsugu	JICA Expert
4	Mr. Uno Takumi	JICA
5	Mr. Robert Mutai	JICA
6	Mr. Jared Onyoni	JICA – Taking Minutes
7	Eng. John Nwangi	KeRRA
8	Winnie Kalya	NCA
9	Michael Walela	NCA
10	Stephen Nyangau	NCA
11	Julius Kaliti	KIHBT
12	Pius Nyamila	KIHBT
13	Eng. Edwin Odwesso	KURA
14	Eng. Geoffrey Tirop	KURA
15	Eng. Sheikh Takoy	KeNHA
16	Eng. Albert Semutwa	KeNHA
17	Caroline Kamunya	KIHBT
18	Emily Awino	KIHBT
19	Nicholas Chelugo	KURA
20	Peter K. Ndung'u	PPOA
21	Eng. Maurice Akech	NCA
22	Jemimah Nyamweya	KIHBT
23	Eng. Robert Mule	KeRRA
24	Eng. Tom Omai	KRB

25	Hillary Akwiri	KeRRA
26	Peter Maruti	KeNHA
27	Boniface Maithya	MoTI
28	Mr. Takashi Nakajima	JICA

2. APOLOGY:

3. AGENDA:

Day 1 Agenda:

1. Registration
2. Introduction of participants
3. Opening remarks
4. Outline of PBC – Mr. Julius Kaliti
5. Service level setting – Eng. Kagochi Mwangi

Day 2 Agenda:

6. Cost estimation – Eng. Tom Omai

Day 3 Agenda:

7. Procurement procedures – Mr. Peter Ndung'u
8. Work procedures 1 – Eng. Edwin Odwesso

Day 4 Agenda:

9. Work procedures 2 – Mrs. Jemimah Nyamweya
10. Service level inspection – Ms. Winnie Kalya

Day 5 Agenda:

11. Cash flow management – Eng. Akech
12. Contractor's evaluation – Eng. Takoy
13. COSTES software – Uno-san
14. Test for certification – Ms. Winnie Owiti/JICA
15. Closing remarks.

MIN.	DELIBERATIONS
2	**Introduction if Members:** The meeting started at 10:15am with a word of prayer from Mr. Nyamila followed by self-introduction by all members.
3	**Opening Remarks** In the opening remarks, Mr. Tsujino noted the following. In the making of the PBC guidelines and cost estimation manual, JICA did several surveys and site visits to understand the challenges local contractors and government road authorities were facing. The aim was to produce a PBC guideline and C.E.M for road authorities, contractors and government cost estimators. In the making of the PBC guideline/C.E.M, workshops, site visits and PBC/Cost estimation SWG meetings were held. The guideline and the C.E.M have now been edited, formatted and printed. Mr. Tsujino also went through phase 2 calendar of events from Sep 2015 to March 2016. He also went through the training schedule and noted that there will be an exam on the last day. He encouraged all participants to go through the guideline, cost estimation and the presentations for better understanding and improvement in their teaching skills.
4	**PRESENTATION COMMENTS/INPUT:** <u>Outline of PBC - Mr Julius Kaliti:</u> Eng. Semutwa asked how contractors are paid under PBC during the IPM. Mr. Kaliti said that contractors are paid based on the compliance of service levels, there is a set percentage of compliance a contractor has to meet in order to be paid 100%, if not then he/she is deducted according to non-compliance. Mr. Tsujino noted that later on, other master trainers will explain in depth on the topics mentioned in the outline. Mr. Kaliti asked if the traditional BoQ methods can be used during the IMP. Mr. Tsujino said that the traditional method can be used during the IMP. Mr. Nyakondo of NCA asked that if PBC works are not quantified then how estimations are done. Mr. Tsujino noted that work frequency and amount of works are used in the COSTES for PBC to come up with cost estimations. Mr. Nyamila asked the master trainers to face the class and engage/interact with students more. Mr. Kaliti asked the class the following questions based on lesson objectives to gauge their understanding of PBC outline: 1. Define PBC. 2. Explain the development of PBC guideline. 3. Identify the components of PBC guideline. 4. Identify and explain the benefits of PBC. 5. Identify PBC and instructed works. 6. Explain the IMP. 7. Outline the PBC payment procedure. 8. Identify the PBC risk allocations.

5	Service level setting – Eng. Kagochi Mwangi: Eng. Tirop asked why IRI is not a measurement criterial subject to payment reduction. Mr. Tsujino said that contractors will need to do an overlay on paved roads to achieve an IRI of 2.5 that is required. This will be very expensive for the client and a high risk to the contractor. Eng. Semutwa noted that on unpaved roads, IRI should be used as one of the criteria's to measure roughness and subject to payment deduction if the contractor doesn't meet the required targets. On unpaved roads, the contractor can grade the road to easily meet the required IRI targets. Mr. Tsujino also said that for unpaved roads, speed is an indicator for IRI. Comments from new trainers on how to improve the training: Trainers felt that the training is going well and in the coming days, the trainers will understand more. The materials are well prepared and easy to follow, also the pace of training is well timed. The majority of the new trainees felt that there should be more practical's involved in the training and not only theory. There should also be more case studies incorporated into the training so that students can grasp concepts better from current events. Others felt that there should be more out of class practical's hands on experiments that will help students understand the theory of PBC and the concepts involved. Also trainers and master trainers felt that the forms to be used in the field should be practiced in class for better understanding. They also both wanted more field practical's and less theory because everyone can read the guideline/C.E manual on their own time. All new trainers were able to follow the class well.
6	Cost Estimation – Eng. Tom Omai: Mr Nyamila noted that the theory part of the lecture is very good but trainers will also need to go to site and do measurements, calculate P/R and SRUQ's in order to have a better connection with the theory. Eng. Mwangi asked the type of tools used to cut grass, he noted that the type of tool is important to know because it can affect the P/R's. Eng. Omai said that during surveys, contractors were using a variety of tools, thus the P/R and SRUQ's were computed using the combined average of all the tools. Eng. Tirop wanted to know what the average km/month cost was from the conducted surveys. Eng. Omai noted that the surveys were to come up with the average P/R's and SRUQ's for cost estimation purposes. Mr. Tsujino also noted that the frequency of work differs from each region thus this will affect the cost of maintenance. If the frequency of work is low then cost is low. If the frequency is high, then cost will be high. Eng. Semutwa and Eng. Omai said that some contractors don't use all the presumed methodologies but yet they achieve the required service levels. This also means that the inputs can be minimized along with other variations since the contractor can still achieve required service levels. COSTES for PBC – Mr. Uno: Mr. Uno took the class through COSTES for PBC. He distributed the latest version of the system to all participants. He noted that he has improved the system and is now harmonized with the C.E.M. The price/tables have been updated. The program has been improved for stability and easy usability. Before using the program, Mr. Uno instructed all participants to perform a systems check to see if their programs work. During the systems check, Mr. Uno noticed some minor problems with the program and was able to fix most of them. The few that could not be fixed were related to the owner's computer related issues. He suggested that those with computer issues should install or update Access Database Engine to at least the 2010 version. He noted that the other remaining issues with the system will be fixed by the last day of the retreat.

	Mr. Uno noted that the 3 important folders on the program are: costs.exe, COSTESini.csts and jicadata.accdb. Mr Uno showed the participants how to log in and input basic contract condition data into the system. From a cost estimation test case participants were asked to input the following data: project name, place of work, total length, SCU patrol frequency, IMP length, wet/dry periods, haulage costs, quantity input for 6 major labour based works, unit prices for labour/vehicle hire, fuel costs percentages for (miscellaneous, indirect costs, overheads & profits and VAT), other PBC works input methods (estimate as the ration of the 6 major labour based works, quotation based method & bottom up method). Mr Uno also took the students through the summary contents and how to analyse the results. He noted that items like instructed works and haulage costs style of input can affect the price. Mr. Maithya asked if there is an average cost per km for the 6 major labour based work items. Mr Tsujino said that quantity of works/road conditions differ from all road authorities thus it's hard to come up with an average cost per km. Eng. Omai noted that the haulage costs and instructed works among other factors contribute to the differences in the cost of the contract per km thus it can be hard to calculate an average cost per km. Mr. Uno took the participants through the COSTES system test cases and explained the differences between km standardized/simple/actual quantities and how they differ in the contract sum. Simple quantities contain the total area along the road while actual quantities only contain the area where grass is to be cut. He also showed examples of how to input "instructed works" and "other PBC works". Participants were also shown how to input data as a road administrator and as a contractor. He explained of the differences of available data the two have. Km standardized quantity is used for the road authority budgetary purposes thus not available for the contractor Mr. Maithya asked if the contractor should use simple quantities or actual quantities in estimating tender contract sums. Eng. Mwangi said that the simple quantities give an estimated maximum contract sum for budgetary purposes. Actual quantities will be smaller than the simple quantities. The contractor is free to choose their type of estimation. Mr. Tsujino added that whichever type of estimation the contractor uses, the COSTES system outputs will indicate the type of quantification the contractor used.
7	<u>Procurement procedures – Mr Peter Ndung'u:</u> At the end of the presentation, Mr. Ndungu asked the class if PBC requires a performance bond. Eng. Semutwa said that in PBC there is instructed works and PBC works. Instructed works require a performance because the client needs some type of guarantee in case the contractor underperforms, but for PBC works it's not clear. Mr. Ndung'u noted that in PBC works a contractor is paid based on his performance, thus there needs to be a performance guarantee for works to be carried out. Eng. Odwesso: In the awarding of tenders, as per the laws, the TPC isn't allowed to modify evaluation reports, also it should not reject any submissions without justification. In a scenario where bidders complain after evaluation process noting the alteration of requirements to lock out some bidders. What if submitted documents or evaluations are modified with/without the TPC's knowledge, what happens? Mr. Ndung'u said that the issue should be raised with the evaluation committee, also compare minutes with the secretariat to find a solution. The tender committee and the head of procurement should also be able to handle any arising issue related to the change of a prescribed timeline it may affect the contract awarding schedule. Eng. Akech asked if the law allows the tender committee quorum to sign agreements for the TPC if all members are not present. Mr. Ndung'u said that all committee members should be present for any agreements to be made. Also each committee member should have an alternative representative to represent them in case they are absent. Eng. Odwesso asked what happens if the tender validity expiration date expires. Mr. Ndung'u said that there are mechanisms in place to make sure such does not happen. The head of

