Workshop Report

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

Georgia

October 2022

Disclaimer

This report is the outcome of the CAREC Institute's in country RAM training and maturity assessment for Georgia that took place in September 2022. It is drafted by Dr. Ian Greenwood, CAREC Institute Infrastructure Consultant, it is edited by Eisa Khan Ayoob Ayoobi, the CAREC Institute Chief of Capacity Building Division.

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Acknowledgements

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Overall, this project would have not been possible without the support of Dr. Iskandar Abdullaev, CAREC Institute Deputy Director Two, Dr. Lyaziza Sabyrova, Director, Regional Cooperation and Operations Coordination Division (CWRC), ADB, Mr. Saad Paracha, Head, CAREC Unit, ADB, Ms. Honey Guerzon, Associate Knowledge Management Officer, CWRC, ADB.

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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
NDC	Nationally Determined Contributions
O&M	Operation and Maintenance
PMS	Pavement Management System
RAM	Road Asset Management
RAMIS	Road Asset Management Information System
RAMS	Road Asset Management System
SDG	Sustainable Development Goals

Executive Summary

In September 2022, a four-day workshop was held in Georgia (Tbilisi) 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 20 participants representing various ministries and state departments involved in the management of the national road network of Georgia.

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 around 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 73% of participants rating it Excellent and 27% rating it Good.

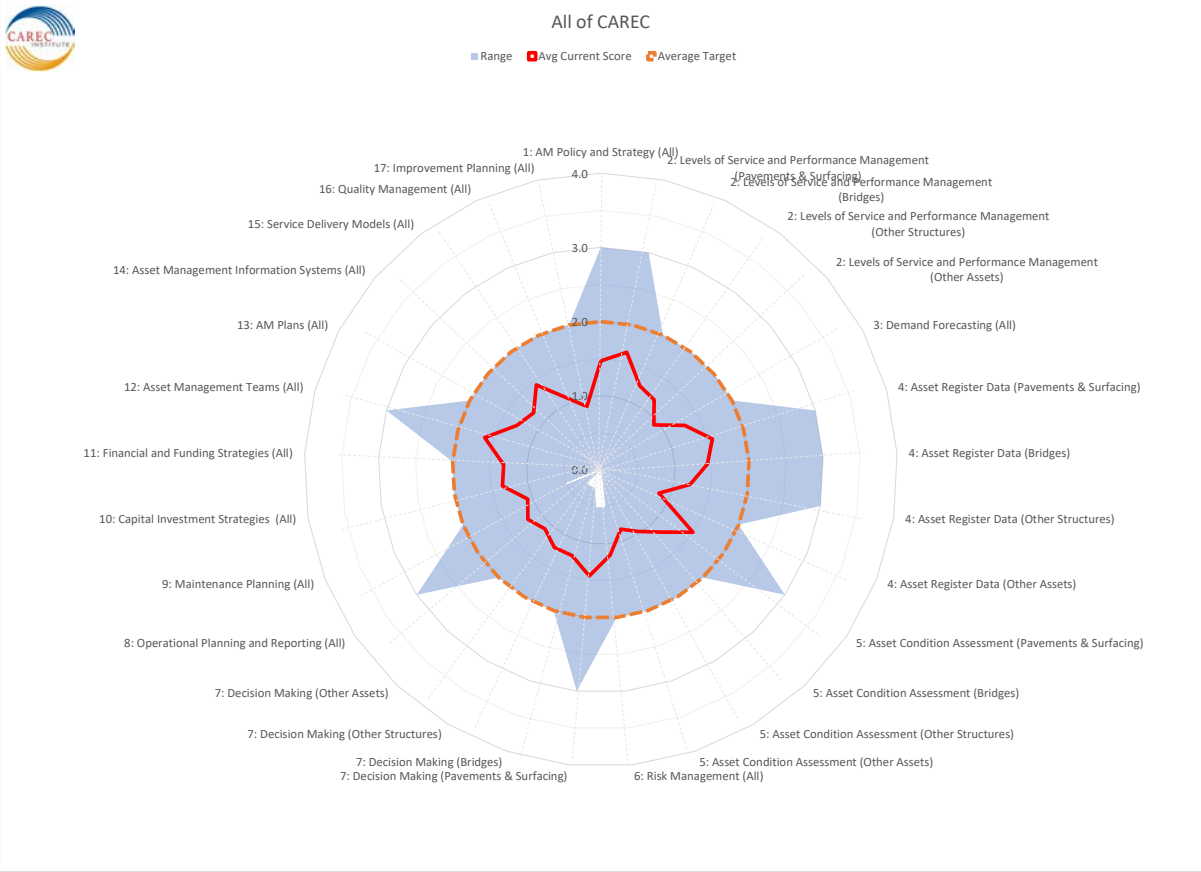
Introduction

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.



