



# Economic Growth through Effective Road Asset Management (GEM)

8<sup>th</sup> May 2017



# Purpose and Objectives of the Project

## Purpose

To achieve economic and social benefits for local communities as a result of improved performance in rural road asset management.

## Time Frame

27 months  
(to end 2018)



# Approach

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- Encourage greater accountability of road agencies to road users and other stakeholders.
- Focus more on improved performance in road asset management than on any specific road asset management system.
- Provide opportunities for the road agencies and their stakeholders to improve their own performance.

## Project Areas

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- Four agencies participating in three countries:
  - Tonkolili District of Sierra Leone
  - Chongwe District Zambia
  - Uganda National Roads Authority (UNRA)
  - Kamuli District in Uganda
- Western Cape identified as adopting best practice.



# Measuring Road Agency Performance

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- ✓ Self Assessment Questionnaire
- ✓ Road condition monitoring
- ✓ Social and economic indicators

# Self Assessment Questionnaire



ROAD PRESERVATION PYRAMID



# Self Assessment Questionnaire (3)

## Building Block 3: Financial

**Key objective:** The achieve stable, adequate and sustainable funding for maintenance.

QUESTION	YES/NO	JUSTIFICATION/COMMENT
3.6 (a) Does the district operate an accounting system?		
3.6 (b) Are the accounts audited annually?		
3.6 (c) Are the accounts published annually?		



# Road Inventory and Condition



Data Item	Units	Reporting Interval
<b>Location Referencing</b>		
• Location referencing (points)		as they occur
• Location referencing (linear)	km + m	
• GPS Centreline coordinates		max 10m
<b>Road Inventory</b>		
<b>Road - General</b>		
• Road Type		when change occurs
• Road Servitude Width	m	
• Cross-Section Width	m	when change occurs
• Pavement Surface Type		when change occurs
• Material Quality		when change occurs
• Pavement Width	m	when change occurs
• Shoulder Type		when change occurs
• Shoulder Width	m	when change occurs
• Side Ditch Type		when change occurs
• Side Ditch Width	m	when change occurs
• Side Ditch Depth	m	when change occurs
<b>Road Furniture</b>		
• Barriers		location
• Signs		location
• Road Markings		location
<b>Cross Drainage Structures</b>		
• Location	Km+m	each
<b>Land Use Type</b>		
		when change occurs
<b>Roadside Features</b>		
		location
• Markets		each
• Clinics		each
• Schools, etc		each
<b>Road Geometry</b>		
• Horizontal Alignment	sharp, L or R	when change occurs
• Vertical Alignment	steep, rolling, flat	when change occurs
<b>Vegetation Type</b>		
		when change occurs
<b>Condition</b>		
<b>Carriageway &amp; Drainage</b>		
• Pavement Roughness	IRI	
• Gravel Loss	degree & extent	5km
• Corrugations	degree & extent	5km
• Potholing	degree & extent	5 km
• Rutting	degree & extent	5 km
• Erosion - Carriageway	degree & extent	5 km
• Erosion - Side Ditches	degree & extent	5 km
<b>Pavement Structure</b>		
• Gravel Loss	degree & extent	
<b>Culverts and Bridges</b>		
• Overall Condition	CI	each
<b>Multi Media</b>		
• ROW Video Logging		
• Digital Images of LRPs		each
• Digital Images of Bridges & Major Structures		each

# Social and Economic Data

- 10 trading centres / villages selected on the road network managed by each road agencies
- Collect social and economic data related to road access and transport.



# Social and Economic Data

Name of trading centre/village

Population

Distance from nearest paved road

Distance from district centre.

No. of available trips to district centre per day (on a market day)

Light vehicle

bus/combi

Freight transport /trucks

Fares on public transport to the district centre (passenger-km)

Light vehicle

Bus/combi

Motorcycle (boda-boda)



# Implementation Phase

## STAGE 1

- Identify target road networks
- Conduct baseline studies:
  - Self-assessment of asset management performance
  - Road condition and asset value
  - Social and economic data.

## STAGE 2

- Analyse the strengths and weaknesses of existing management systems
- Implement modifications and improvements

## STAGE 3

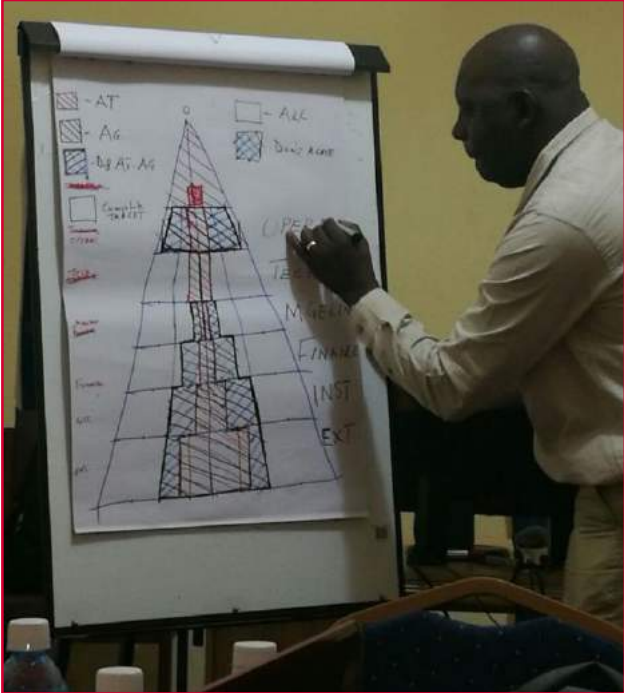
- Repeat the self assessments and performance monitoring
- Discuss progress with sector stakeholders and PIT.