	procurement should keep track of the tendering process and raise alarm if deadlines are not being met and if time is about to run out before key mile stones in the tender processing process are not met. If tender validity expiration date has passed then the contract does not exist. Mr. Ndung'u noted that PBC contracts are frame work contracts because they run up to 2 or more years therefore the TPC may not be able to inspect the works for the entire contract period because they are involved during the evaluation period. During implementation a different committee is needed from the road authority for implementation supervision. Eng. Odwesso asked if it's legal for a county government to advertise for one contractor to maintain all roads in a constituency. Mr. Ndung'u said that this is illegal and irregular because such amounts of work should not go to one contractor. The law also says that 30% of the contracts awarded should go to women, youths and disabled people. Mr. Nyamila asked gave an example of how someone was given a road to maintain whose line of work was water/food supplier. Mr. Ndung'u said that it's upon the user department to specify the type of contractor it needs. In labour based contracts, the contractor is free to carry out works where, how and when they want to do the works as long as they meet the stipulated service levels in the contract in a timely manner. Also in this case the procurement entity could be targeting local/individual labour contractors outside the road/civil works contractors. The procurement entity should be very specific in order to find the correct type of contractor with the right type of qualifications. Mr. Tsujino noted that in the future presentations of the topic, the presenter should inclide all the questions asked and answers for better understanding. He also said that the contents of the presentation were very informative. Eng. Mwangi said that it's impractical for the TPC (which is responsible for evaluations, negotiations, inspections and acceptance) to monitor all contracts each month along with keeping up with the deadlines and laws, thus a way forward is needed to ensure that the TPC isn't charged which a vast number of time sensitive matters. Mr. Ndung'u suggested that the TPC should have a road authority project manager be member of the TPC for easy monitoring of project. Eng. Tirop noted that payment certificate can't be processed without the approval of the TPC, thus often this causes delays in payment because of the huge number of contracts to attend to. Mr. Ndung'u suggested that either alter the payment schedule or de-link the TPC from the mandate of having to sign payment certificates which project engineer can sign. But the law requires the TPC to approve payment certificates Mr. Chelugo: according to procurement procedures, tender evaluation must be done within 15 days, but it's a very tight time line. Is it allowed to increase the number of TPC members in order to meet deadlines? Mr. Ngung'u said that there is no need to increase the number of members because the committee know how to evaluate contracts in timely manner except for few instances which is very rear. Eng. Odwesso gave a scenario of where you have 30 tenders, which amount to 900 documents, and asked if the contracts could be advertised in phases instead of all 30 contracts at once so that the load of work is distributed. Or should there be 30TPC's to do the 30tenders. Mr. Ndung'u said that it's not necessary because such matters are left to the TPC to decide. Within the specified days of evaluation, the TPC will manage to finish the task at hand. It's efficient to have one TPC per tender. Mr. Maithya: if there are no visibility studies done then during the project variations are done but exceed the maximum allowed capacity of 25%, who is held accountable. Mr. Ndung'u said that members of the variation team/accounting officers should work in compliance to the laws in making sure prevailing market prices are used. Also the user department should make sure that visibility studies are done and make sure current market prices are used in variations. Eng. Akech asked if there is a committee which handles site visits and why they is a mandatory site visit dates, also is there a possibility that contractors can collude and decide who wins the

	contract. Mr. Ndung'u said that within the confines of the law, it's not mandatory to have site visits but if an organization puts mandatory site visits then they are the ones to organize and meet the requirements of the visit including minutes, records etc. It's rear for contractor's to collude. Mr. Maruti: if there are delays in payments and the contractor waits till the contract is over to take the client to court, is this legal? Mr. Ndung'u said that the parties should be guided by the contract condition and terms stipulations. If there is delayed payments according to section 48, the client should pay interest on delayed payments, also the contractor is not time bound in taking the client to court. Mr. Kaliti asked if there is a law that bars civil servants from bidding for contracts. Mr Ndung'u said that the law prohibits entering into a contract with public servants or their relatives. But in Africa this lines are very thin and are often crossed. Mr. Robert noted that for contracts over 100 million, observers not related to the contracts are allowed to be present. Are they allowed to influence which contractor is awarded the tender? Mr. Ndung'u said that they are only allowed to observe the process and what is happening, they are not allowed to raise any questions during the session. Also the requirement is that one of them should be an expert from that field according to the type of contract, also they should be competent to the project being awarded. Eng. Semutwa asked if the TPC should be involved in the commissioning and handing over of works to the contractor. Mr. Ndung'u said that normally contract manager/user department who do the handing over. TPC's work is to evaluate but it's not necessary for them to be the ones handing over.
8	<u>Work Procedure 1 – Eng. Odwesso:</u> Eng. Semutwa noted that he has a contract which is 136km and it's hard to inspect the entire road length in 200km sections, it will also take a number of days. Eng. Odwesso noted that the project manager does not have to inspect every 200km, rather stop on sections that are non-compliant then check the next km to and inspect it's condition. Eng. Tirop noted that if the self-inspection is done by the contractor, he will probably not be transparent in reporting of his non-compliances. Eng. Odwesso said that if we police contractors then we are going back to the traditional type of contract, self-inspection is meant to guide the contractor on areas he needs to rectify non-compliances before formal inspection. This is mandatory for the contractor to do self-inspection and comply with service levels in order to avoid deductions during formal inspections. Eng. Akech said that the contractor has a SCU which checks service level compliance and laisse with the contractor to rectify any non-compliance as stipulated by the contract agreement. Eng. Akech noted that the forms to be filled in the field should be digitized through a software which links all the forms to a summary sheet in the compilation of information gathered. This could help speed the process of communication between the client, road authorities and the contractor. Mr. Tsujino said that this could be very helpful, but it needs to be a Kenyan initiative. Eng. Mule noted that KRB should incorporate the forms in the guideline into RMS for efficiency/improvement of information management.
9	<u>Work Procedure 2 – Mrs. Nyamweya:</u> Eng. Akech asked who is responsible in carrying out sensitization of the project and for how long do they do this. Eng. Semutwa said that sensitization is done by the road authority during the planning stages of the contract. Eng. Mwangi noted that the contractor is actually responsible for sensitization and can liaise with the local elders, local organizatiosn and the road authority in carrying this out. Also the contractor should engage the local structures (churches, schools, local elders etc) for information and logistics. The contractor can further involve local residents in the project by hiring area youths.

	Mrs. Nyamweya asked the participants on ways to fight road encroachment, debris dumping etc. Mr Nyamila said that the road authorities and the contractors can sensitize resident on this issues during barazas. Also there should be officers appointed in each ward to sensitize local residents on proper ways to dump debris, proper ways to pass water pipes though the road, also discourage any encroachments by involving local county governments. Mr. Nakajima said that during site condition assessment, the contractor should notify the road authority and any other relevant officials of any illegal activities along the road reserve so that the issues are resolved and the contractor is able to carry out road maintenance smoothly. Mr. Tsujino noted that the SCU is supposed to inspect the road at all times even when the service levels are all met. Also they should be able to make recommendations and predictions of when certain service levels need to be attended to in the near future. Eng. Tirop wanted to know if traffic count surveys should be included in appendix 5. Mr. Tsujino said that it's very difficult but such information should be included in the future. Eng. Akech and Eng. Odwesson noted that contractors should start being professional on matters of safety because contractors at times use deformed cones, sometimes they use stones to block sections of the road or at times they use tree branches. They noted that the road authorities should make sure this matters are rectified for proper safety on site. Eng. Mule noted that at times contractors start work too early at 7am during rush hour, he asked wether the work plans are approved allowing contractors to work during peak hours. Eng. Tirop said that work plans are approved stating that work should done from 8am to 5pm, otherwise the plans will not be approved if the contractor want to work too early or too late during peak hours.
10	<u>Service level inspection - Ms. Kalya</u> Mr. Chelugo: in the formal inspections, where does the TPC come into play in payment approvals. Mr. Ndungu said that the sub-committee should sit down and come up with a common position on how to appoint members who can represent the TCP whenever needed on maters to do with contract implementation. For payment to be made we need the inspection and acceptance committee's approvals, thus the project manager who does monthly inspections should perhaps be a member of the TPC and be representing the TPC in approving payment certificates on their behalf. Also he can be joined by TPC members so that as the TPC does inspections, the P.M can do the approvals if the law allows this. Ms. Kalya asked if the TPC should be involved in the monthly interim certificated for instructed works. Eng. Tirop said that they use FIDIC system in processing the payments but there are new regulations from PPOA which now require a TPC involvement in the payment process. The TPC has to do inspection and acceptance before any payments are done even for PBC works. Mr. Nyamila asked if there are any advanced payments to contractors during IMP. Mr. Ndung'u said that contractors are such a capacity as it is one of the requirements to qualify in the tendering process. If a contractor doesn't have the capacity then they will be disqualified as they will not be able to carry out works. He also noted that some contracts may allow cash advances of 10% maximum, but contractors should have cash at hand to use during the IMP and not rely on cash advances.
11	<u>Cash flow management – Eng. Akech.</u> Eng. Akech asked the class if contractors can be awarded several contracts. Eng. Tirop said that it a contractor has 2 ongoing contracts, then he can only be awarded one more. Eng. Akech noted that if a contractor has several ongoing contracts, it can be factor that can affect cash flow due to work load and instances when there is no operating cash flow. Mr Maithya asked if there is payment retention in PBC and how long it takes for payment to be released. Eng. Tirop and Eng. Odwesso noted that in PBC there is payment retention for instructed works. It's released after the defects liability period of 90 days is over at the end of