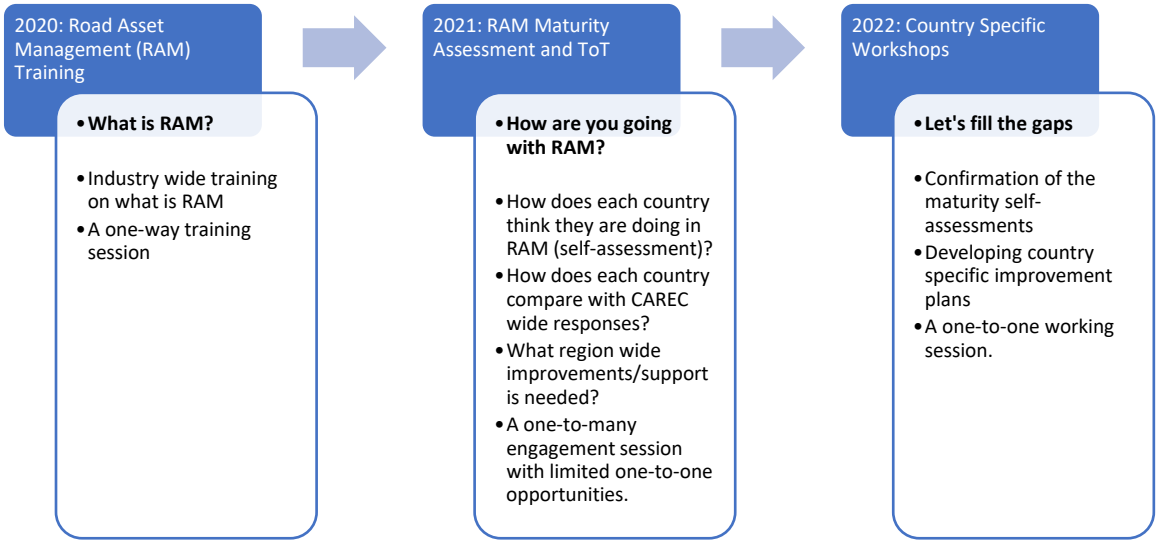
Source: CAREC Region Road Asset Management, Maturity Assessment, Final Report. CAREC Institute, 2021.

This 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 focussed

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

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.

Figure 2: Stages of Road Asset Management Capacity Building Activities.



Two countries have been included in the first round of Country Specific Workshops – Azerbaijan and Georgia – with each subject to a standalone report.

The core objectives of the workshops were:

i. to carry out 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 counter measures as well as to produce country specific improvement plan in GHGs reduction;
iii. to enhance member countries capabilities (bridging capacity gaps among member countries on RAM) for enhanced cooperation among experts and 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 member countries for effective and sustainable regional development under the ADB CAREC Program.

The workshops are expected to achieve these outcomes:

i. 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 counter measures as well as country specific improvement plan in GHGs reduction are introduced;
iii. enhance member countries capabilities for capacity gaps among member countries on RAM are bridged and cooperation among experts and policymakers and influencers are promoted; and
iv. knowledge and best practices sharing among member countries for collective sustainable regional development under the ADB CAREC Program is further enhanced.

Presenters & Facilitators

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

- Dr Iskandar Abdullaev, Opening address and Keynote Presentation
- Dr Ayoob Ayoobi, Overview of training, Facilitation and Daily Summary

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:

- Ms Dildar Zakir, CAREC Institute
- Mr Gary Huang, CAREC Institute
- Mr Zviad Archuadze, National consultant

Participants

There were 20 participants registered for the workshop, along with a number of special guests as per the table below.

Table 1: List of Workshop Participants.

List of Participants
1. Mr. Giorgi Benduqidze, Planning and Operation Division - Senior Specialist of the First Category, Division of Development of Infrastructure and Development of Associates Relations, Roads Department of Georgia
2. Mr. Giorgi Taktakishvili, Person Employed under a Contract, Roads Department of Georgia, Ministry of Regional Development and Infrastructure
3. Mr. Davit Pashalishvili, Head of Road Traffic Regulation Unit in RD, Infrastructure Development and Development Partners Relation Division, Roads Department of Georgia
4. Mr. Kakha Iankoshvili, First Category Senior Specialist of Technical Permits Unit, Design Division, Roads Department of Georgia
5. Ms. Maia Gvaramia, Planning and Operation Division - Senior Specialist of the Second Category, Division of Development of Infrastructure and Development of Associates Relations, Roads Department of Georgia
6. Ms. Mariam Gigineishvili, Senior Specialist - Division of Financial Management and Analysis of International Financial Institutions Funded Projects, Financial Management Office, Roads Department of Georgia
7. Mr. Niko Balakhashvili, Second Category Senior Specialist of Road Safety Division, Roads Department of Georgia, Ministry of Regional Development and Infrastructure of Georgia
8. Mr. Otari Shoshiashvili, Head of Planning and Operation Division, Division of Development of Infrastructure and Development of Associates Relations, Roads Department of Georgia
9. Ms. Zhuzhuna Melkadze, Senior Specialist of Reporting Unit of International Procurement Division, International Procurement, Roads Department of Georgia
10. Ms. Tsiala Kochkiani, Senior Specialist - Division of Financial Management and Analysis of International Financial Institutions Funded Projects, Financial Management Office, Roads Department of Georgia

11. Mr. Zura Lortkipanidze, First Category Senior Specialist, Division of Infrastructure Development and Relations with Development Partners, Roads Department of Georgia
12. Mr. Akaki Devdariani, First Category Senior Specialist, Division of Infrastructure Development and Relations with Development Partners, Roads Department of Georgia
13. Mr. Giorgi Japaridze, RAMS Consultant, International Procurement Division, Roads Department of Georgia
14. Ms. Ana Salukvadze, Financial Analyst, Administration Service, Transport and Urban Development Agency
15. Mr. Giorgi Katsadze, Senior Specialist, Traffic Control Services, Transport and Urban Development Agency
16. Mr. Goga Giorgashvili, Logistic and Assets Management Specialist, Administration Service, Transport and Urban Development Agency
17. Mr. Tornike Kvirikashvili, Senior Specialist, Road infrastructure, Transport and Urban Development Agency
18. Ms. Mari Zarnadze, Financial Analyst, Administration Service, Transport and Urban Development Agency
19. Ms. Mariami Gogiashvili, Traffic Modeler, Traffic Control Department, Transport and Urban Development Agency
20. Mr. Vasil Mamasakhlisi, Head of Road Infrastructure Department, Road Infrastructure, Transport and Urban Development Agency