# Implementation Phase

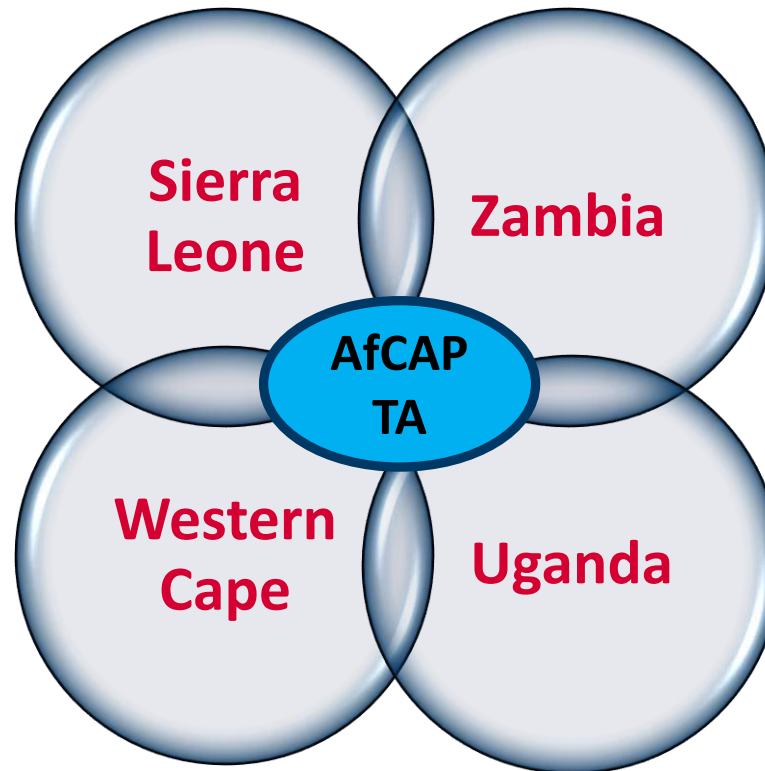


# Implementation Phase

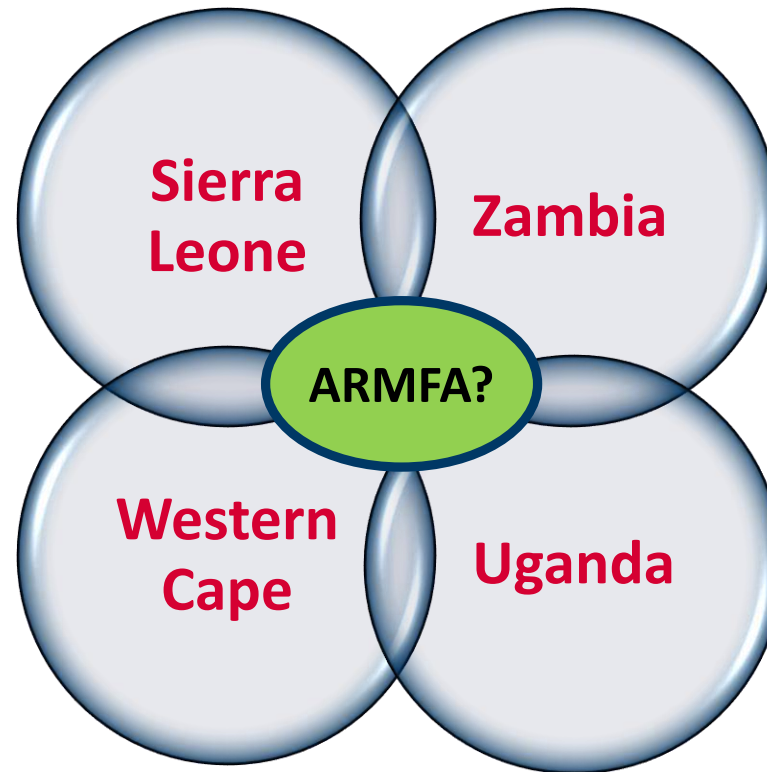


# Project Implementation Team

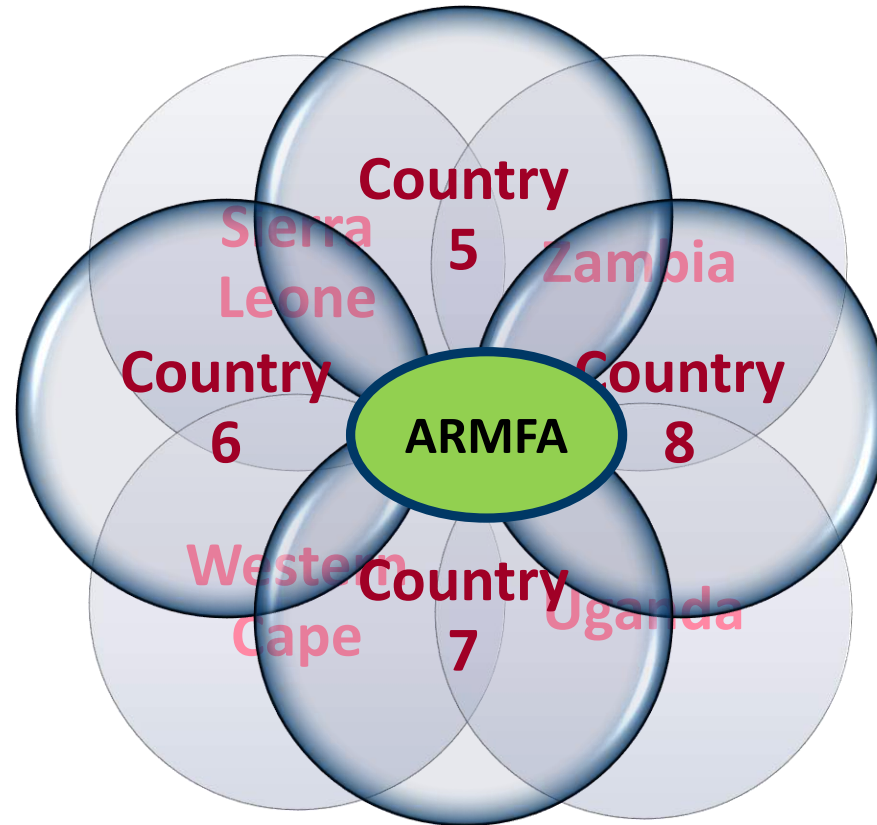
The PIT is responsible for the implementation of the project and for reporting to AFCAP PMU and other stakeholders



# Project Implementation Team



# Project Implementation Team



## Roll Out

Repeat the process adding more countries and study areas.....

## Added Value

Improved performance in rural road asset management in the project areas leads to a demand for improved performance in other areas within the same country.

# Workshop Structure

<b>Introduction to GEM project</b>	<b>Rob Geddes</b>
<b>Introduction to the Road Preservation Pyramid and the GEM self-assessment questionnaire</b>	<b>Mike Pinard</b>
<b>Facilitated Panel Discussion</b> <ul style="list-style-type: none"><li>• <b>Eng. Sallieu Konneh (Tonkolili District)</b></li><li>• <b>Eng. Tamba Amara (SLRA)</b></li><li>• <b>Eng Peter Banda (Chongwe District)</b></li><li>• <b>Dr. Rodgers Mugume (UNRA)</b></li><li>• <b>Kamuli District</b></li></ul>	<b>Charles Bopoto</b> <b>Kingstone Gongera</b>
<b>Summary of key issues arising.</b>	<b>Mike Pinard</b>
<b>Closure of Workshop</b>	<b>Rob Geddes</b>





**Economic Growth Through Effective  
Road Asset Management**

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**11<sup>th</sup> T2 Conference, Livingstone, Zambia  
8 – 10 May 2017**