	the project and after the contractor has released the last certificate of payment. Mr. Nyamila asked the presenter to link cash flow and the work program and show how the two relate. Eng. Akech noted that he will prepare sample cash flow and work program examples to incorporate in his presentation/practicals. Mr. Nyamila proposed that KIHBT will prepare a basic business management course for contractors to prepare them for cost estimation and cash flow management.
12	<u>Contractor's Evaluation – Eng. Takoy:</u> Eng. Mule noted that contract evaluation concept is a very good idea, but for it to be adopted, then NCA and PPOA need to be involved in taking an initiative lead in enforcement. Eng. Takoy noted that the road authorities can only communicate on the status of their contractors, but PPOA/NCA are in a position to enforce the policies. Eng. Simutwa commended JICA for creating the inspection check list which is much easy and very simple to use compared to the old check list which was very complicated. He asked if PPOA and NCA can start compiling a list of non-performing contractors, he noted that the list of non-performing contractors that have been sent to PPOA have never been blacklisted. He suggested that there needs be an independent body that will do site inspections on contractors and list non-performing contractors. At times PPOA/NCA is influenced not to blacklist some powerful contractors who have influence. Mr. Tsujino said that JICA had produced a supervision checklist for maintenance/construction works in phase 1 which many found hard to use and understand. But now JICA has improved the checklist which is simple and easy to use in objectively evaluating a contractor. He noted that a database needs to be compiled on the performance of contractors and blacklist non-performing contractors. Furthermore each road authority needs to develop its own database to share with NCA or PPOA for further action. Eng. Mwangi asked NCA representatives what are the criterials used to upgrade a contractor in NCA. Mr Nyangau said that NCA looks at the number of equipment's, capital capacity, the type of projects done in the past & how much they were worth, staff capacity, performance of past projects among other factors. Based on a scoring criterial used by NCA the contractor will be placed between NCA-1 and NCA-8. Mr Akwiri noted that there is no proper link between the employee and the contractor, therefore NCA is often left to rely on the information the contractor provides without any other source to compare that information to. He suggested that road authorities be engaged in monitoring and providing information to NCA on how contractors are performing. Eng. Takoy noted that according to NCA regulations, construction companies are required to have a registered professional engineer as one of it's directors or as a staff/technical people. He then asked if such rules still apply. Mr. Nyangau of NCA noted that such rules are still in place but it's been hard to implement the rules because some contractors are not able to have a registered professional engineer but has qualified technical staff to handle works. Therefore NCA still registers contractors who may not have professional engineers but have well qualified technical staff. This is done so that some contractors are not locked out of being registered despite having qualified technical staff. Mr. Ndung'u and Eng. Tirop noted that it can be a challenge for new contractors entering the market without any experience when compared to veteran contractors with vast experiences when it comes to performance scoring and asked NCA how they handle such challenges. He was also of the opinion of blacklisting and then de-registering contractors who are non-performers. Mr. Tsujino said that for new contractors, a comprehensive evaluation bidding system should be used in which the contractor will do technical proposals to help them compete for contracts against other big contractors. He also suggested that a certain percentage of contracts should be set aside for new contractors to bid for, contracts which small/new contractors can handle, then complex contracts should be set aside for

	well-established contractors who have the capacity to handle large/complex contracts. Mr. Nyangau also suggested that new/non-experienced contractors can be given small simple contracts to start with in order to gain work experience. Then as their experience grows then they can be given bigger contracts. He noted that non-performing contractors should be blacklist non-performing contractors in addition to down grading them, but not de-registering them. Down grading non-performing contractors will encourage then to perform better. Mr. Tsujino noted that there may be many challenges and difficulties in road maintenance, therefore he urges all stakeholders as individuals to take a step in the right direction and tackle the challenges for positive changes.
13	Updated COSTES software – Uno-san Mr. Uno took participants through the COSTES software and noted the minor changes/improvements he had made. He rectified the summary content to reflect the order of the cost estimation manual Fig. 1-2 cost estimation structure under COSTES for PBC 2015. Also in the output files, the name of the author will be printed. He noted that he is still working on the software to fix any other remaining errors. He gave a sample drill case for a KURA project where the class was to fill using the COSTES software, then helped participants wherever they had any challenge in filling out the example drill case. Participants suggested that commas be incorporated in separating figures for easy reading. Also he noted that participants should install Adobe Reader in order to read the PDF file output. Computers without the program will have difficulty reading the output files. Mr. Tsujino elaborated on how the calculations were done by the system in the output files. He explained how each activity is calculated during the IMP, wet/dry periods ex. the 6 major labour based works, other PBC works, patrol/SCU, haulage costs, indirect costs, total project cost. He also gave scenarios of how the total project cost can be affected based on the number of activities and their frequencies. Mr. Nyangau asked if instructed works came after the contract was signed. Mr. Tsujino said that PBC contracts are hybrid, thus there are routine maintenance works and instructed works packaged in one contract document. The road authority engineers will measure and put the quantities of works which are needed to rehabilitate the road to serviceable levels. The works are often done during the IMP but also in the course of the contract period. The works are paid via BoQ system based on the quantities of works done. The contractor gets paid after completing a given quantity of works via instructions from the project manager. Mr. Nyangau also asked how risks are factored into the COSTES system. Mr. Tsujino said that they come from the unit price/quantity of items. The contractor can decide change the quantities of work/frequency (mostly upwards) as deemed necessary as a way to cover for any risks.
14	Test for certification – Ms. Winnie Owiti/JICA:
15	Closing Remarks: In the closing remarks noted that JICA aims to have the master trainers/trainers grasp the concepts of cost estimation and performance based road maintenance through training/practical's so that they can be able to teach contractors and road authority engineers/staff. He also said that there will be another retreat which will focus on doing practical's and filling forms used on site. He opened the floor for any comments/suggestions on how to improve the training contents/upcoming practical or any other challenges/difficulties. Eng. Mwangi said that the training was well conducted because everyone was handling a specific topic but was able to be taught about the other topics. He suggested that each teacher should perfect their lecture material/presentations, also avoid repetition of materials. He also noted that practical's should be emphasized for better understanding.

	Eng. Odwesso also was of the opinion that practical's should be emphasized on in order to complement the theories learned. This will help presenters be affective teachers to others. Ms. Owiti said that this training will be handed over to KIHBT so that it can be liaising with master trainers to train contractors. Thus instead of training contractors for 5 days which can be a logistical challenge, she suggested that more road authority staff who will be doing the actual supervision works on site be trained. Also KIHBT can liaise with all road authorities, NCA and other relevant stake holders to inform their contractors on attending PBC training because it will be a requirement for PBC road maintenance contracts to be trained in PBC. Ms. Kamunya said that the training went very well, presentation of materials was organized and well times. She suggested that practical's be incorporated into the training to complement the theories of cost estimation and PBC guidelines. She also noted that exams should be given enough time especially sections that require calculations. Ms. Awino expressed her gratitude for the informative training. She also noted that in order for the theories to be applicable, practicals have to be practiced so that trainers are able to understand what they are to teach to others. Mr. Maruti thanked the organizers or the training and also the master trainers for their presentations. He urged all participants especially the new trainers to find time and review the materials and read the books for better understanding. Mr. Ndung'u was grateful for the training and urged everyone to keep improving on their presentations. He also noted that the first few months of the year often have many activities and deadlines to meet. He suggested that communications be done early enough so that everyone is able to arrange their calendars accordingly in order to be able to attend all upcoming trainings. Mr. Nyangau said that practicals are paramount in understanding the theories because some of the participants are not from the road sector. He also suggested incorporating more case studies so that students can easily relate to the theories. Mr. Walela thanked everyone for their efforts in presentations and was looking forward to the next training. Mr. Kaliti suggested that in the next training, social issues/cross cutting issues like HIV awareness, gender balance etc. It was recommended that Mr. Pius to take care of cross cutting matters. Mr. Kaliti urged presenters to time their presentations so that they can have time for Q&A, practicals and time to load the information onto the computer and tabulate/analyse results. Mr. Nyamila thanked all the participants for their efforts and urged them to keep improving their materials and style of presentation. As the JICA project is coming to an end, he urged all trained participants to take up the task of teaching and implement it fully. In order to have a successful training, trainers must practice the following. They need to prepare their lesson plans well, have training development and methodology based on theory and practicals. Trainers should also evaluate their lesson plans and monitor how well the students are learning. Trainers should also do micro-assessment of their presentation and how affective they are as teachers. Trainers should also make good use of practicals because they are the link between theory and it's applications. Trainers should be trained on teaching ethics and professionalism. Trainers should also incorporate environmental cohesion measures, work place ethics, and health/sanitation on site among other topics into their presentations. Contractors should also be taught basic business management to help them better grasp cash flow management. Eng. Semutwa thanked everyone for their participation and efforts. He emphasized on implementing practicals into the presentation for better understanding. He also suggested that there needs to be more actual case studies and real data from ongoing projects which students can collect/input into the COSTES system of field data sheets for better understanding.

	Mr. Uno thanked everyone for their participation. He noted that he the COSTES system is still under improvement. He was happy that it works in most computers compared to last time. He was impressed the way everyone is adopting to using the system and hoped that the system will in the future be used more widely. He urged all participants to notify him of any errors so that he can improve it. Mr. Nakajima thanked participants for their efforts in making the training a success. He noted that it's important to keep up with the task at hand and work on improving the material/presentations.

CHAIRLADY: ……. DATE:……..

MEMBER:…….. DATE:…….

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING.

MINUTES OF THE TOT for PBC PRACTICALS NAKURU RETREAT HELD ON FEBRUARY 1ST – 5TH 2016 AT MERICA HOTEL, NAKURU.

1. PRESENT:

	NAME	ORGANIZATION
1	Julius Kaliti	KIHBT - Chairman
2	Eng. Geoffrey Tirop	KURA
3	Pius Nyamila	KIHBT – KTC
4	Aloys Momanyi	KIHBT – KTC
5	Eng. Jonh Mwangi	KeRRA
6	Hiroshi Tsujino	JICA
7	Eng. Albert Semutwa	KeNHA
8	Jemimah Nyamweya	KIHBT
9	Robert Mutai	JICA
10	Boniface Maithya	MoTI
11	Peter K. Ndung`u	PPOA
12	Emily Awino	KIHBT
13	Caroline Kamunye	KIHBT
14	Paul Siele	KURA Road Inspector
15	John Tilkole	KURA Road Inspector
16	Nicholas Chelugo	KURA
17	Stephen Nyakondo	NCA
18	Eng. Shekh Takoy	KeNHA
19	Eng. Michael Mugo	KURA R.M
20	Takashi Nakajima	CTII/JICA
21	Robert Mule	KeRRA

22	Hillary Akwiri	KeRRA
23	Eng. Odwesso	KURA
24	Boniface Nngang`a	Vescom Enterprises (KURA Contractor)
25	Michael Walela	NCA
26	Jared Onyoni	JICA – Taking minutes

2. APOLOGY:

3. AGENDA:

Day 1

1. Opening remarks
2. Member introduction
3. Practical training 1. KURA PBC road visit (Field)
4. Appendix 5 & 6 (Field)

Day 2

5. Explanation of Appendix 5, 12 & 13 (Class)
6. Practical training 1 (Mock) using Appendix 5 & 6 (Field).
7. Appendix 5, 6, 12 & 13 using collected data.