Special Guests

21. Mr. Zaigham Naqvi, Senior Transport Specialist, Asian Development Bank
22. Mr. Davit Getsadze, Deputy Chairman, Roads Department of Georgia
23. Ms. Ana Chichinadze, Communication Focal, Georgia Resident Mission, ADB

Figure 3: Workshop Group Photograph.

Agenda

The workshop agenda was as follows. All training materials were provided in both English and the Georgia languages, with electronic copies made available via the CAREC Institute e-learning platform.

Day 1 (MONDAY, 12 September 2022)

08:30-09:00	**Registration**
09:00-09:30	**Welcome and Opening Remarks** • Iskandar Abdullaev, Deputy Director II, CAREC Institute • Zaigham Naqvi, Senior Transport Specialist, Asian Development Bank • Davit Getsadze, Deputy Chairman, Roads Department of Georgia
09:30-10:00	**Keynote Presentation: Performance of CAREC Corridors** Presenter: Iskandar Abdullaev, Deputy Director II, CAREC Institute
10:00-10:10	**Overview of the Training** Presenter: Ayoob Ayoobi, Chief of Capacity Building Division, CAREC Institute
10:10-10:30	**Tea/Coffee Break – Photo Session**
10:30-11:10	**Refresh on RAM** Presenter: Ian Greenwood, Greenwood Associates Infrastructure Consultants, New Zealand
11:10-12:00	**The Prior RAM Maturity Assessment and Improvement Plan** Presenter: Ian Greenwood, Greenwood Associates Infrastructure Consultants, New Zealand
12:00-13:00	**Lunch:** The Study, Stamba Hotel Tbilisi
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, New Zealand
15:15-16:15	**The AM Team – including potential to outsource** Presenter: Ian Greenwood, Greenwood Associates Infrastructure Consultants, New Zealand
16:15-16:30	**Wrap-up of Day 1** • Ayoob Ayoobi, Chief of Capacity Building Division, CAREC Institute

Day 2 (Tuesday, 13 September 2022)

08:30-09:00	**Registration**

09:00-09:45	**Asset Register – Developing and Maintaining** *Develop Guidance on Minimum Data to be Collected for Major Asset Types* Presenter: Ian Greenwood, Greenwood Associates Infrastructure Consultants, New Zealand
09:45-10:30	**Asset Condition Data Collection for Major Asset Types** *What to Collect, With What and How Often* Presenter: Theuns Henning, New Zealand
10:30-10:45	**Tea/Coffee Break**
10:45-11:30	**Lifecycle Decision Making & Pavement Prediction Modelling** Presenter: Theuns Henning, New Zealand
11:30-12:00	**Operations, Maintenance, Emergency, and Capital Works** Presenter: Ian Greenwood, Greenwood Associates Infrastructure Consultants, New Zealand
12:00-13:00	**Lunch:** The Study, Stamba Hotel Tbilisi
13:00-18:00	**Site Visit**

Day 3 (wednesday, 14 September 2022)

08:30-09:00	**Registration**
09:00-09:45	**Asset Management Plans** Presenter: Ian Greenwood, Greenwood Associates Infrastructure Consultants, New Zealand
09:45-10:30	**Asset Management Information Systems, and Decision Support Tools** Presenter: Theuns Henning, New Zealand
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, Greenwood Associates Infrastructure Consultants, New Zealand
12:00-13:00	**Lunch:** The Study, Stamba Hotel Tbilisi
13:00-15:00	**Carbon Emission Modelling, Policies and Integrating Climate Change into RAM** Presenters: Ian Greenwood, Greenwood Associates Infrastructure Consultants, New Zealand Theuns Henning, New Zealand Ayoob Ayoobi, Chief of Capacity Building Division, CAREC Institute

15:00-15:15	**Tea/Coffee Break**
15:15-16:15	**Developing a RAM Policy** Presenter: Ian Greenwood, Greenwood Associates Infrastructure Consultants, New Zealand
16:15-16:30	**Wrap-up of Day 3** • Ayoob Ayoobi, Chief of Capacity Building Division, CAREC Institute

Day 4 (Thursday, 15 September 2022)

08:30-09:00	**Registration**
09:00-10:30	**Produce Country Specific Improvement Plan** Presenter: Ian Greenwood, Greenwood Associates Infrastructure Consultants, New Zealand
10:30-10:45	**Tea/Coffee Break**
10:45-12:00	**Review of Training / General Q&A**
12:00-13:00	**Lunch:** The Study, Stamba Hotel Tbilisi
13:00-14:30	**Feedback, Networking and Workshop Evaluation** by having Tea/Coffee
14:30-15:00	**Final Wrap-up and Workshop Close** • Ayoob Ayoobi, Chief of Capacity Building Division, CAREC Institute

Site Visit

A site visit was made to an under-construction road forming part of the E60 Tbilisi-Senaki-Leselidze Highway (the East-West Highway) in the vicinity of Khunevi. The site visit provided an opportunity to see how RAM practices are implemented – including discussions around life-cycle cost decisions on pavement designs; maintenance practices of tunnels and bridges; slope stability and the like.