# **Introduction to the Road Preservation Pyramid and the GEM Self-Assessment Questionnaire**

**Mike Pinard**

**Sub-consultant, CDS Africa**



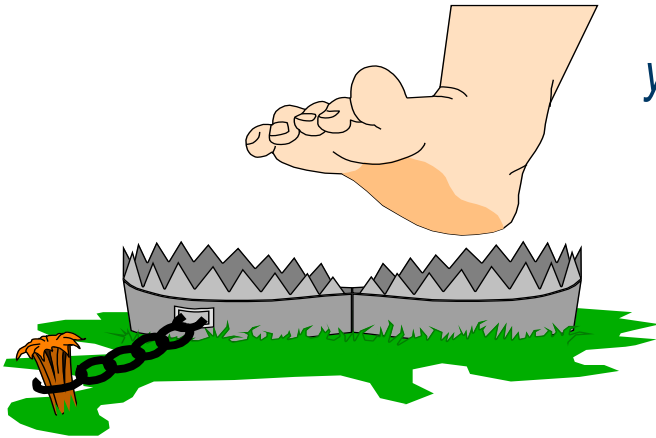
# Background

- Need for sustainable provision of road infrastructure to rural communities in Africa is essential for their livelihoods.
- May be viewed as a universal human right in terms of facilitating poverty reduction, food security, access to markets, healthcare, education and social and economic opportunities of every kind.
- For various reasons, RR agencies generally not successful in fulfilling their mandate of preserving investments made in road infrastructure.
- Triggered a need to evaluate their performance against international best practice as basis for understanding what should be done to improve their efficiency and effectiveness .
- Need to develop an evaluation framework that will enable agencies to rate their maturity/readiness in RAM practice and consequent performance in road asset preservation

# Objectives of Presentation

- To provide the background to the development of a framework for evaluation of RA maturity in RAM and related performance in road asset preservation.
- To indicate how the framework can be used by roads agencies to assess their own performance in the management of their assets.
- Will assist road agencies to identify areas of their approach which require improvement
- Will provide a means of benchmarking the organisation with respect to other RAs and to monitor changes in performance over time.