Day 3

8. Practical training (2) using Appendix 8, 10, 11 & 17 (Field).
9. Cost Survey demonstration (Field).
10. Appendix 12, 13, 14, 16, 17 & 18 (Class)

Day 4

11. Practical training 2 mock using Appendix 8, 10, 11 & 17 (Field)
12. Appendix 12, 13, 14, 16, 17 & 18 (class)

Day 5

13. Presentation of the new trainers.
14. Closing remarks.

MIN.	DELIBERATIONS:	ACTION
1	**Opening remarks**	
	The meeting started at 10am with a word of prayer from Eng. Mwangi, followed by opening remarks from Mr. Tsujino. In his deliberation he noted the following. He welcomed all the participants to the practical retreat and elaborated on the	INFO.

	training schedule. He thanked the South Rift regional KURA engineer for allowing them to train using their ongoing PBC project. All participants were issued with practical training materials as well as revised presentation material. He noted that the training would take 5 days, focusing on field practical's as well as giving new trainees a chance to present to the class. He also said that the participants will be trained in the field by JICA, then be given a chance to also train. He asked all participants to take note of the areas they are responsible for and actively participate in improving their techniques of teaching for the actual comprehensive training course.	
2	**Member Introduction.**	
	The chair asked for a self-introduction of members.	
3	**Practical training 1- KURA PBC road visit (Field)**	
	Mr. John Tilkole, a road inspector from KURA took the opportunity to briefly explain the overall concept of PBC based on an ongoing KURA Project. The contract covers Oginga Odinga Rd, Sect. 58 loop, Gen Kariba road, West Rd. and Government road. The contract period is for one year and covers a total length of 12km. The contractor is paid 18,550Ksh/KM/month. Eng. Mwangi asked how the roads were selected for the contract. Mr. Tilkole said that the road were selected because they were newly built, they had very high service levels, but weren't under maintenance. Most of the roads had drainage issues because of the landscape general gradient. The shoulders also were starting to erode away and they needed maintenance. Therefore these roads were selected to be placed under PBC to maintain service levels. Also the urban setting brought a lot of challenges that needed to be addressed daily in order for the roads to remain functional. Mr. Mwangi asked of the daily activities carried out and their frequencies. Mr. Tilkole said that within the ROW, the contractor is to maintain the prescribed service levels at all times. The frequency of activities depends on the climate. He also noted that in case of an emergency, the contractor is able to detect the issue and attend to it as soon as possible especially if the incident hinders pass-ability. In his presentation he showed examples of pictures of before and after PBC was implemented. After this session, Eng. Mugo, KURA South Rift regional manager took participants to the field to show them of how PBC is implemented as well as the challenges to be overcome. On site (Government Rd.) he noted that one of the challenges the contractor has been facing is the illegal encroachment within the ROW. He noted that people have built shops in the ROW and have covered some sections of the drainage system. He said that the county government hasn't been able to solve this issue. Next Eng. Mugo took participants to a road section which previously had it's drains completely covered, but since PBC had started to be implemented, the drains have been desilted. He noted that some drains didn't have a discharge point, thus water just ponds and evaporates away. Eng. Mwangi said that the client by now should have fixed the challenges but Eng. Mugo noted that some of the challenges may take time to address and fix. Eng. Mwangi noted that service level settings weren't done properly by the client/contractor, otherwise the challenges the contractor is facing now would have been addressed before the contract started. Mr. Ngang'a (the contractor) noted that it was hard to predict the challenges he is facing now when implementing PBC. In other sections of the road which had overgrown grass, Eng. Mugo noted that by the time the contractor cycles through all the roads in the contract, the start point would have had it's service levels un-compliant because of the time it takes to complete the cycle.	

	Another major issue KURA and the contractor are dealing with is illegal dumping of debris/materials into the drains. Eng. Mugo noted that KURA has held meetings with those who have illegally dumped debris into drains and they have been asked to remove the debris. The challenge with this has been that it often takes very long for the debris to be removed. Along Oginga Odinga road, grass cutting works were ongoing but the workers weren't wearing any safety gear or placed any cones along the shoulders to warn motorists of ongoing works. The contractor promised to have the workers compliant with work safety rules. Along the same road Eng. Mugo noted that some mitre drains were built with incorrect invert levels and weren't allowing for water to properly drain off the road, and the county government was asked to rectify the drains which they did.	
4	**Appendix 5 & 6 (Field)**	
	In class Mr. Mutai took participants through appendix 5 & 6 and elaborated on the basic information required. In the field, participants were trained on how to fill the road asset survey sheet (Appendix 5) as well as the service level selection form (appendix 6) by the JICA staff. The following was a proposed schedule for grouping of members when going to the field, there are 3 teams each led by a JICA staff.	

TEAM	**1**: (3+400 – 3+500) Mr. Nakajima	**2**: (3+500 – 3+600) Robert	**3**: (3+600 – 3+700) Jared
Eagle	Julius Kaliti	Michael Walela	Hillary Akwiri
	Winnie Owiti	Stephen Nyakondo	Carolyn Kamunye
Rhino	Eng Takoy	Pius Nyamila	Eng. Semutwa
	Aloys Momanyi	Eng. Mwangi	N. Chelugo
Ngamia	Jemimah Nyamweya	Robert Mule	Emily Awino
	Peter Ndung'u	Eng. Odwesso	Eng. Tirop

Proposed Friday presentation schedule for new trainers.

TIME	Presenter	Topic	Assistant
11 am – 12:30 am			
30 Min.	Aloys Momanyi	Service level setting	Eng. Mwango
30 Min.	Carolyn Kamunya	COSTES	Julius Kaliti
30 Min	Emily Awino	Work Management II	Mutai/Jemimah
LUNCH			
1:30 pm – 3:30 pm			
30 Min.	N. Chelugo	Contractor's evaluation	Eng. Takoy
30 Min.	Eng. Semutwa	Service level inspection	Pius Nyamila
30 Min.	Eng. Tirop	Work procedure	Eng Odwesso
30 Min.	Robert Mule	Cash flow management	Peter Ndung'u

MIN.	DELIBERATIONS	ACTION
5	**Explanation of Appendix 5, 12 & 13 (Class)**	
	In class, Mr. Robert took participants through filling out appendix 12 (detail self-inspection result report) in soft copy using appendix 5 & 6 data that had been collected in the previous day. He also did an example on pages 24(typical cross section) – 25(plan of the road) of the practical handbook to fill the road condition information. Mr. Nakajima noted that the drawings are to be used to get simple quantities of the road like cross culverts and catch basins. But a proper site survey is to be done to verify asset quantities and the actual road condition. Mr. Robert and Mr Nakajima took the class through appendix 5 & 6 in preparation for the mock training. Members were grouped into 3 groups and they went to the field for mock training using appendix 5 & 6.	
6	**Practical training 1 (Mock) using Appendix 5 & 6 (Field).**	
	On site, participants did mock training using appendix 5 & 6 by having one of the participants teach others on how to conduct the activity. Each team was allocated with a JICA assistant to guide the team on how to collect data and record it properly.	
7	**Appendix 5, 6, 12 & 13 using collected data.**	
	In the evening, participants used data they collected from the field to fill appendix 5 & 6. They also used data on pages 24(typical cross section) – 25(plan of the road) of the practical handbook to fill the road condition information of appendix 5 & 6. Mr. Mutai noted the following abbreviations for better understanding. CB Catch Basin CS Curb Stone DV Drain V-type AC Access Carriageway DU Drain U-type VB Verge Block DP Drain Pipe culvert In the evening Mr. Nakajima elaborated on the role of the SCU in a PBC contract. He noted that the SCU is responsible for service level control assisted by the execution unit. For formal inspection, the road authority project manager will check documents in the following order in determining the compliance of the contractor before making payments. The project manager will check the summary statement, payment reduction calculations, summary of self-inspection, detailed self-inspection, defect detection/rectification records then the daily work records. The SCU will have to complete the above mentioned forms in the reverse order. The SCU will have to go to site every day to check the road condition, note any areas of non-compliance, and report to the road manager who will instruct the execution unit to rectify areas that are non-compliant using appendix 11 (Defect detection/rectification record form). Also appendix 8 (Daily patrol record) is used, appendix 9 (Photo record) and appendix 10 (Incident condition and activity report. Mr. Nakajima noted that participants will be trained on how to conduct self-inspections, formal inspections, and monthly evaluations. Mr. Onyoni briefly introduced participants to cost survey and noted that it will be demonstrated on site the next day. He noted that cost surveys are done in order to establish productivity rates to be used for cost estimation purposes. He defined and gave an example of what is productivity rate and how it relates	

	to SRUQ. He gave the procedure of how data is collected and compiled using forms 1, 2 & 3 then compiled according to each activities work difficulty level. Mr. Nakajima noted that KRB has been given the mandate to collect cost survey data and update productivity rates and SRUQ's for cost estimation of PBC projects. After this, new presenters were paired with master trainers who were to assist the new trainers in the next presentation sessions on Friday.	
8	**Practical training (2) using Appendix 8, 10, 11 & 17 (Field)**	
	In the morning, participants were in the field in practicing service level selection using appendix 6 on Government road. After selection of service levels, participants inspected a 100m section of the road to note any defects on the road and used the defect detection/rectification record of appendix 11.	
9	**Cost Survey demonstration (Field).**	
	Cost survey demonstration was done on West road. In this demonstration, Mr. Jared demonstrated on how to carry out the activity. He first demonstrated using the example in the practical handbook, then participants were taken through productivity rate survey for grass cutting activity. Participants were shown how to mark the start/end points, indicate the weather, draw/measure cross sections of the road and measure the total ROW width. Participants also took part in using form 2 by indicating the work item, No. of workers, working hours, measuring the area of grass cutting by 5 workers and calculating a work volume. Using form 3, Mr. Jared noted the information that will be transferred into the form from forms 1 & 2 to get the SRUQ's. Mr. Tsujino took the participants through monthly evaluation and contractor's evaluation. Participants filled appendix 17 as project managers to verify monthly performance for the contractor's evaluation.	
10	**Appendix 12, 13, 14, 16, 17 & 18 (Class)**	
	In the evening, participants used data collected from Government road on appendix 11 which indicated defects detected to fill appendix 12 for self-inspection. Next they transferred data from appendix 12 to appendix 13 (self-inspection summary). After this Mr. Mutai took participants through payment deduction calculation using appendix 14. He explained how the meaning of exemption length, he showed how to input the complying/non-complying lengths from appendix 13, how the reduction weight is applied and the reduction rate. Mr. Nakajima and Eng. Takoy took participants through the contract evaluation tally sheet for PBC appendix 18. Participants fill in appendix 18 using information from appendix 17.	
11	**Practical training 2 – using Appendix 8, 10, 11 & 17 (Field)**	
	On day 4 of the training, participants did service level selection independently with JICA assistance. This exercise was done at Government road and Moi road. Next they did defect detection using appendix 11. This was followed by monthly evaluation for 6 scopes using appendix 17.	
12	**Appendix 12, 13, 14, 16, 17, & 18 (Class)**	
	Eng. Semutwa noted that some of the forms used in the field be modified and some combined. Example for appendix 11, he wanted to include the service levels/tolerances, also have the SCU/execution unit have their column. He noted that such modifications will help improve inspection and also train the contactor in better maintaining service levels. He also noted that it's hard to always refer back to the guidelines while conducting inspections. Also Eng. Tirop agreed with the idea of making the forms easy to use. Mr. Nakajima noted that appendix 11 focuses on the SCU and the execution unit, it's a	