The Roads Department of the Ministry of Regional Development and Infrastructure is thanked for their arrangement of the site visit, including making key staff involved with the delivery of the works 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.

	Variable speed limit signs on highway near Tbilisi
	Existing concrete road pavement on route to site visit. Concrete has been selected for the under construction sections of road on the basis of there being no oil sources in Georgia and the much lower maintenance costs when compared to asphalt options.

Site visit with refurbished tunnel behind the team, and new (and in use) tunnel to the right of photo.

Extensive cut, fill, bridge and tunnel operations in place.

Wire mesh screen attached to cut face to stop small rocks from causing danger to people and machinery.

Existing road passing under the new bridges.

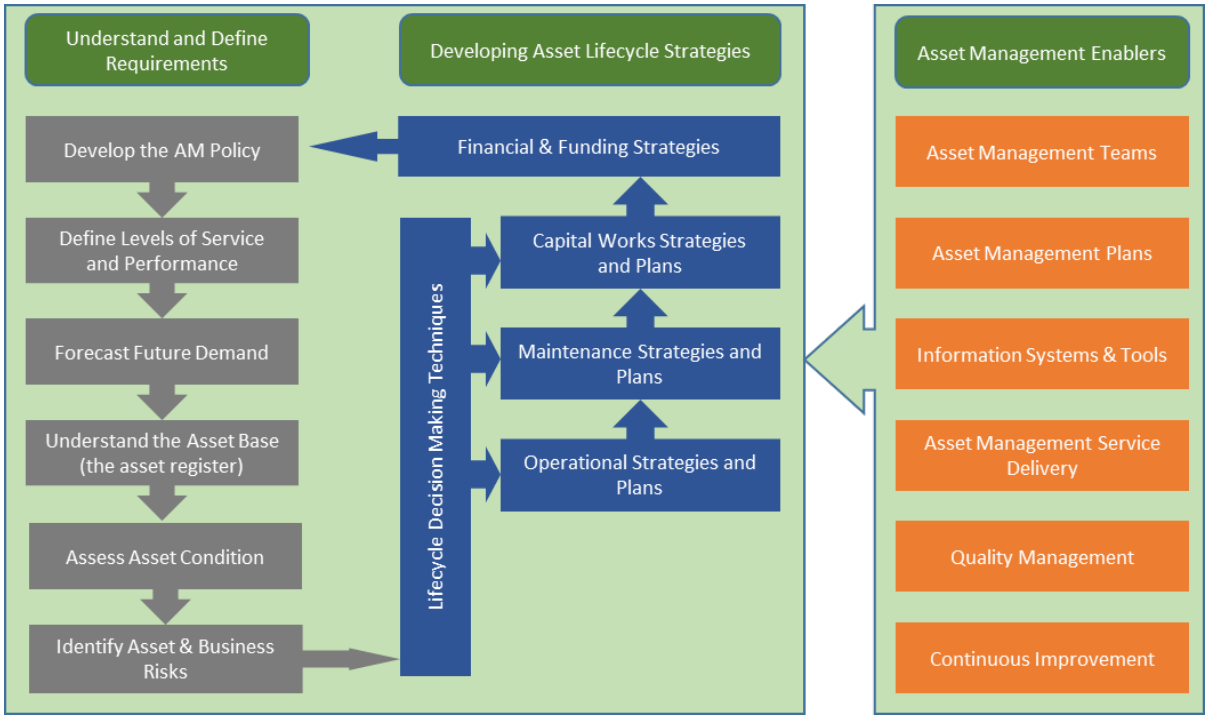
Looking into one of the new tunnels still under construction.

Team posing on site visit.

Maturity Assessment & Improvement Plan

During the course of the workshop, a draft RAM Maturity Assessment was completed by Ian Greenwood based on discussions and observations made throughout the 4-days. This was then presented and debated with the workshop participants on the final day with the resultant assessment presented below. The maturity assessment followed the overall RAM process diagram (refer to **Figure *4***) 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.

Figure 4: Asset Management Process.



Source: International Infrastructure Management Manual.