# Road Asset Preservation: Lessons Learnt

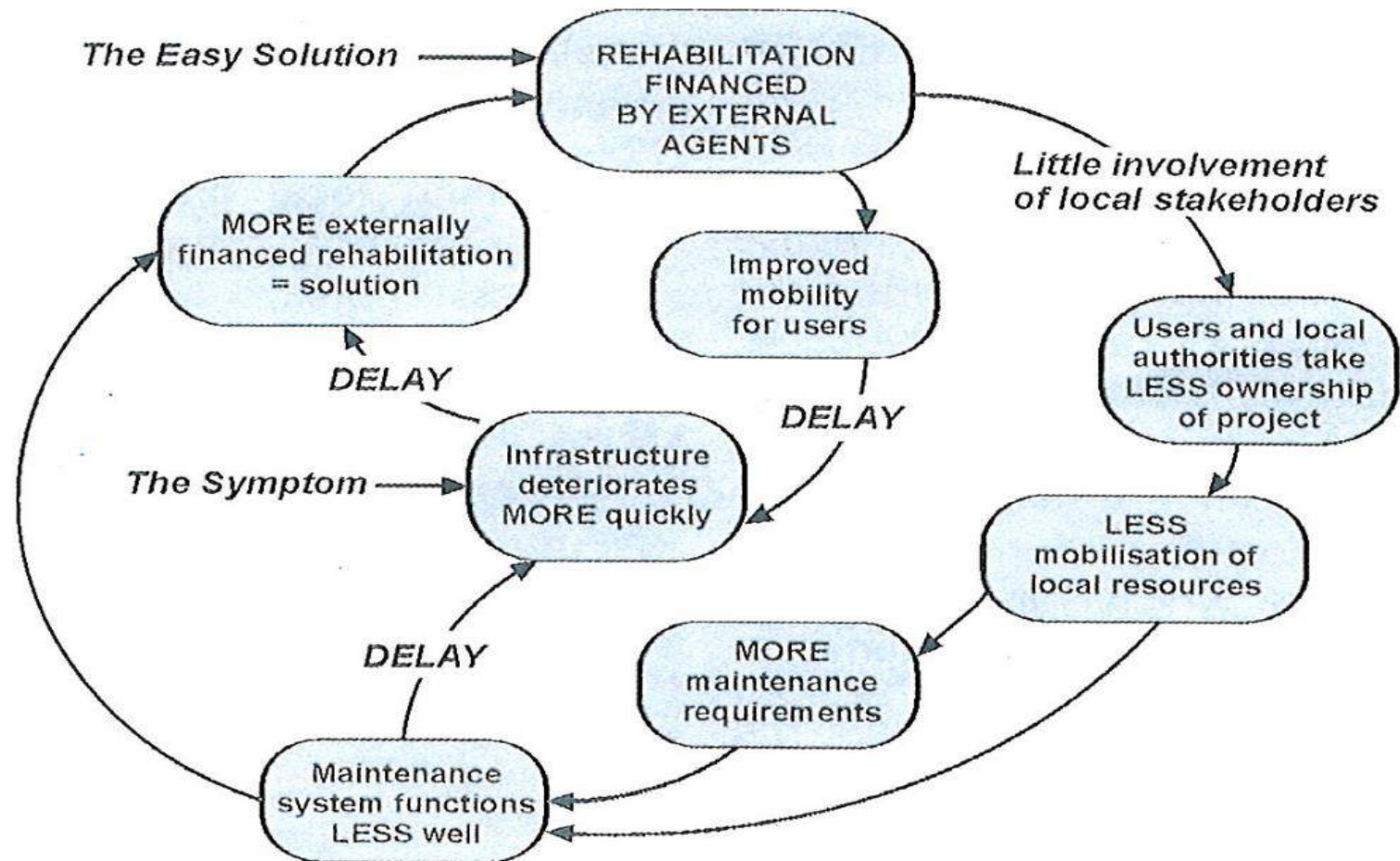


*"If you do what you have always done, you will get what you have always got!"*



*Kr 64 million question: What can we do to improve RA performance in road asset preservation that we have failed to achieve in the past few decades?*

# Vicious Cycle of Rural Road Deterioration



“construction- deterioration-rehabilitation-deterioration”