	communication tool on how they are performing. Mr. Kaliti also noted that each service scope should have specified service levels, time allowed and tolerances for easy reference. Eng. Semutwa noted that appendix 11 will have 3 forms, namely road usability, road user comfort and road durability. Mr. Maithya asked if there is still time to change the forms. Mr. Tsujino noted that there is still time but probably for the second edition and it will have to be done by the trainers. Eng. Semutwa said that trainers can share their ideas and see what works in terms of practicability. It was agreed that group 3 members come together and develop the forms as necessary then share their ideas with all the trainers. In the evening, participants used data collected from appendix 11 to independently fill in appendix 12 self-inspection results, appendix 13 summary of the self-inspection, appendix 14 payment reduction calculation and appendix 16 summary of statement for payment of monthly statement. Next participants used appendix 17 monthly evaluation data collected from site to fill in appendix 18 contract evaluation tally sheet before presenting to the class.	
13	**Presentation of the new trainers.**	
	<u>Work Management - Eng. Tirop:</u> Mr. Maithya noted that repetitions need to be rectified. Mr. Tsujino noted that for the SCU, the definition for the bid and small contractor isn't very clear, thus it has been defined as follows: up to 10km only 1 SCU leader is required, up to 50km 1 SCU leader and 1 SCU inspector are required, over 50km 1 SCU leader and 2 SCU inspectors are required. Mr. Nyamila noted that the presenter needs to face and engage students, also reduce reading the presentation. <u>Service Level Inspection Under OBC - Eng. Semutwa:</u> Eng. Semutwa presented service level inspection under PBC. In the presentation materials he said that some slides need to be modified for a smooth presentation. Mr. Nyamila noted that Eng. Semutwa presented well, also he said that the slides can be modified to fit the presenter's preference. He also noted that KIHBT will modify the slides to have set time limits. Eng. Semutwa suggested that some of the topics needs to be further divided because they are very lengthy. Dividing them can help improve presentation. <u>Cross Cutting Issues – Mr. Nyamila:</u> In his presentation, he talked about capacity building, objectives in the cross cutting issues, ethics, gender mainstreaming, community mainstreaming, child rights, labour recruitment, human rights, environmental issues, PWD/elderly persons, customer care/public relations and safety/health measures. Mr. Nyamila noted that some of the forms used describe work productivity of a person as man-day. He suggested that this should be changed to person-day for gender equality. Eng. Takoy noted that there has been some research on the spread of HIV/AIDS cases, it was found that most of this cases happen at truck stops/routes but there aren't any signs warning the public about this diseases at this truck stop locations. Mr. Nyamila noted that truck drivers should be sensitized on this issue especially by the government. Mr. Nakajima appreciated the presentation and noted that PBC can address many of the cross cutting issues and help the community improve. Eng. Odwesso, Mrs. Kamunye and Mr Mule noted that the presentation was very informative, but it was a bit too lengthy and a lot of information to digest. Eng. Takoy suggested that the presentation can be split into 2 sessions so that students can better	

	digest the information. Service Level Setting – Mr. Alloys: Mr. Alloys presented service level setting, Mr. Tsujino noted that it was the first time for the presenter to present and he needed to first understand the material for a seamless presentation. Mr. Tsujino added that the most important part of the presentation was Appendix 1, and urged Mr. Alloys to focus on this part in order to understand service level setting. Work Management under PBC part 2 – Mrs. Caroline: The presenter elaborated on work procedures, evaluation of defects, road user sensitization, how to prepare monthly statements, how to conduct site condition assessment, work program, patrol/work activity records and inspection. Mr. Tsujino asked the presenter to clarify who needs to do a certain activities. For example the SCU is responsible in assessing the initial site condition and identify areas that don't meet stipulated service levels. Mr. Nyamila noted that the presenter did very well in engaging the class, but should not ask questions that have definite answers. PBC Cost Estimation (COSTES) – Mrs. Kamunya: The presenter introduced cost estimation and it's structures, PBC/instructed works, the cost structure for estimation, defined PR/SRUQ's, the importance of cost estimation, and the procedures involved. The presenter also did a practical using the COSTES system with the class. Eng. Takoy asked the maximum number of "other PBC works" you can input. Mrs. Kamunya noted that there isn't a limit as long as they fit in the scope of the contract. Contract evaluation for PBC Maintenance – Mr. Chelugo: The presenter elaborated on contractor's evaluation/methods and procedures, items to evaluate on, statutory regulation compliance, evaluation scoring and contract management using evaluation scores. Mr. Nyamila noted that the presenter engaged to class well, he also asked that cross cutting issues be incorporated into contract evaluation topic especially in the evaluation items at formal inspection. Mr. Tsujino also agreed that some cross cutting issues can be incorporated into the topic, he also noted that the practical should be done by students instead of the teacher going through the practical. Cash Flow Management – Mr. Mule: Mr. Mule elaborated on components on the cash flow statement, cash flow analysis/forecasting/projection and control checks, also good cash flow management practices. Mr. Mule noted that the presentation should be amended to reflect the needs of the contractor more. Mr. Nyamila also noted that the presenter should have a work program sample in relation to cash flow forecasting.	
14	**Closing remarks**	
	Mr. Tsujino thanked the participants for their hard work and dedication, he noted that the next training will be for engineers and all master trainers and trainers will be participating. He noted that all participants prepare themselves for the upcoming training, also take care of any other matters so that there will be a seamless training. Mr Nyamila asked all participants to be ethical and keep time so that the program starts and ends on time. He also urged all participants to amend their presentations, remove any repetitions and prepare for a seamless training. He urged all participants to improve on their lesson contents/objectives, and perfect their presentations. He thanked the	

	chairman, JICA experts and all participants. Eng. Takoy noted that the trainings are a very good tool that focus on quality for money, for sustainability of this program all stakeholders will need to take responsibility and do their parts. Mr. Kaliti noted that PBC will improve the quality of Kenyan roads and will drastically reduce the number of deaths, injuries and public asset damages. Also there is need for a be serious implementation of the PBC concept from all the stake holders. The training ended at 2pm with a word of prayer from Mr. Kaliti.	

There being no other business, the session ended at 1:30 PM on Friday the 5th February 2016 with a word of prayer from Mr. Kaliti.

CHAIR…….……

Date……

Member……..

Date……

PROJECT FOR THE STRENGTHENING OF CAPACITY ON ROAD MAINTENANCE MANAGEMENT THROUGH CONTRACTING.

MINUTES OF THE TOT for R.A RETREAT HELD ON FEBRUARY 22ND – 26TH 2016 AT MERICA HOTEL, NAKURU.

1. PRESENT:

	NAME	**ORGANIZATION**
1	Pius Nyamila	KIHBT – Chairman
2	Geoffrey Tirop	KURA
3	Julius Kaliti	KIHBT
4	Aloys Momanyi	KIHBT
5	Eng. Mutii Kivoto	KeNHA
6	Hiroshi Tsujino	JICA
7	Eng. Albert Semutwa	KeNHA
8	Fredrick Oyugah	KeNHA
9	Robert Mutai	JICA
10	Boniface Maithya	MoTI
11	Peter K. Ndung`u	PPRA – Public Procurement Regulatory Authority
12	Emily Awino	KIHBT
13	Caroline Kamunye	KIHBT
14	Eng. Terigin Kibet	KeNHA
15	Samuel Kagwanja	KeNHA
16	Nicholas Chelugo	KURA
17	Eng. Phelix Osongo	KeNHA
18	Eng. Sheikh Takoy	KeNHA
19	Eng. Michael Mugo	KURA
20	Joseph Maina	KURA
21	Musa Murunga	KURA

22	Benjamin Chebor	KURA
23	Eng. Edwin Odwesso	KURA
24	Benard Kipkema	KURA
25	Eng. M. O. Ontomwa	KIHBT
26	Juliette Murungi	KWS
27	David Kibet	KeRRA
28	Grace Mathai	KeNHA
29	John Tiruke	KURA
30	Dennis Maingi	KURA
31	Asala Livingstone	KIHBT
32	Ikeda Hidetsugu	JICA
33	Rosemary Wambui	KeNHA
34	Eng. Wilson Lepartobiko	KURA
35	Eng. Peter Mwaniki	KURA
36	Robert Okuku	KWS
37	B. G. Ngugi	KIHBT
38	Zakayo Segenger	KIHBT
39	Thomas Kandie	KeRRA
40	Eng. J. Otiato	KeNHA
41	Joseph Maina	KURA
42	Richard Yagan	KURA
43	Micah Ayabei	KWS
44	Charles Gilonge	KeRRA
45	Angela M. Mungi	KeRRA
46	Macharia Tumu	KeRRA
47	Hillary Akwiri	KeRRA
48	Eng. Sheikh Takoy	KeNHA
49	Peter Maruti	KeNHA
50	Walter Ochieng	KWS

51	Caroline Orwa	KeNHA
52	Dennis Amisi	KURA
53	Joshua Shikuku	KWS
54	Eng. Kenneth Ochieng	KeRRA
55	Robert Mule	KeRRA
56	Jemimah Nyamweya	KIHBT
57	Ryasaka Shinoda	Hanshin Expressway
58	Kodai Takaka	Hanshin Expressway
59	Nozomi Iwamolo	Hanshin Expressway
60	Yoriko Kawakami	JICA
61	Eng. Kiiru	KeNHA
62	Dr. Steve Mogere	JICA Office
63	Hiroshi Mita	JICA
64		
65		
66		
67		
68		
69	Jared Onyoni	JICA – Taking minutes

2. AGENDA:

Day 1

15. Opening remarks
16. Member introduction
17. Presentations:
    a. Outline of PBC – Mr. Kaliti.
    b. Service Level Setting – Mr. Okuku.
    c. Procurement Procedures – Mr. Ndungu.
    d. Work Procedure (1) – Eng. Odwesso.

Day 2

18. Presentations:
    a. Work Procedures (2) – Ms. Awino

b. Service Level Inspection – Eng. Semutwa
c. Cash Flow Management – Mr. Mule
d. Contractor's Evaluation – Eng. Takoy

Day 3

19. Practical Training (1) – Field
    a. Road Asset & Condition Survey – Appendix 5
    b. Inspection of Service Level Setting – Appendix 6
20. Preparation of inspection results report form – Appendix 12/13 (Class), Road Asset Survey (Using drawings) – Appendix 5 (Class), Daily reports – Appendix 7, 8, 9 & 10.