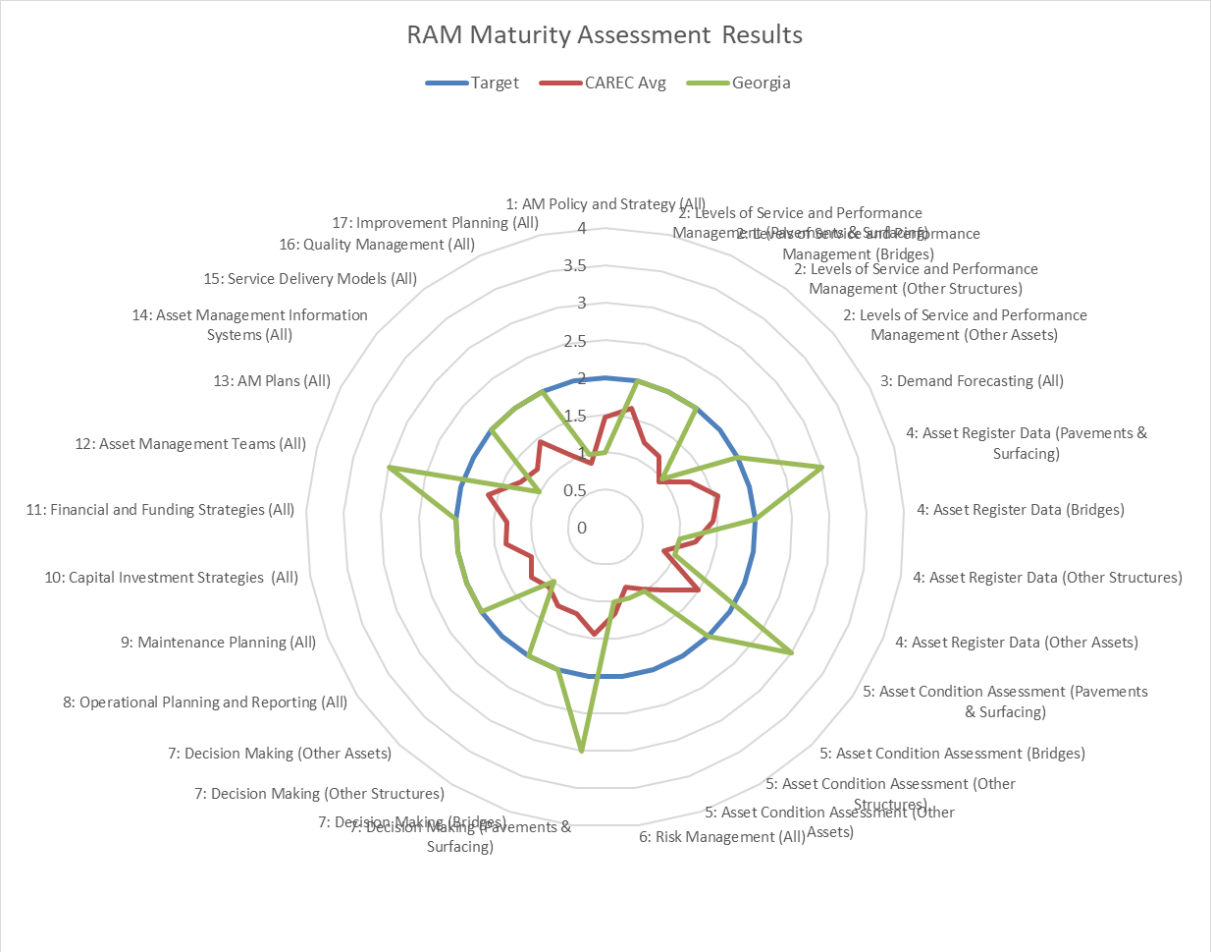
For each component of RAM, a score was assigned as follows:

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

The results of the assessment are shown in **Figure *5*** below, with the following legend:

- Target (blue 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
- Georgia (green line).

Figure 5: RAM Maturity Assessment.



As is common, Georgia ranges from very good practice in some components of RAM to only just commencing in others. Like many road authorities, the results show strength around the management of the pavement and (to a lesser extent) bridges, with relative weakness around aspects such as the implementation of a formal RAM policy, having customer focussed service levels, and ensuring an Asset Management Plan is produced.

From the results of the maturity assessment, an improvement plan was drafted to lift the minimum maturity rating to a level of 2 (proficient). For each improvement action (one action per component of the RAM Process), a priority has been set based on the following timeline:

- High = completion within the next 1-2 years
- Medium = completion within the next 3-5 years
- Low = completion within the next 6-10 years

Table 3: RAM Maturity Assessment and Improvement Plan.

Question	Section	Asset Class	Questions	Georgia	CAREC Average	Improvement Action	Priority
1	**AM Policy and Strategy**	**All**	Does your organization have a clearly articulated and widely understood commitment to AM that forms its AM Policy and Strategy?	1	1.5	Prepare an AM Policy and have it approved by the relevant Minister. Include commitment to ISO55000 by 2030.	H
2	**Levels of Service and Performance Management**	**Pavements & Surfacing**	What type of service levels are in place, and how are targets set and achievements reported?	2	1.6	Introduce customer based service levels and ensure public reporting is in place.	H
		Bridges	What type of service levels are in place, and how are targets set and achievements reported?	2	1.3	Introduce customer based service levels and ensure public reporting is in place.	H
		Other Structures	What type of service levels are in place, and how are targets set and achievements reported?	2	1.2	Introduce technical measures for critical assets.	M
		Other Assets	What type of service levels are in place, and how are targets set and achievements reported?	1	0.9	Introduce technical measures for critical assets.	L
3	**Demand Forecasting**	**All**	How do you go about predicting the future demand on the assets?	2	1.3	Continue with current practices, review and update as needed over time.	L
4	**Asset Register Data**	**Pavements & Surfacing**	What asset data (inventory, construction dates etc) do you hold and how is it updated and linked with financial data/	3	1.6	Continue with current practices, review and update as needed over time.	L
		Bridges	What asset data (inventory, construction dates etc) do you hold and how is it updated and linked with financial data/	2	1.4	Ensure data is readily available to all who need it across the authority.	H
		Other Structures	What asset data (inventory, construction dates etc) do you hold and how is it updated and linked with financial data/	1	1.2	Ensure data is readily available to all who need it across the authority – focus on critical assets initially.	M