# Genesis of GEM

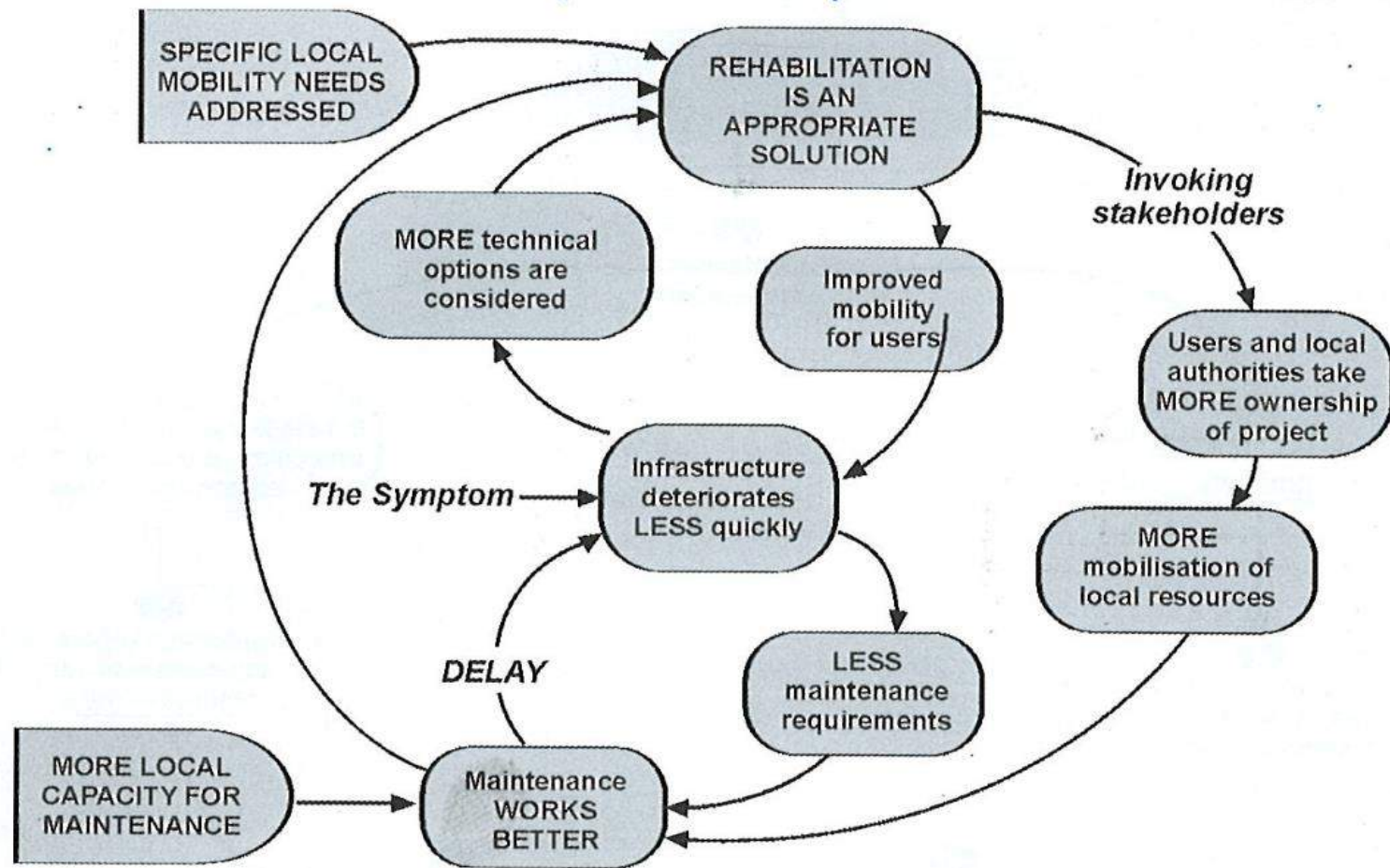
*“ Where there is no vision the people will perish ” (Proverbs 29.18).*



*‘Economic Growth through Effective Road Asset Management – GEM’*

Purpose? To achieve economic and social benefits for local communities as a result of improved performance in road asset management.

# Virtuous Cycle of Rural Road Deterioration



“construction-maintenance-rehabilitation-maintenance”.

# Concept of RR Asset Preservation

- What is asset management?

