

POTENTIAL APPLICATION AND BENEFITS OF RAMS

Michael Anyala Senior Road Asset Management Specialist Asian Development Bank

Contents

- 1. Potential applications and benefits of RAMS
- 2. Case Study Impact of Budget Allocations for Mongolia National and State Roads
- 3. Expected outputs from Workshop

Workshop Objectives

- 1. Prepare Road Asset Management System Action Plan
- Design asset management components for Regional Road Development and Maintenance Project – Phase 3
- 3. Share best practices in Road Asset Management

Roads Require a Balance of Maintenance and Development

 In many emerging economies, actual expenditure on road Cost of rehab is \$1 here V. Good preservation and maintenance is between 25 ~ 40% drop in quality Good 60% of need Fair (Source: World Bank) 70% of life Cost of rehab is Countries with lower income 40% drop in quality Poor \$4 to \$5 here economies typically spend 50% more on the network, V. Poor per km than higher income 12% of Nife economies Failed

(Source: PIARC)

ITERNAL. This information is accessible to ADB Management and staff. It may be shared outside ADB with appropriate permission.

Components of Road Asset Management System Decision Database / Inputs Outputs GIS Support Maintenance System Management Management Network Referencing Reports Inventory Performance Condition Reporting Defects Work Orders Customer Information Scheme Budget & Costs Prioritisation Performance Measures & Targets Works

ADB

INTERNAL, This information is accessible to ADB Management and staff. It may be shared outside ADB with appropriate permission.

RAMS Supports Planning and Programming

Feedback loop to monitor performance, and provide alignment and consistency between the management functions



Information flow from network analysis to detailed scheme analysis and delivery

KNER HALs This information is accessible to ADB ADB Management and staffs to they be shared outside ADB with appropriate permission.

Potential Benefits of RAMS

- 1. Providing a single source of road asset data, reducing the risk of multiple databases with similar but inconsistent data;
- 2. Aiding visual representation of the network, enabling senior decision makers to better understand the performance of the network and the consequence of investment decisions;
- 3. Estimating budgets for development and maintenance of road networks;
- 4. Providing evidence to justify service outcomes or maintenance budgets;
- 5. Reporting against performance targets developed as part of the asset management planning process using visual displays such as dashboards;
- 6. Reporting and presenting long-term prioritised works programmes in a way that can be communicated effectively to stakeholders, including the public, staff, and service providers;



Case Study: Impact Budget Allocation on State and International Roads using HDM-4



ITE KNAL. This information is accessible to ADB Management and staff. It may be shared outside ADB with appropriate permission.

Paved Road Network

Source: MRTD

6,608 kilometers of Paved International and State Roads

Paved Road Condition Traffic Volume on International and State Roads 7% 13% <500 AADT 36% **501 - 1000 AADT** 21% ■ 1000 -1500 AADT 63% 57% >1500 AADT Good (<4IRI) Fair (4 - 6 IRI) Poor (>6 IRI)

INTERNAL This information is accessible to ADB Management and staff. It may be shared outside ADB with appropriate permission.

Budget Scenarios

Budget Scenario	Description	Annual Budget (Mio USD)
Scenario A: Unconstrained	What is the budget needed to eliminate maintenance backlog and keep roads in very good condition assuming no budget constraints?	55
Scenario B: 20% Budget Cut	What is the impact on road condition and transport costs of reducing unconstrained budget by 20%?	44
Scenario C: 40% Budget Cut	What is the impact on road condition and transport costs of reducing unconstrained budget by 40%?	34
Scenario D: 60% Budget Cut	What is the impact on road condition and transport costs of reducing unconstrained budget by 60%?	23
Current Allocation	What is the impact of continuing current level of budget allocations	18

INTERNAL This information is accessible to ADB Management and staffs it thay be shared outside ADB with appropriate permission.



2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042

Impact of Budgets on Transport Costs over 20 Years

Scenario	Ave. IRI	Road Agency Costs (RAC)		Road User Costs (RUC)				Total		Increme
		Capital Costs	Recurrent Costs	VOC	ттс	Accide nt Costs	CO2e Costs	Transp. Costs	NPV	ntal BCR
Current Allocation	4.7	164.2	115.4	7,181.7	1,069.7	0.0	305.1	8,836.0	-	1
Scenario D: 60% Budget cut	4.5	212.5	113.6	7,161.8	1,064.9	0.0	305.8	8,858.6	-22.562	0.919
Scenario C: 40% Budget cut	3.9	319.4	113.3	7,056.4	1,041.3	0.0	309.3	8,839.6	-3.543	0.989
Scenario B: 20% Budget Cut	3.5	419.5	112.8	6,956.7	1,018.8	0.0	312.5	8,820.4	15.669	1.036
Scenario A: Unconstrained	3.2	523.7	113.3	6,901.5	1,008.5	0.0	314.2	8,861.3	-25.263	0.953

TERNAL. This information is accessible to ADB Management and staffs it may be shared outside ADB with appropriate permission.

Economic Consideration



ADF

NTERNAL. This information is accessible to ADB Management and staff. It may be shared outside ADB with appropriate permission.

Expected Outputs

- 1. Draft RAMS Action Plan on completion of the Workshop
- Recommendations for Regional Road Development and Maintenance Project – Phase 3
- 3. Workshop Report on completion of the workshop
- 4. Final RAMS Action Plan Q1 2023
- 5. Investment Needs Analysis for National and State Roads Q1 2023