Day 4

21. Practical Training (2) – Field
    a. Self-Inspection – Appendix 11
    b. Monthly evaluations – Appendix 17
22. Formal Inspection & Payment reduction – Appendix 11, 12, 13, 14. Monthly Evaluations – Appendix 17
23. Contractor's Evaluation – Appendix 17, 18.
24. Cross cutting issues

Day 5

25. Cost Estimation / COSTES for PBC 2015 system.
26. Closing Remarks

MIN.	DELIBERATIONS:	ACTION
1	**Opening remarks**	
	The meeting started at 9am with a word of prayer from Mr. Kaliti followed by opening remarks. Mr. Tsujino, JICA Chief Advisor welcomed everyone to the training session. He noted that JICA has been working with the PBC sub-working group members from different organizations to improve the PBC guideline. He added that 3 cost estimations have been made with the help of the cost estimation sub-working group for the government cost estimators, cost estimation administrators (KRB), and for contractors. Also a COEST for PBC 2015 system had been made and can be used by anyone to calculate the cost of a contract. Mr. Tsujino also noted that JICA is liaising with MoTI in regards to the launching of the above documents by the end of March 2016. Also training materials have been prepared along with PBC master trainers and trainers who will take charge in training others (including road authority engineers/staff and contractors) at KIHBT. He thanked all contributing counterpart members and noted that continuous training and propoer implementation is needed to realize the full benefits of PBC. Eng. M. O. Ontomwa KIHBT principle took the opportunity to thank JICA for the training course and for the effort they have put in thus far. He also thanked all the counterpart organizations for their participation and effortless contribution to the concept of PBC/Cost estimation. He officially declared	INFO.

	the meeting open.	
2	**Member Introduction.**	
	The chair asked for a self-introduction of members.	
3	**Presentations:**	
	Outline of PBC – Mr. Kaliti Eng. Mugo was glad that PBC trainings have actualized, but asked if contractors will be trained as well. He noted that the vast majority of contractors aren't familiar with the concept of PBC. Mr. Kaliti noted that there are PBC master trainers/trainers who will be training R.A personnel's as well as contractors. He said that e KIHBT will soon start a PBC training course and contractors will also be trained. Eng. Lepartobiko asked what the difference between PBC and labor based contracts is. Mr Kaliti noted that there aren't any service levels requirements in labor based contracts. Also the contractor doesn't stay on site for several months. Also the contractor is payed based on service level and not by the quantity of work done A question was asked on how the engineer determines the response time. Mr. Kaliti and Mr. Akuku noted that the response time is specified in the guidelines and if the contractor doesn't respond within the specified response time then it's a non-compliance. Also the contractor is to patrol the road via a SCU which is to notify the execution unit of any non-compliance which have to be acted upon within the specified response times. The contractor is also to develop mechanisms to receive information from the road users to help in detecting any non-compliance. Eng. Semutwa noted that the contractor has most of the risks in PBC thus they are to be trained very well because the success of PBC depends on how well the contractors perform. If contractors aren't trained well, then the intended purpose of the PBC concept will not be realized. Eng. Kivoto noted that the chain of command starting with the contractor to his management/execution team on the field need to be trained in order to avoid pitfalls during the implementation of PBC. Also the contractor's personnel who are often on site also need to be trained and it should be a mandatory requirement before a contract is awarded. Service Level Setting – Mr. Okuku There were no comments/questions in this presentation. Procurement Procedures – Mr. Ndung'u Mr. Dennis asked what type of correction orders can be done on contracts. Mr. Ndungu noted that one should try not to do any changes because this can affect many things, if changes are made then they shouldn't affect the contract price. Also if a procurement personnel puts prices of items above the prevailing market prices then by law they are to pay back the extra cost above the prevailing market prices. If errors aren't corrected during evaluations, then they are to remain the same, also the contract has to be balances so as not to lock out others. Work Procedure (1) – Eng. Odwesso: Mr. Tsujino noted that about 70-80% of the contract is based around the SCU, thus the SCU is the key to the success of the contract. He urges participants to	

	recommend contractors to formulate the SCU in their organization because it will help the contractor successfully execute the contract. In closing, Mr. Nyamila urged presenters to include matters of quality assurance for PBC works. He asked Mr. Ndung'u to have the new regulations from his organization availed to participants. He also urged presenters to practice and improve upon their teaching etiquettes and methods for affective teaching.	
4	**Presentations: Day-2**	
	<u>Work Procedures (2) – Ms. Awino:</u> Eng. Kivoto noted that photo records being a requirement, how can one make sure that the photos received are genuine? Ms. Awino noted that the client can do ad-hoc inspections, thus they can easily confirm if photos taken are current or from the past. Eng Kivoto asked ion representation how do you make sure service levels remain constant through the course of the contract. Ms. Awino noted that SCU and the contractor are one entity. Eng Mugo noted that the quantity of paper work can be enormous, but contractors should still collect and turn in all this information. Also safety equipment's are very expensive, thus the government should maybe subsidize this items for contractors so that they are cheaper. Mr. David noted that during the IMP, the road is brought up to acceptable service levels, but there are some roads which are too bad and can't be brought up to the required service levels in 3 months. Mr. Akuku noted that after the inspection of the road, a decision is made whether the road is to be reconstructed or rehabilitated, also the IMP doesn't have to be 3 months. It depends on how much work is needed to bring up the service levels even if it takes a year, also there are cases where the IMP is zero. Mr. Tsujino noted that the PBC approach looks to evaluate the contractor on many levels and they have performed well or they will be down-graded and bared from future contracts. These evaluations are meant to have the contractor improve upon their performance and take good care of the road assets. <u>Service Level Inspection – Eng. Semutwa.</u> Eng. Semutwa noted that substantial completion inspection and total payments capped at 80% needs to be reviewed for PBC contracts, this more applicable to standard contracts measured by a BoQ. Eng. Kivoto asked how corrective orders affect the monthly payments. Eng. Semutwa noted that corrective orders during ad hoc inspections give the contractor time to rectify non-compliances. They don't affect the contractor's payment unless non-compliance are found during the formal inspection. On payment reduction weight, not done on the whole section that is non-compliant. Mr. Joseph noted that the effects of these deduction weights are not significant enough. Eng Semutwa noted that the weights had been agreed upon by the PBC SWG, he noted that these weights can still be changed in the future. Mr. Joseph suggested that the deduction weight be removed and the contractor be deducted on the actual length of work not done, ex if 3km are non-compliant, then the contractor is deducted 3km. Mr. Tsujino noted that the deductions can be distributed to other items of more significance as the project manager would prefer. Eng. Mugo asked what happens to places where there are several small sections of roads, how are this sections measured. Eng. Semutwa noted that roads are divided into sub-sections of 200m, thus a project manager can decide how they prefer in terms of dividing the road into sub-sections. Sub-sections don't have to measure 200m, also the adjusted	

	non-compliance lengths don't have to be 1km. Cash Flow Management – Mr. Mule Eng. Mugo noted that cash flow management is a very important topic that contractors need to fully understand because it will help them establish themselves financially, thus able to handle any scale of project easily. Contractor's Evaluation – Mr. Chelugo: Mr. Peter asked what happens when a statutory regulation is out of the control of the contractor, does he get penalized? Mr. Chelugo noted that the contractor should make sure that they adhere to all laws because their evaluations depend on it. In closing Mr. Nyamila urged trainees to study the materials covered thus far. He went through the next day's agenda, he pointed out the appendices that will used on site during the practical training. Mr. Nakajima noted that for tomorrow's practical, trainees need to study pages 91-113 appendix 1 standard service level of the PBC Guideline. Also 3 groups were made for the next day's field practical's as indicated below.	

MIN.	DELIBERATIONS	ACTION
5	**Practical Training (1) – Field**	
	a). Road Asset & Condition Survey – Appendix 5 Before going to the field (Government Road), Mr. Maithya took trainees through appendix 5 road asset survey sheet. He elaborated on the features on the road, how to measure the cross section, and how to fill in the quantities. He noted the differences between simple/actual quantities. Also Mr. Nyamila cautioned all participants to observe safety precautions while on site. On site, the master trainers/trainers took charge in training the trainees on how to fill out the road asset survey sheet. They elaborated on how appendix 1 of the PBC Guideline can be used as a reference to the service level requirements. b). Inspection of Service Level Setting – Appendix 6 Mr. Okuku took participants in class through inspection of service level setting. Eng. Mugo asked one needs to go to the ground to fill the appendix if they have been on site to fill appendix 5. Mr. Okuku noted that it's important to go to site so that all the required service criteria's are considered. This also depends on one's knowledge of what is required. On site, master trainers/trainers took participants through appendix 6, they made reference to appendix 1 of the PBC guideline on which items are applicable and their service levels.	
6	**Preparation of inspection results report form – Appendix 12/13 (Class), Road Asset Survey (Using drawings) – Appendix 5 (Class), Daily reports – Appendix 7, 8, 9 & 10.**	
	In the afternoon master trainers/trainers took participants through the preparation of self-inspection results using appendix 12/13. Next participants used the proposed cross section on pg. 22 and the plan of the road on pg. 24 to fill appendix 5 in the practical training handbook. Ms. Jemimah took the class through appendix 7 daily work record, basic information required, PBC work operations and tools on site. She also took the class through appendix 8, daily patrol record. Participants noted of possible examples of what the patrol unit has to take note of during patrols. Next she took the class through the photo record, appendix 9. Appendix 10, incident condition and activity report is used to report incidents. Mr. Maruti noted that the report has to indicate if the vehicle was removed from the road. The patrol	

	unit should also coordinate with relevant authorities to clear the incident. Mr. Akuku noted that there should be a column of ownership noting the person who is reporting the incident. Mr. Tsujino noted that the source of information can come from anyone, and the SCU will act upon that to report the incident/activity which is passed onto the execution unit to follow up on. It was also noted that this form needs to be reviewed so that it captures information better. The form was more of an incident form than an activity form as pointed out by a participant.	
7	**Practical Training (2) – Field**	
	a). Self-Inspection – Appendix 11 (Defect detection/rectification record): Mr Akwiri took the class through appendix 11. He noted that the it will cover 3 categories (each category has it's own sheet), can be filled by the SCU or the Project Manager, and then handed over to the execution unit for rectification of defects. On site each group did defect defection and rectification list that will be given to the execution unit for further action of remedy. b). Monthly evaluations – Appendix 17: In the field, participants filled out the monthly evaluation based on the site conditions. It was noted that appendix 17 is to be filled in conjunction with table 23-1 of the PBC Guideline which spells out the requirements for the pass/fail criteria. In class Mr. Mule went through how to fill appendix 12 in conjunction to the data collected from site. He noted that this data is then carried to appendix 13 in kilometer sections.	
8	**Formal Inspection & Payment reduction – Appendix 11, 12, 13, 14. Monthly Evaluations – Appendix 17**	
	In class participants filled data from the field electronically into appendices 12 and 13 in groups lead by master trainers/trainers. Eng. Kiiru noted that all these forms should be interlinked so that the person filling doesn't make a mistake when transferring data from one sheet to another. Next Mr. Mule took the class through the payment reduction calculation table appendix 14. He showed how data is manipulated from the previous appendices into appendix 14. He noted that if a service scope doesn't apply, it's reduction weight can be distributed to other applicable scopes. Mr. Tsujino noted that the reduction weights were made 200% so that contractors can be motivated to improve their work performance.	
9	**Contractor's Evaluation – Appendix 17, 18.**	
	Eng. Takoy took the class through monthly evaluation appendix 17. He noted that if any item of a service level compliance fails, then the whole scope will fail. He also noted that if a contractor doesn't comply with a statutory regulation, they are deducted 20 points. In appendix 18, he took the class through contract evaluation and how previous performance scoring affects the current score. Ms. Kawakami elaborated on how simple calculations are done to calculate the total score.	
10	**Cross cutting issues:**	
	Ms. Kamunya took the class through capacity building of cross cutting issues in road maintenance. She elaborated on the need for capacity building, ethics, gender/children rights mainstreaming, community involvement, human rights, environmental issues, customer care, public relations, and safety/ health measures. Mr. Nyamila took the class through public and private sector capacity building, the ethical issues affecting the sector, public relations, human rights and disabled people among other issues that affect the sector. He urged road authorities to in build these issues into contracts for the benefit of the community.	