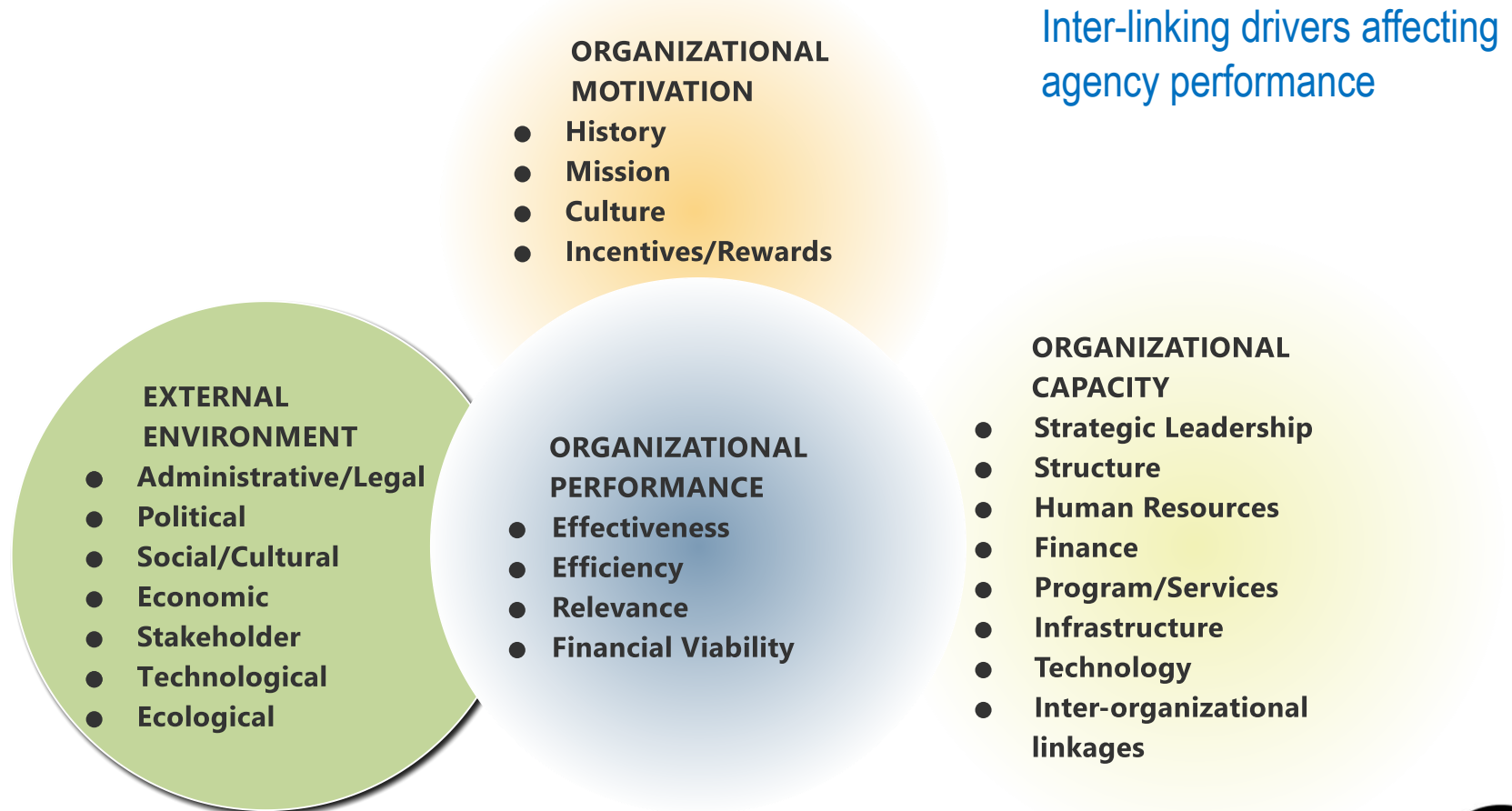
*“systematic and coordinated activities and practices which an organization adopts to optimally and sustainably manage its assets and asset systems, their associated performance, risks and expenditures over their life cycles for the purpose of achieving its organizational strategic plan”.*

**British Standards Institution - Publicly Available Specification (PAS) (IAM, 2008)**

- Above definition recognizes that asset management is related to delivering business goals through a combination of management, financial, technical and other related activities with the objective of providing an optimal LoS in the most cost-effective manner.
  - Thus, any attempt to evaluate road agency performance in road asset preservation must consider all the inter-related components of such performance in a holistic and structured manner.