Question	Section	Asset Class	Questions	Georgia	CAREC Average	Improvement Action	Priority
		Other Assets	What asset data (inventory, construction dates etc) do you hold and how is it updated and linked with financial data/	1	0.8	Ensure data is readily available to all who need it across the authority – focus on critical assets initially.	M
5	**Asset Condition Assessment**	**Pavements & Surfacing**	How do you measure the condition of the assets?	3	1.5	Continue with current practices, review and update as needed over time.	L
		Bridges	How do you measure the condition of the assets?	2	1.2	Continue with current practices, review and update as needed over time. Ensure data moves into a central AMIS.	M
		Other Structures	How do you measure the condition of the assets?	1	1.0	Ensure data is readily available to all who need it across the authority – focus on critical assets initially.	M
		Other Assets	How do you measure the condition of the assets?	1	0.8	Ensure data is readily available to all who need it across the authority – focus on critical assets initially.	L
6	**Risk Management**	**All**	What processes do you have to identify and manage risks to the network?	1	1.2	Establish a risk assessment guideline and undertake a network level assessment to identify critical routes; high risk locations; and associated mitigation measures	M
Lifecycle Decision Making							
7	**Decision Making**	**Pavements & Surfacing**	How do you make decisions on the renewal or rehabilitation of the assets?	3	1.4	Continue with current practices, review and update as needed over time.	L
		Bridges	How do you make decisions on the renewal or rehabilitation of the assets?	2	1.2	With transition of data to a centralised AMIS, proceed to implement more advanced decision making tools for bridges.	M
		Other Structures	How do you make decisions on the renewal or rehabilitation of the assets?	2	1.2	Include for critical assets only.	M

Question	Section	Asset Class	Questions	Georgia	CAREC Average	Improvement Action	Priority
		Other Assets	How do you make decisions on the renewal or rehabilitation of the assets?	1	1.1	Include for critical assets only.	M
8	**Operational Planning and Reporting**	**All**	What activities are undertaken to ensure the optimal use of the assets occurs?	2	1.2	Continue with current practices and review as necessary	M
9	**Maintenance Planning**	**All**	How does the organisation deliver maintenance activities?	2	1.1	Continue with current practices and review as necessary.	M
10	**Capital Investment Strategies**	**All**	How does the organization prepare its renewal and capital expansion projects?	2	1.3	Continue with current practices and review as necessary.	M
11	**Financial and Funding Strategies**	**All**	How does the organization plan to fund all of its needs?	2	1.3	Ensure a long term (10yr) plan is in place for the maintenance, renewal and capital expansion of the network. Undertake an asset valuation.	M
Asset Management Enablers							
12	**Asset Management Teams**	**All**	What is the level of organisational commitment to RAM? Is RAM seen as a organizational wide responsibility? Is RAM a viable career path?	3	1.6	Review the capability and capacity of those leading RAM and expand as need be. Ensure that RAM is part of senior management reporting.	H
13	**AM Plans**	**All**	Is an asset management plan prepared and made available?	1	1.3	Prepare a full AMP, and use this to identify the gaps in knowledge and processes. Also include the improvement plan in the AMP.	H

Question	Section	Asset Class	Questions	Georgia	CAREC Average	Improvement Action	Priority
14	**Asset Management Information Systems**	**All**	What AMIS is in use to manage the AM data sets and how does this link to the financial management systems?	2	1.2	Implement a full AMIS that covers all asset types. To be web based, GIS linked etc. Initially bring in the pavements and bridges, then expand to other asset types.	H
15	**Service Delivery Models**	**All**	How do you procure and deliver works? Are alternative ways of using in-house and external suppliers considered?	2	1.4	Continue to trial different contract models (a pilot PBC was completed), and in doing so work to build the capacity of the private sector (including contract supervision).	M
16	**Quality Management**	**All**	Is there a QA process around the RAM activities?	2	1.1	Document all RAM processes and undertake a sample of audits to check for compliance with the documented processes.	M
17	**Improvement Planning**	**All**	Is there a RAM improvement plan? Is it funded and managed like a formal project? Is it delivering improvements to RAM processes?	1	0.9	Formalise/adopt this improvement plan and manage the actions accordingly. Include reporting on it within the AMP.	H

Feedback from participants

At the end of the workshop, participants were provided with a feedback form. The results of this are presented in the figures below and the written comments that follow the figures. The overall results are very positive, with the suggestions of areas for future workshops worth noting.

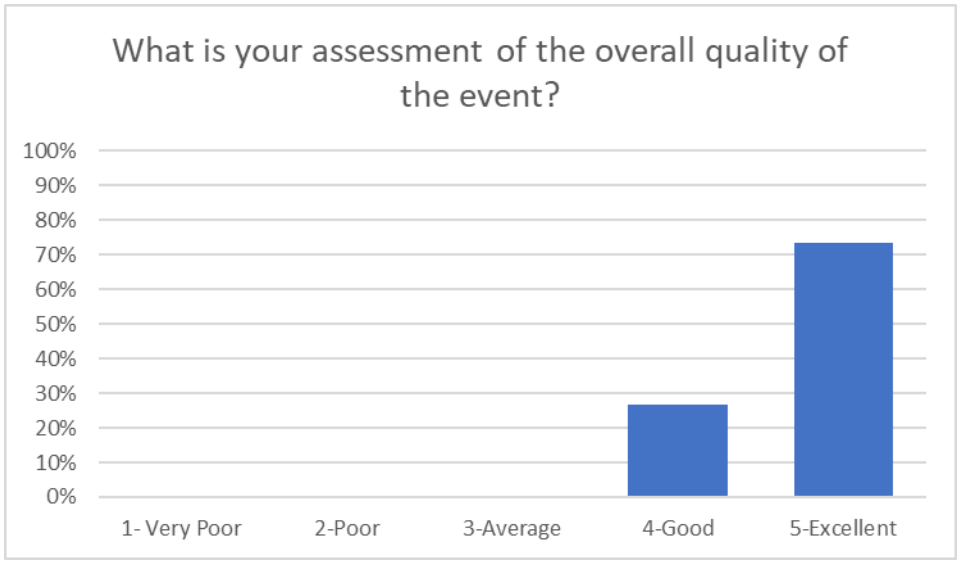
Comments that were received during the feedback process and for which refinement to the agenda going forward should strongly consider are represented by the following statements:

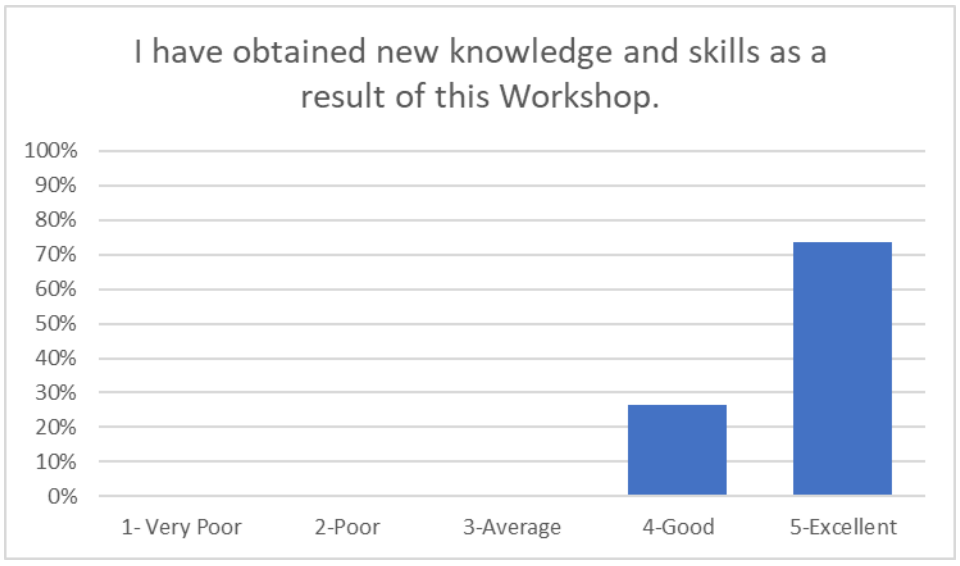
i. Too many presentations during one day. It is difficult to understand everything on the same level and would be better to have more days;
ii. More detailed information and cases from various countries would be preferable;
iii. Better have some physical activities to for better involvement of participants;
iv. More practical work examples and case studies.

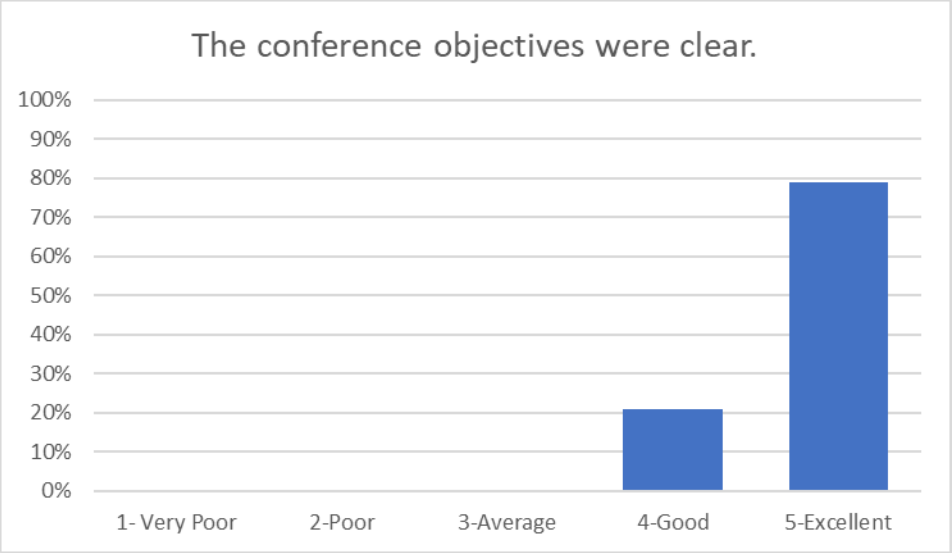
Other areas of training requested include:

i. Financial, contracting, and similar training would also be beneficial;
ii. Management of roads in the area of moving rocks (geohazards) will be useful;
iii. Urban development issues, traffic congestion, CO2;
iv. More topics about cities/urban challenges;
v. How to reduce the environmental impact of transport (Paris Agreement).

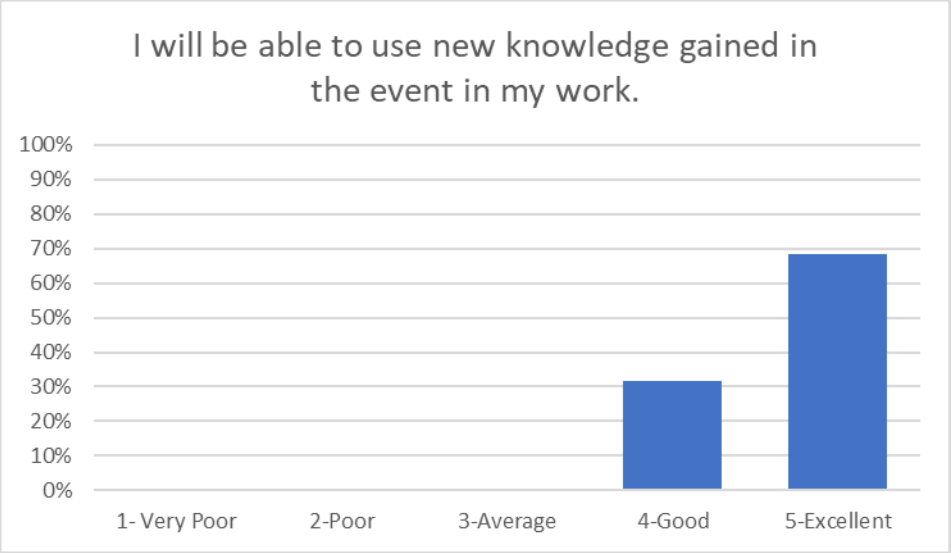
Figure 6: Workshop Evaluation by Participants.

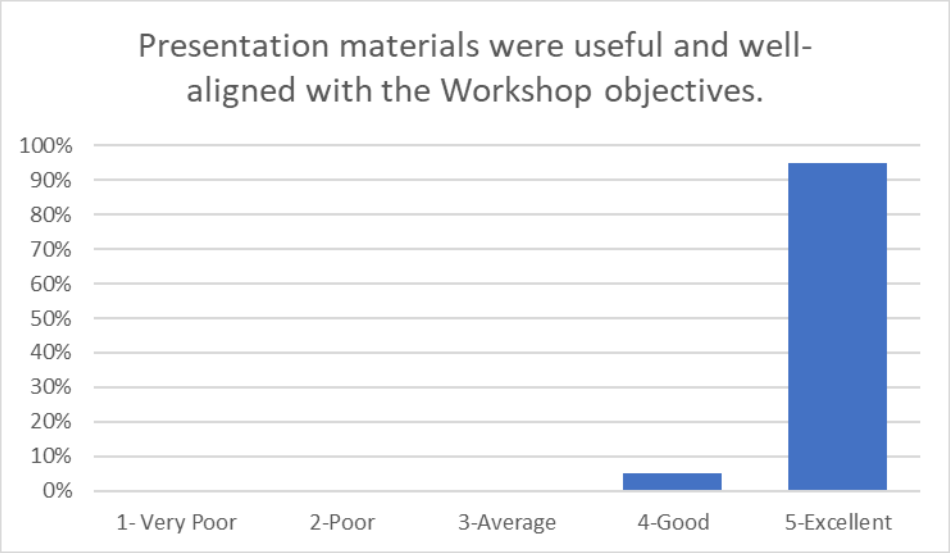


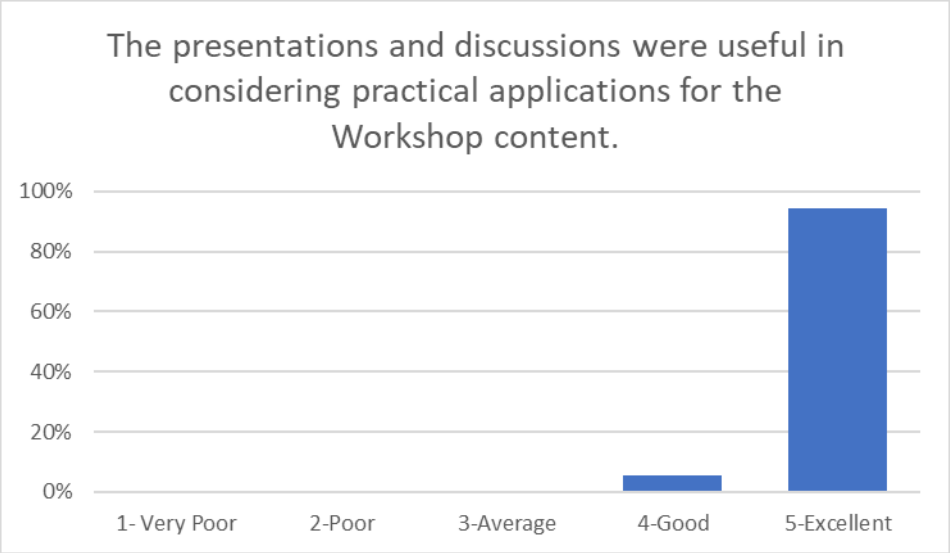



The conference objectives were clear.
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1- Very Poor
2-Poor
3-Average
4-Good
5-Excellent

The topics discussed are relevant to my current position and my organization.
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1- Very Poor
2-Poor
3-Average
4-Good
5-Excellent


I will be able to use new knowledge gained in the event in my work.
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1- Very Poor
2-Poor
3-Average
4-Good
5-Excellent


Presentation materials were useful and well-aligned with the Workshop objectives.
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1- Very Poor
2-Poor
3-Average
4-Good
5-Excellent


The presentations and discussions were useful in considering practical applications for the Workshop content.
100%
80%
60%
40%
20%
0%
1- Very Poor
2-Poor
3-Average
4-Good
5-Excellent