11	**Cost Estimation / COSTES for PBC 2015 system:**	
	Ms. Kamunya took the class through cost estimation. She introduced the 3 cost estimation manuals and how they are to be used by each entity (government cost estimators, contractors and the cost estimation administrators (KRB)). Mr. Tsujino and Ms. Kamunya took participants through a COSTES practical example where everyone did the practical on their computers. They explained the PDF output files and how information reference can be made.	
12	**Closing Remarks:**	
	Eng. Mwaniki of KURA was greatful for the training and noted KURA has had contracts been implementing PBC in most of it's contracts. This training helped him to better understand PBC, Mr. Ochien'g noted that PBC has come a long way, he asked participants to embrace the PBC guidelines and the cost estimations in order to implement and improve PBC contracts. He noted that KWS will continue their staff on PBC. Mr. Ndung'u said that the journey has been long in training the master trainers/trainers. he asked the key players to embrace PBC, PPOA's mandate is to develop the standard bidding documents and he noted that the key players should plan to make a standard bidding document for PBC. Mr. David Kibet noted that the stake holders need to share this knowledge with contractors for effective resilts. He requested that the formulaatore sof the law to close the gaps for smooth transition of PBC. Eng. Kivoto thanked all participants for the session, he asked his coleagues that soon PBC is to be implemented to more projects, thus this information needs to get to the on-site staff so in order to see the full affect of PBC realized. he noted that implememtatio of PBC can be a challenge given the nature of Kenyan people, but through PBC, he hoped that things will get better. Mr. Maithya thanked all members who have been commited to the development of PBC since the first training up to now. He noted that soon the documents will be made official so that everyone especially contractors/stakeholders can learn of PBC and implement it well. Mr. Kaliti took the opportunity to thank everyone who attended the training, he noted that KIHBT is the custodian of training and is in the process of developing a curriculum for PBC. He noted that this course is very important given that there are many lives lost on the roads due to poor maintenance and upkeep of the current infrastructure. He noted that this method from the japan government is going to be very helpful. He asjked all road sector stake holders to embrace this method of maintenance also share it with others. He noted that the KIHBT will be making the program/curriculum on how they will be training contractors, public/privet stake holders. He noted that this training program will be availed to all regions in Kenya. He thanked the JICA experts for theit hard work and effort and he welcomed them back for phase 3 when they come back. Dr. Mogere thanked all participants, he noted that JICA has had a long relaton of working together with Kenya. He noted of the guidelines and manuals JICA has helped publish before phase 1 and up to now the end of phase 2. Our vision going forward the documents will be made available to every one. He noted that Eng. Musonik wanted all contracts in from 2017 to be 80% PBC based. He noted that phase 3 will be training based and dealing with risks associated with PBC. He noted of the financial gaps to overcome. He asked all stake holders to work together, he thanked JICA for creating the sector and for capacity building. Mr. Tsujino was greatful for participation of members, he noted of the progress that has been made thus far. He pointed out the progress done by the sub-working groups for PBC	

	guidelines and for the cost estimation in developing the documents, training materials and producing master trainers/trainers. He noted that more road authority stake holders and more contractors need to be trained in order to understand the PBC concept. He noted that in PBC, contractors will be penalized more if they don't comply with service levels. Thus propoer execution of PBC is crucial for it's relevance to increase. Ms. Kawakami…. Eng. Kiiru took the opportunity to appreciate the JICA team for their work this far. He thanked all the participants for their participation and input. He welcomed the JICA expert back for phase 3 and was looking forward to working together again. He wished every one well in the way forward. Ms. Juliett was thankful for the training exercise where she learned a lot. She thanked the JICA team, the master trainers and the trainers for their efforts thus far. Award of certificates.	

There being no other business, the session ended at 3:30 PM on Friday the 26th February 2016 with a word of prayer from Ms. Juliette.

CHAIR…….…….

Date……

Member……..

Date……

Attachment GP-7 List of the certified engineers in PBC training

- THE FIRST COURSE ON PERFORMANCE BASED ROAD MAINTENANCE (PBC) – TRAINING BY MASTER TRAINERS — 26-02-2016
- TRAINEES INCLUDED TRAINERS, ENGINEERS AND TECHNICAL PERSONNEL FROM ROAD AUTHORITIES (KeNHA, KURA, KeRRA), KIHBT AND KWS

List of Master Trainers

S/No	Name	Organization	County	Cert No.	Exam Score	Signature	Date
1.	Mr. Julius Mutia Kaliti	KIHBT	Nairobi	1	93		26/02/2016
2.	Mrs. Jemimah N. Nyamweya	KIHBT	Nairobi	2	95		26/02/2016
3.	Mr. Pius J. Nyamila	KIHBT	Kisii	3	87		26/02/2016
4.	Eng. Maurice Akech	NCA	Nairobi	4			
5.	Arch. Winnie Kalya	NCA	Nairobi	5			
6.	Eng. Tom Nyamora Omai	KRB	Nairobi	6			
7.	Mr. Peter Kimani Ndungu	PPOA	Nairobi	7	95		
8.	Eng. Abdinoor Sheikh Takoy	KeNHA	Nairobi	8	93		
9.	Eng. John Kagochi Mwangi	KeRRA	Nairobi	9			
10.	Eng. Edwin Odwesso	KURA	Nairobi	10			
11.	Mr.Boniface Mukuli Maithya	MoTI	Nairobi	11	96		26/02/2016
12.	Mr. Robert Mutai	JICA	Nairobi	12	97		26/02/2016
13.	Mr. Jared Onyoni	JICA	Nairobi	13	86		26/02/16

J.M. KALITI
HoD - CIVIL ENG.
+254 722 356 814

LEGEND

- KIHBT – Kenya Institute of Highways and Building Technology
- NCA – National Construction Authority
- KRB – Kenya Roads Board
- KeNHA – Kenya National Highways Authority
- PPOA – Public Procurement Oversight Authority
- MOTI – Ministry of Transport and Infrastructure
- KWS – Kenya Wild Life Services
- JICA – JAPAN INTERNATIONAL CORPORATION AGENCY

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P.O. Box 57511 - 00200
NAIROBI

1/4

26/2/2016

List of Trainers

S/No	Name	Organization	County	Cert No.	Exam Score	Signature	Date
1.	Caroline Wairimu Kamunya	KIHBT	Laikipia	1	90		26/2/16
2.	Emily A. Awino	KIHBT	Homabay	2	90		26/2/16
3.	Eng. Michael Walela	NCA	Nairobi	3			
4.	Eng. Stephen Nyakondo	NCA	Nairobi	4			
5.	Eng. Albert Semutwa	KeNHA	Isiolo	5			26/2/16
6.	Mr. Peter Maruti	KeNHA	Nairobi	6	94		26/2/16
7.	Eng. Geoffrey Tirop	KURA	Nairobi	7			
8.	Eng. Nicholas Chelugo	KURA	Nairobi	8	94		26/2/16
9.	Mr. Hillary Ogello Akwiri	KeRRA	Nairobi	9			
10.	Mr. Robert M. Mule	KeRRA	Nairobi	10			
11.	Eng. Walter Ochieng Odira	KWS	Migori	11	86		20.2.2016
12.	Mr. Robert Hughes Okuku	KWS	Trans-nzoia	12	85		26/2/2016

LEGENG CONT'D

- KURA - Kenya Urban Roads Authority

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List of Trainees

S/No	Name	Organization	County	Cert No.	Exam	Signature	Date
1.	Aloys Momanyi	KIHBT	Kisii	1	80		26/02/2016
2.	Bernard G. Ngugi	KIHBT	Kajiado	2	78		26/02/2016
3.	Zakayo Kipkemoi Segerger	KIHBT	Kajiado	3	64		26/02/2016
4.	Livingstone Asala	KIHBT	Kakamega	4	76		26/02/2016
5.	Eng. George Mwangi Kiiru	KeNHA	Nairobi	5	83		26.02.16
6.	Eng. Mutii Kivoto	KeNHA	Nairobi	6	78		26.2.16
7.	Eng. John Otiato Ombok	KeNHA	Nairobi	7	61		1.
8.	Eng. Samuel Kagwanja	KeNHA	Nairobi	8	80		26/2/16
9.	Eng. Fredrick Oyugah	KeNHA	Nairobi	9	85		26/2/16
10.	Eng. Phelix Osongo	KeNHA	Nairobi	10	82		26/2/16
11.	Mr. Terigin Kibet	KeNHA	Uasin Gishu	11	97		26/2/2016
12.	Ms. Grace Mathai	KeNHA	Nyeri	12	91		26/2/2016
13.	Eng. Kenneth Ochieng Adinda	KeRRA	Uasin Gishu	13	89		26/2/2016
14.	Mr. David Kibet	KeRRA	Nairobi	14	80		26/2/2016
15.	Mr. Thomas Kandie	KeRRA	Nairobi	15	77		26/2/2016
16.	Mr. Macharia Tumu	KeRRA	Nairobi	16	90		26/2/2016
17.	Ms. Angela Murigi	KeRRA	Nairobi	17	75		26/2/2016
18.	Mr. Charles Gitonga	KeRRA	Nairobi	18	84		26/2/16
19.	Mr. Richard K. Kosgey Yagan	KURA	Nairobi	19	84		26/2/2016

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26/2/2016

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NAIROBI

(3/4)