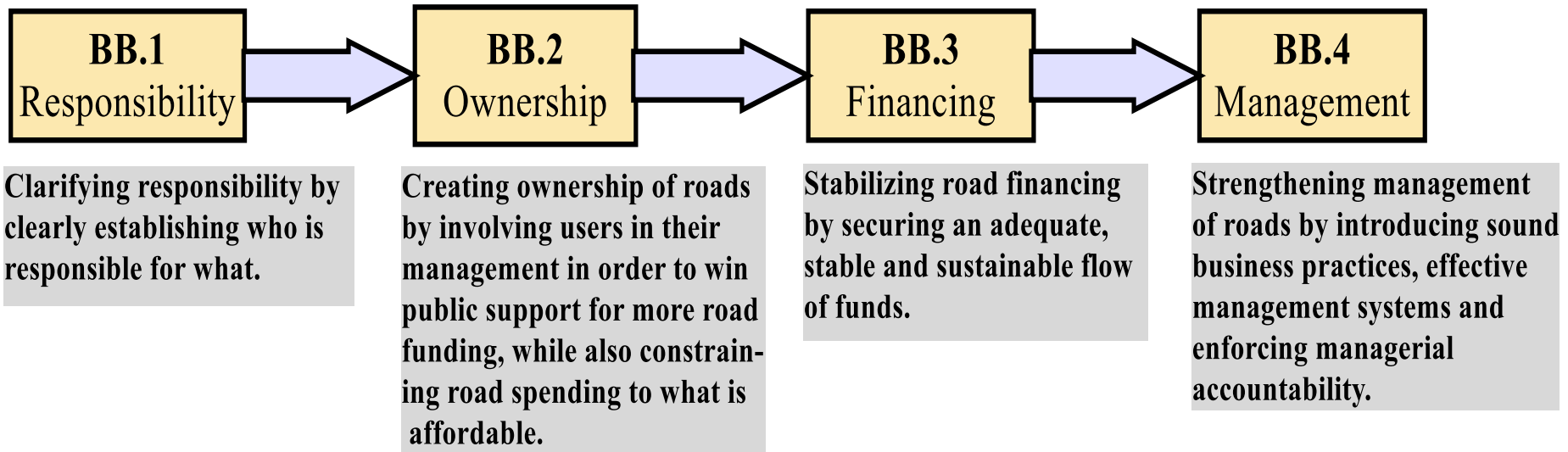


# Institutional & Org Assessment Model



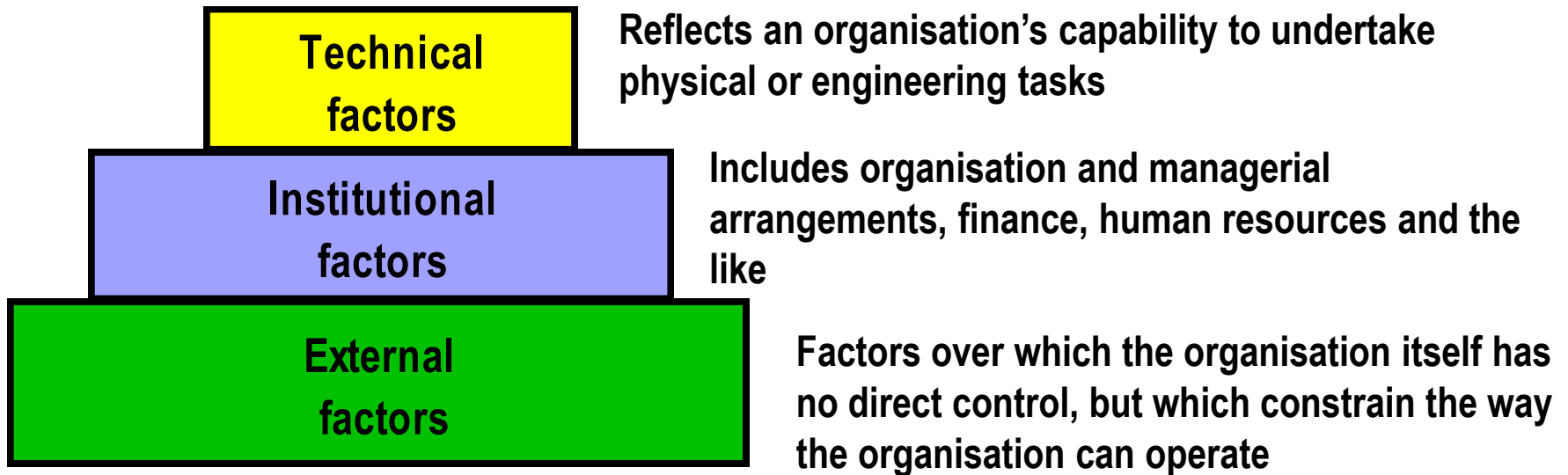
Source: International Development Research Centre (IDRC)-Universalia framework for conducting an Organizational Assessment (OA)

# Key Building Blocks of Road Sector Reforms (RMI)



- The RMI vision has been widely accepted as a basis for policy reform in many countries in Africa
  - Currently about 20 Road Agencies and 28 Road Funds

# Factors Affecting Organizational Performance



## Hierarchy of Management issues – the “*Brooks Pyramid*”

### Lessons learnt:

Until the external and institutional frameworks are improved, it is extremely difficult to overcome the numerous human resource, technical, financial and operational problems that beset the attainment of efficient and effective maintenance of rural roads.

# Road Preservation Pyramid

Political support for conducive policies and legislation that commit to road preservation is a prerequisite for ensuring that there is sufficient institutional capacity and funding to enable the RA to undertake its management, technical and operational activities in an efficient and effective manner thereby facilitating its ability to preserve the investments made in road infrastructure. achieved.



\* Includes political and road users

\*\* Includes planning



# Self-Assessment Questionnaire

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- Essentially a series of questions that seeks to assess the RAM maturity of a rural road agency in six key areas, or building blocks, which are considered necessary for effective asset management.
- Answers to questions in each BB reflect the extent to which agency undertakes its mandate in accordance with best practice approaches.
- Can be used by rural road agencies to assess their own performance in the management of their road assets by undertaking a gap analysis
- Will assist road agencies to identify areas of their approach which require improvement, and provide a means of benchmarking the organisation with respect to other RAs and to monitor changes in performance over time.



# Typical Question

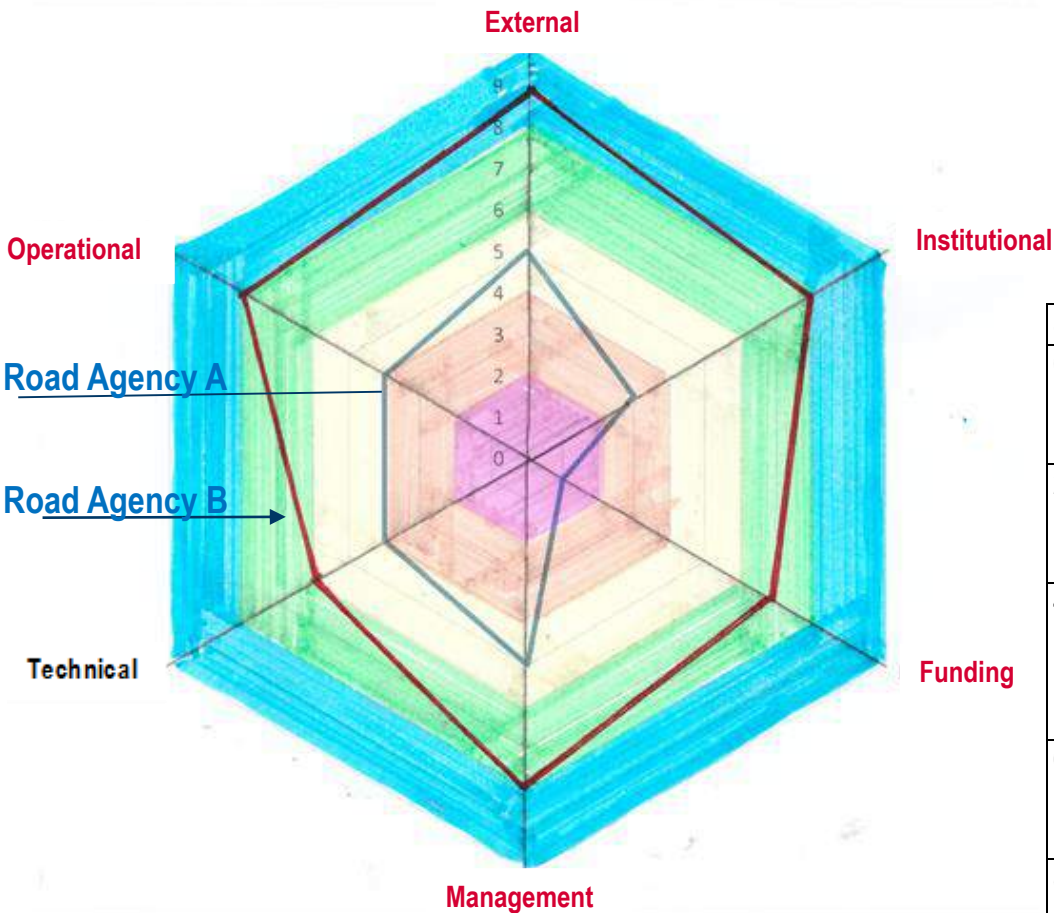
## Building Block 1: External

Key objective:	Facilitate delivery of a broad range of benefits to rural communities through effective interaction with external stakeholders.
Element:	Stakeholder engagement
Issue:	Engagement with stakeholders by means of informed consultations and a culture of open communications and knowledge sharing in order to: <ul style="list-style-type: none"> <li><input type="checkbox"/> Understand their needs and expectations by helping to identify local requirements, alternatives and solutions to problems;</li> <li><input type="checkbox"/> Lobby political support for adequate AM plans and related maintenance funding;</li> <li><input type="checkbox"/> Influence the development of the district's AM strategies;</li> <li><input type="checkbox"/> Communicate the district's programmes and targets;</li> <li><input type="checkbox"/> Assess how the district's performance is rated by stakeholders.</li> </ul>

QUESTION	YES/NO	JUSTIFICATION/COMMENT
1.1 (a) Does the agency communicate its maintenance and development works programmes with stakeholders (i.e. road users, local inhabitants and local businesses)?		
1.1 (b) Does the agency conduct consultations with members of the public (road users, local inhabitants and local businesses) at least annually?		
1.1 (c) Does the agency use a range of techniques to communicate with stakeholders e.g. surveys, media releases, newsletters, telephone hotlines and social media?		
1.1 (d) Does the agency have developed guidelines for community consultation?		
1.2 (a) Does the agency interact at District council level with the Roads Committee responsible for road related issues?		
1.2 (b) Do the agency and Councils meet to approve road budgets before implementation of works and periodic acquittal reports on usage of funds?		
1.2 (c) Do the agency and councils discuss the strategic plans to map out plans for short, medium and long term programmes?		
1.2 (d) