

Workshop Report

CAREC Road Asset Management: In-Country Workshop and Maturity Assessment

Tajikistan

June 2023

Disclaimer

This report is the outcome of the CAREC Institute's in-country RAM workshop and maturity assessment for Tajikistan that took place from 29 May to 1 June 2023. This report was drafted by Dr. Ian Greenwood, CAREC Institute Infrastructure Consultant, and is edited by Dr. Eisakhan Ayoob Ayoobi, CAREC Institute Chief of Capacity Building Division.

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Table of Contents

Executive Summary	1
Introduction	2
Background to Workshops	2
Presenters and Facilitators	
Participants	
Agenda	
Site Visit	10
Maturity Assessment and Improvement Plan	
Feedback from Participants	

Figures:

Figure 1: Summary from 2021 Maturity Self-Assessments	. 2
Figure 2: Stages of Road Asset Management Capacity Building Activities.	. 3
Figure 3: Participants and Special Guests.	.4
Figure 4: Workshop Setting.	.6
Figure 5: Asset Management Process	13
Figure 6: 2021 RAM Maturity Self-Assessment.	14
Figure 7: Workshop Evaluation by Participants.	16

Tables:

Table 1: List of Workshop Participants.	5
Table 2: Photos from Site Visit	10
Table 3: Recommended Improvement Plan.	14

Glossary

Abbreviation	Description
ADB	Asian Development Bank
AM	Asset Management
AMIS	Asset Management Information System
AMP	Asset Management Plan
CAREC	Central Asia Regional Economic Cooperation
CI	CAREC Institute
IIMM	International Infrastructure Management Manual
MOTC	Ministry of Transport and Communications
0&M	Operation and Maintenance
PIC	Production and Innovation Center
PMS	Pavement Management System
RAM	Road Asset Management
RAMIS	Road Asset Management Information System
RAMS	Road Asset Management System

Executive Summary

In May-June 2023, a four-day workshop was held in Dushanbe, Tajikistan, on the topic of Road Asset Management (RAM). Funded by ADB TA and conducted by the CAREC Institute, the workshop was delivered through a combination of in-person and virtual trainers to 15 participants representing various ministries, departments and kindred organizations involved in the management of the national road network of Tajikistan.

The workshop was effectively the third stage of RAM engagement between the CAREC Institute and the CAREC member countries. The first stage occurred in 2020 and consisted of an online training program in RAM; and the second stage occurred in 2021 and was focused on the completion of a self-assessed RAM Maturity Assessment. This third stage built upon that earlier work to:

- move to a combination of in-person and virtual training (rather than 100% virtual as per the earlier stages);
- deliver a more focused training program based on specific needs (prioritized based on the proposed action plan drafted as part of the earlier maturity assessment); and
- produce an updated maturity assessment and associated RAM Improvement Plan.

The workshop achieved a very high satisfaction rating with 100% of participants rating it "Excellent" (83%) or "Good" (17%), with an overall average of 4.8 out of 5.

Introduction

Background to Workshops

Since 2020 the CAREC Institute, in collaboration with the Asian Development Bank (ADB), has been supporting the CAREC member countries in a range of Road Asset Management (RAM)¹ initiatives from online training program delivery, through to country specific RAM maturity assessments,² and the use of RAM to address a range of other challenges such as cross-border transportation needs and climate change adaptation.

During 2020/21 a RAM maturity assessment was attempted to be completed via self-assessment for each CAREC member country, with the results indicating a significant range of competency both across the various aspects of RAM and also across the member countries.



Figure 1: Summary from 2021 Maturity Self-Assessments.

Source: CAREC Region Road Asset Management, Maturity Assessment, Final Report. CAREC Institute, 2021.

The in-country workshop ties in with the prior online training and RAM maturity assessment initiatives, taking the RAM discussions from a regional level down to the country level. The 2020 training was really about awareness raising and for many participants was their first encounter with the full range of RAM activities. The training was not customised to any one country, and besides Q&A sessions it was a one-way delivery. In 2021 the maturity assessment was a more focused

¹CAREC Institute E-Learning Platform: <u>https://elearning.carecinstitute.org/learning-modules/workshops/124.html</u> ²CAREC Institute E-Learning Platform: <u>https://elearning.carecinstitute.org/learning-modules/workshops/160.html</u>

exercise, with a smaller group of participants from each country and much more of a two-way interactive session – although not all countries completed the maturity assessment.





Two countries were included in the first round of Country Specific Workshops conducted in September 2022 – Azerbaijan and Georgia. In May and June 2023, a further two countries were completed, namely the Kyrgyz Republic and Tajikistan.

The core objectives of the workshops were:

- i. to carry out a country review on the implementation of RAM and to further develop the target participants' knowledge and skills on asset data collection, management and maintenance;
- ii. to introduce the road related Greenhouse Gas (GHG) emissions and countermeasures as well as to produce country specific improvement plan in GHGs reduction;
- iii. to enhance member countries capabilities for bridging capacity gaps among CAREC member countries on RAM and promote cooperation among experts, policymakers and influencers;
- iv. to create a core group of competent asset managers within each country and ultimately across the CAREC region who can support each other in RAM; and
- v. to facilitate and further enhance knowledge and best practices sharing among CAREC member countries for effective and sustainable regional development under the ADB CAREC Program.

The workshops are expected to achieve these outcomes:

- i. the country review on the implementation of RAM achieved and to target participants' knowledge and skills on asset data collection, management and maintenance is improved;
- ii. the road related Greenhouse Gas (GHG) emissions and countermeasures as well as country specific improvement plan in GHGs reduction are introduced;
- iii. CAREC member countries specific capacity needs are addressed and capacity gaps among member countries on RAM are bridged and cooperation among experts, policymakers and influencers are promoted; and
- iv. knowledge and best practices sharing among CAREC member countries for collective sustainable regional development under the ADB CAREC Program is further enhanced.

Presenters and Facilitators

The CAREC Institute provide the facilitators for the workshop, with key staff being:

- Mr. Kabir Jurazoda, Director, CAREC Institute.
- Dr. Iskandar Abdullaev, Opening address and Keynote Presentation.
- Dr. Ayoob Ayoobi, Overview of training.

The workshop training was delivered by:

- Dr. Ian Greenwood (in person, and overall workshop lead).
- Dr. Theunis Henning (via video link).
- Mr. Serge Cartier (via video link).

Other key participants include:

- Mr. Dzhovid Khuseinov, CAREC Institute.
- Ms. Dildar Zakir, CAREC Institute.
- Mr. Gary Huang, CAREC Institute.
- Ms. Nodira Odinaeva, Regional Cooperation Coordinator, Tajikistan Resident Mission, ADB.

Figure 3: Participants and Special Guests.



Participants

There were 19 participants registered for the workshop as per the table below.

Table 1: List of Workshop Participants.

Lis	List of Participants	
1.	1. Mr. Parviz Shokirov, Head, Analysis and Economic Prospects Department, Ministry of	
	Transport, Tajikistan	
2	2 Mr. Subrob Vokubzoda, Head, State Unitary Enterprise "Center for Digitization of the Road	

- 2. Mr. Suhrob Yokubzoda, Head, State Unitary Enterprise "Center for Digitization of the Road and Transport Sector", Ministry of Transport, Tajikistan
- 3. Mr. Simbod Sharipov, Specialist, Road Asset Management System, Ministry of Transport, Tajikistan
- 4. Mr. Salim Niyozov, Leading Specialist, Digitization Department of the Road and Transport Sector, Analysis and Economic Prospects Department, Ministry of Transport, Tajikistan
- 5. Mr. Jamshed Solihov, Chief Specialist, Road Construction Department and Road Safety Section, Road Construction and Management Department, Ministry of Transport, Tajikistan
- 6. Mr. Burhoniddin Sangakov, Chief Specialist, Road Construction and Management Department, Ministry of Transport, Tajikistan
- 7. Mr. Zevarsho Ismoilov, Specialist, Transport Digitalization Department, Ministry of Transport, Tajikistan
- 8. Ms. Khayridin Salomatshoev, State Institution "Roads Management and Administration" of Badakhshan Mountainous Autonomous Region, Tajikistan
- 9. Mr. Ikromjon Mirpodshohev, Chief Engineer, State Institution "Roads Management and Administration" of Sughd Region, Tajikistan
- 10. Mr. Farrukh Abdiyev, Chief Engineer, State Institution "Roads Management and Administration" of Hissor District, Tajikistan
- 11. Mr. Muzaffar Kholiqov, Chief Engineer, State Institution "Roads Management and Administration" of Bokhtar District, Tajikistan
- 12. Mr. Murodali Khomushov, Chief Engineer, State Institution "Roads Management and Administration" of Kulob District
- 13. Ms. Oimniso Tavakalova, Chief Engineer, State Institution "Roads Management and Administration" of Rasht District, Tajikistan
- 14. Mr. Suhrob Mirzozoda, Senior Professor, Construction of Roads, Facilities and Transport Communication Department, Technical University of Tajikistan named after M. S. Osimi
- 15. Mr. Saidjamol Umarov, Associate Professor, Construction of Roads, Facilities and Transport Communication Department, Technical University of Tajikistan named after M. S. Osimi

Special Guests

- 16. Mr. Farrukh Nematzoda, Deputy Minister of Transport, Tajikistan
- 17. Ms. Shanny Campbell, Country Director, Tajikistan Resident Mission, ADB
- 18. Mr. Karim Raufi, Project Lead on Road Asset Management System, EBRD
- 19. Ms. Nodira Odinaeva, Regional Cooperation Coordinator, Tajikistan Resident Mission, ADB

Figure 4: Workshop Setting.



Agenda

The workshop agenda was as follows, with all sessions held at the Dushanbe Serena Hotel. All training materials were provided in both English and Russian languages (projected side-by-side and with real time translation), with electronic copies made available via the CAREC Institute e-learning platform https://elearning.carecinstitute.org/learning-modules/workshops/2090.html.







Country-Specific Workshops / ToT on Road Asset Management – Tajikistan

29, 30, 31 May, 1 June 2023 Dushanbe, Tajikistan

AGENDA – TAJIKISTAN

DAY 1 (MONDAY, 29 MAY 2023)	
08:30-09:00	Registration
09:00-09:30	Welcome and Opening Remarks
	 Kabir Jurazoda, Director, CAREC Institute Nematzoda Farrukh, Deputy Minister of Transport, Tajikistan Shanny Campbell, Country Director, Tajikistan Resident Mission
09:30-10:00	Keynote Presentation: Performance of CAREC Corridors
	Presenter: Iskandar Abdullaev, Deputy Director II, CAREC Institute
10:00-10:15	Overview of the Training
	Presenter: Ayoob Ayoobi, Chief of Capacity Building Division, CAREC Institute
10:15-10:30	Tea/Coffee Break – Photo session
10:30-11:10	Refresh on RAM
	Presenter: Ian Greenwood, Chartered Professional Engineer, and a Fellow of Engineers New Zealand
11:10-12:00	Current RAM Practice
	Presenters (2 or 3) from relevant parts of government to cover off:
	 Funding, budget allocation cycle Prioritization of road maintenance and renewal needs Method of delivery of road maintenance and renewal works
12:00-13:00	Lunch: Rudaki Restaurant
13:00-14:00	Road Funding
	Presenter: Serge Cartier, Cartier Consult
14:00-14:15	Tea/Coffee Break
14:15-15:15	Developing Service Levels for All Asset Types
	Presenter: Theuns Henning, Senior Lecturer, Civil and Environmental Engineering, University of Auckland

15:15-16:15	The AM Team – including potential to outsource
	Presenter: Ian Greenwood, Chartered Professional Engineer, and a Fellow of Engineers New Zealand
16:15-17:00	Asset Register – Developing and Maintaining
	<u>Develop Guidance on Minimum Data to be Collected for Major Asset</u> <u>Types</u>
	Presenter: Ian Greenwood, Chartered Professional Engineer, and a Fellow of Engineers New Zealand
17:00-17:10	Wrap-up of Day 1

 Ayoob Ayoobi, Chief of Capacity Building Division, CAREC Institute

DAY 2 (TUESDAY, 30 MAY 2023)

09:30-10:00	Registration
10:00-17:00	Site Visit (Lunch during the site visit)

DAY 3 (WEDNESDAY, 31 MAY 2023)

08:30-09:00	Registration
09:00-09:45	Asset Management Plans
	Presenter: Ian Greenwood, Chartered Professional Engineer, and a Fellow of Engineers New Zealand
09:45-10:30	Asset Management Information Systems, and Decision Support Tools
	Presenter: Theuns Henning, Senior Lecturer, Civil and Environmental Engineering, University of Auckland
10:30-10:45	Tea/Coffee Break
10:45-12:00	Service Delivery Models
	Force Account, Outsourced, PBCs
	Build on Review of Current Contract Templates in Use
	Presenter: Ian Greenwood, Chartered Professional Engineer, and a Fellow of Engineers New Zealand
12:00-13:00	Lunch: Rudaki Restaurant
13:00-14:00	Asset Condition Data Collection for Major Asset Types
	What to Collect, With What and How Often
	Presenter: Theuns Henning, Senior Lecturer, Civil and Environmental Engineering, University of Auckland
14:00-15:00	Lifecycle Decision Making & Pavement Prediction Modelling
	Presenter: Theuns Henning, Senior Lecturer, Civil and Environmental Engineering, University of Auckland

15:00-15:15	Tea/Coffee Break
15:15-16:15	Developing a RAM Policy
	Presenter: Ian Greenwood, Chartered Professional Engineer, and a Fellow of Engineers New Zealand
16:15-16:45	Operations, Maintenance, Emergency, and Capital Works
	Presenter: Ian Greenwood, Chartered Professional Engineer, and a Fellow of Engineers New Zealand
16:45-17:00	Wrap-up of Day 3
	 Ayoob Ayoobi, Chief of Capacity Building Division, CAREC Institute
DAY 4 (THURSDA	Y, 1 JUNE 2023)
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#### Registration 08:30-09:00 09:00-11:00 Carbon Emission Modelling, Policies and Integrating Climate Change into RAM Presenter: Ian Greenwood, Chartered Professional Engineer, and a Fellow of Engineers New Zealand Presenter: Theuns Henning, Senior Lecturer, Civil and Environmental Engineering, University of Auckland Presenter: Ayoob Ayoobi, Chief of Capacity Building Division, CAREC Institute 11:00-12:00 Produce Country Specific Improvement Plan Presenter: Ian Greenwood, Chartered Professional Engineer, and a Fellow of Engineers New Zealand Tea/Coffee Break 12:00-12:15 Review of Training / General Q&A 12:15-13:15 13:15-13:30 Final Wrap-up and Workshop Close

Kabir Jurazoda, Director, CAREC Institute

## Site Visit

A site visit was made to the under construction new route in Obigarm District that is funded by the ADB and is part of the Asian Highway Network. It was a most informative session, with an opportunity to observe the design standard of older highways, along with the design of the new route.

The Ministry of Transport is thanked for their arrangement of the site visit, including making key staff available for discussions with the workshop participants. A selection of photos from the site visit is included in the table below.

#### Table 2: Photos from Site Visit.



Existing highway lacking paved shoulders, along with faded line markings and the presence of pedestrians, likely makes for a low safety outcome.

One of many areas of largescale hillside movement. Climate change may be expected to increase extreme weather events, which in turn could result in further movement issues.



Well designed drainage of the subgrade in areas of many natural springs.

One of many areas of large cuttings that will require stabilisation to prevent slips.

Apparently, vegetation would take up to a decade to cover naturally.



Workshop attendees outside the inspected tunnel.

Tunnel lining under construction.

# **Maturity Assessment and Improvement Plan**

The maturity assessment followed the overall RAM process diagram (refer to Figure 5) that is based upon the International Infrastructure Management Manual (IIMM), which has been used as the basis of the training for the past 2-years.

The 2021 RAM Maturity Self-Assessment was provided by the ministry in 2021 and is presented in Figure 6. For Tajikistan, the results indicate that broadly they are at or above the CAREC average in most aspects of RAM, with the overall view being that there is a solid foundation of knowledge and practice upon which further improvements can be built.





Source: International Infrastructure Management Manual.

For each component of RAM, a score was assigned as follows:

- 0 = Aware
- 1 = Basic
- 2 = Proficient
- 3 = Advanced
- 4 = Advanced +

The results of the assessment are shown in Figure 6 below, with the following legend:

- Target (orange line): this has been set at a maturity level of 2 = Proficient.
- CAREC Avg (red line): this is the average result from the submitted self-assessments from the 2020/21 maturity assessments.
- Blue shading: range of CAREC results.
- Tajikistan (purple line).

#### Figure 6: 2021 RAM Maturity Self-Assessment.



From the results of the maturity assessment and discussions within the workshop, an improvement plan was drafted to lift the minimum maturity rating to a level of 2 (proficient).

Table 3: Recommended Improvement Plan.
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RAM Process	Improvement Initiative
Strategic Direction	<ul> <li>Develop a RAM Policy and Strategy, and have these authorized by the Minister of Transport, and the Minister of Finance.</li> <li>The RAM Strategy should clearly articulate the steps of improvement for RAM up till 2030, including the costs associated with implementing the Policy and Strategy.</li> <li>Note that there was a resolution of government in 2021 for the establishment of a RAMS unit that is staffed with a team of 52.</li> </ul>
Levels of Service	<ul> <li>Need to develop and implement Customer Satisfaction surveys.</li> <li>Need to develop a full range of Service Levels and Performance Measures – beyond just road roughness (i.e. travel time reliability, road safety etc).</li> <li>Ensure public reporting against the measures occurs.</li> </ul>
Future Demand	<ul> <li>Develop a national traffic monitoring strategy that includes a combination of permanent and temporary sites, and covers both traffic volumes and vehicle loading data.</li> <li>From the strategy then determine the additional equipment (beyond the current 5 portable radar systems) that is required to meet the needs of the strategy. Likely will need a combination of additional portable counting systems, permanent weigh-in-motion sites, and portable scales.</li> <li>Issue of overloading needs controlling.</li> </ul>
Asset Performance	<ul> <li>Current ADB RAMS project is providing guidance in this space.</li> </ul>

Asset Management Plan	<ul> <li>Prepare an AMP and publish this publicly.</li> </ul>
	• Use the AMP as the primary justification for the overall works
	program, and to keep track of progress against the RAM Policy and
	Strategy.
Decision Making Techniques	Determine how to blend risk based 'climate resilient' type needs into
	the more deterministic capital works program.
Risk and Resilience	Prepare a formal risk assessment methodology and conduct a full
	climate resilient study of the network.
Operational & Maintenance	• Develop a robust estimate of the maintenance costs for the network,
Planning	including a focus on tasks such as crack sealing, shoulder
	maintenance and drainage that will all be critical to providing a climate resilient solution.
	<ul> <li>Review the approach to road maintenance that would make best use of the Road Fund that is being established.</li> </ul>
	<ul> <li>Develop emergency response plans for when unplanned road</li> </ul>
	closures (landslides, accidents or similar) occur.
Capital Planning	<ul> <li>Need to determine the appropriate mix of system (HDM-4 or similar)</li> </ul>
Capital Flamming	and practitioner input to the development of the annual works
	program.
	<ul> <li>Initially this could be the use of HDM-4 at a strategic level to</li> </ul>
	determine the appropriate quantum and mix of work into each of the
	4 Provinces (or 58 Districts), then the practitioners determine the
	location of those works.
	<ul> <li>Develop a rolling 5-year works program for all resurfacing and</li> </ul>
	rehabilitation/reconstruction works.
Asset Financial Planning &	Complete an asset valuation in 2025.
Valuation	• Ensure HDM-4 or similar is in place to guide the optimal expenditure
	of the Road Fund.
Portfolio AMPs	<ul> <li>Complete as necessary for critical infrastructure items – major</li> </ul>
	tunnels, bridges etc.
People	• Establish linkages between MTC and the university sector to both
	address issues of concern, and to build future capacity in the RAM
	space.
Data	• Establish Long Term Pavement Performance (LTPP) sites, ideally with
	other CAREC countries using a common evaluation format and open
Systems and Tools	
Processes	Business map all current RAM processes.
Outsourcing	Formalize links with tertiary sector to help study (post-graduate
	research) topics of interest to MTC.
Improvement Planning	Adopt an improvement plan with timelines and fund it, and report on
	overall progress within the AMP.
Processes Outsourcing	<ul> <li>Formalize links with tertiary sector to help study (post-graduate research) topics of interest to MTC.</li> <li>Adopt an improvement plan with timelines and fund it, and report</li> </ul>

# Feedback from participants

At the end of the workshop, participants were provided with a feedback form. Responses were received from 15 participants.

The overall results are very positive, with the suggestions of areas for future workshops worth noting.





Written feedback was also provided by a number of participants. These comments are grouped below through representative statements, into ways to make the current training program better, and what additional training areas the participants would like to see offered.

Ways to improve the current training:

- Widen the range of participants.
- On the next workshops would like to see more young engineers and students from the Technical University as participants.
- In future workshops would like to see more practical sessions.

Future training areas:

- Include Safeguards and environment protection, natural disasters management.
- Is it possible to conduct presentations on tunnels and bridges in future.
- Study tours to other countries where RAM is well advanced.

- Would like to have more practical woks on HDM-4.
- More on plantings along the roads for slope protection.
- Would be good to conduct "training works program" for RAM and also on the subject of classification, construction and maintenance of roads assets.
- Include RAM into the technical university courses.