S/No	Name	Organization	County	Cert No.	Exam	Signature	Date
20.	Eng. Wilson Lepartobiko	KURA	Nairobi	20	94		26/2/2016
21.	Mr. Benjamin Cheboi	KURA	Uasin Gishu	21	88		26/2/2016
22.	Mr. Musa Murunga	KURA	Uasin Gishu	22	90		26/2/2016
23.	Mr. Dennis M. Maingi	KURA	Nairobi	23	93		26/2/2016
24.	Eng. Michael Mugo	KURA	Nakuru	24	85		26/4/16
25.	Mr. Dennis Amisi	KURA	Nakuru	25	84		26/2/16
26.	Eng. Peter Mwaniki	KURA	Nairobi	26	89		26/2/16
27.	Mr. John Tirkole	KURA	Nakuru	27	84		26/2/16
28.	Mr. Benard Kipkemoi	KURA	Nakuru	28	76		26/2/16
29.	Mr. Joshua Shikuku Mumachi	KWS	Nakuru	29	64		26/2/2016
30.	Ms. Juliet Murugi Mburu	KWS	Nakuru	30	90		26/2/2016
31.	Mr. Micah K. Aiyabei	KWS	Uasin Gishu	31	68		26/2/16

26/2/2016
J. M. KALITI (0722356804)
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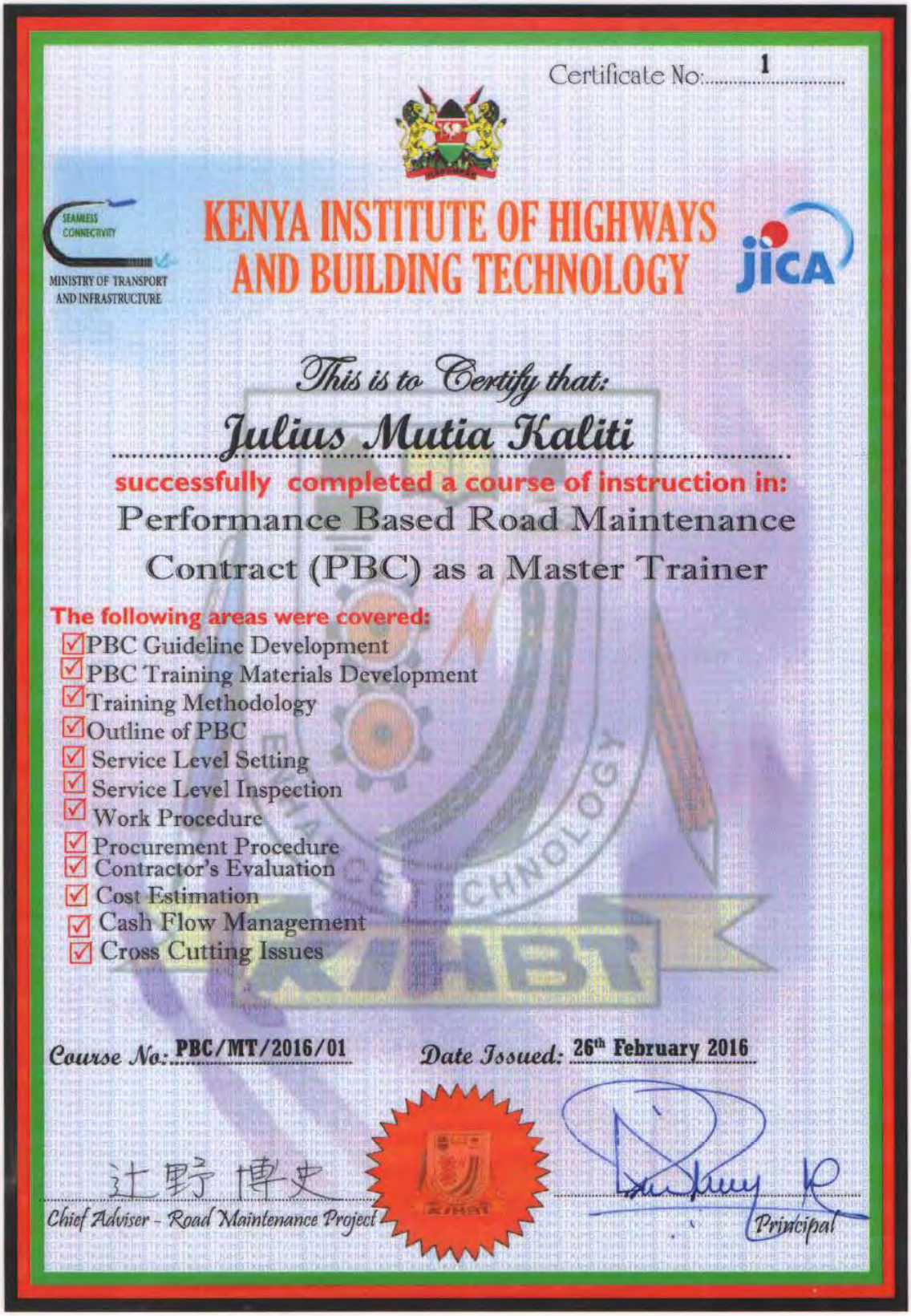


Certificate No: 1

SEAMLESS CONNECTIVITY
MINISTRY OF TRANSPORT AND INFRASTRUCTURE

KENYA INSTITUTE OF HIGHWAYS AND BUILDING TECHNOLOGY

JICA

This is to Certify that:

Julius Mutia Kaliti

successfully completed a course of instruction in:

Performance Based Road Maintenance Contract (PBC) as a Master Trainer

The following areas were covered:

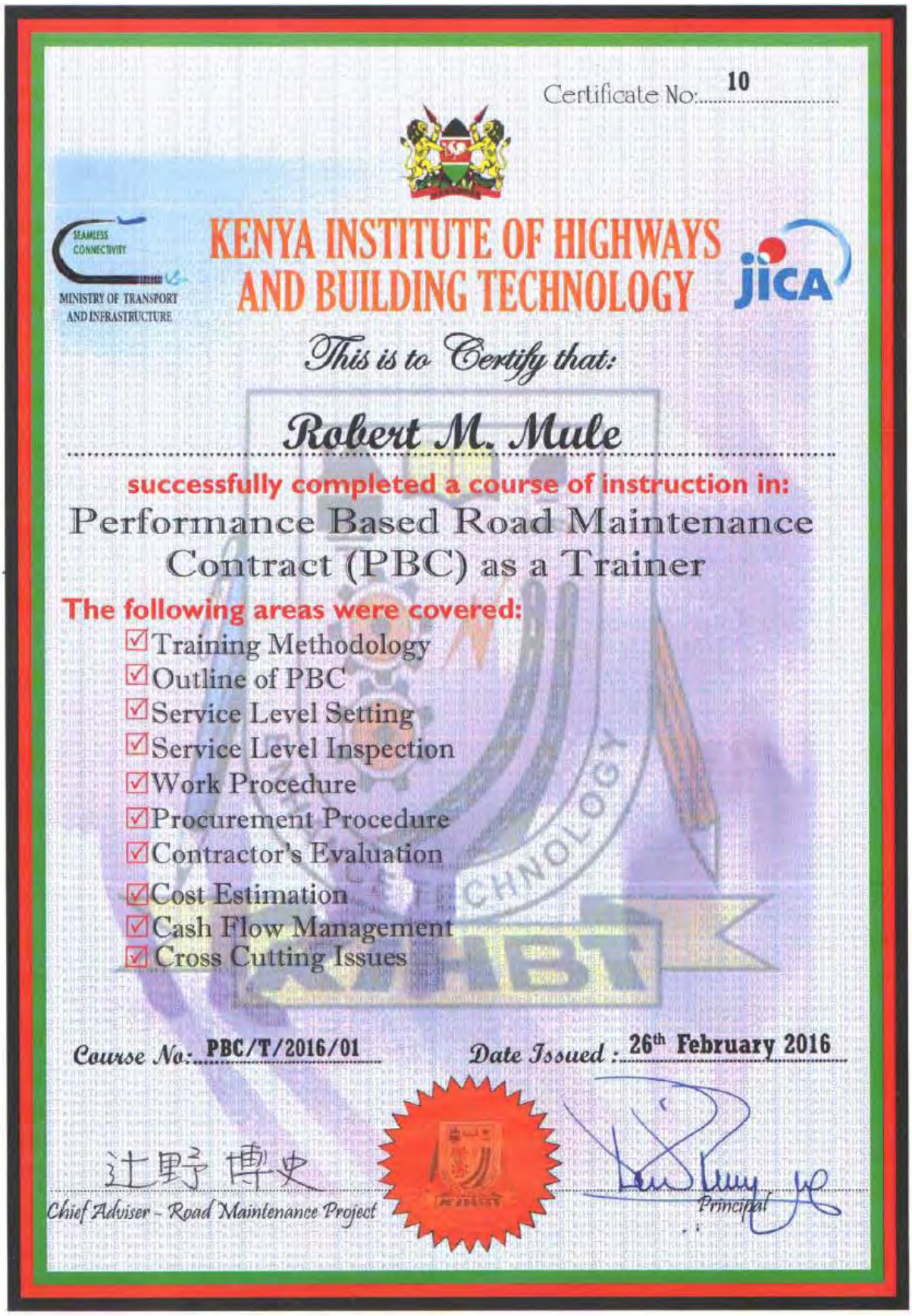
- ☑ PBC Guideline Development
- ☑ PBC Training Materials Development
- ☑ Training Methodology
- ☑ Outline of PBC
- ☑ Service Level Setting
- ☑ Service Level Inspection
- ☑ Work Procedure
- ☑ Procurement Procedure
- ☑ Contractor's Evaluation
- ☑ Cost Estimation
- ☑ Cash Flow Management
- ☑ Cross Cutting Issues

Course No: **PBC/MT/2016/01** *Date Issued:* **26th February 2016**

辻野 博史

Chief Adviser - Road Maintenance Project

Principal



Certificate No: 10

SEAMLESS CONNECTIVITY

MINISTRY OF TRANSPORT AND INFRASTRUCTURE

KENYA INSTITUTE OF HIGHWAYS AND BUILDING TECHNOLOGY

JICA

This is to Certify that:

Robert M. Mule

successfully completed a course of instruction in:

Performance Based Road Maintenance Contract (PBC) as a Trainer

The following areas were covered:

- ☑ Training Methodology
- ☑ Outline of PBC
- ☑ Service Level Setting
- ☑ Service Level Inspection
- ☑ Work Procedure
- ☑ Procurement Procedure
- ☑ Contractor's Evaluation
- ☑ Cost Estimation
- ☑ Cash Flow Management
- ☑ Cross Cutting Issues

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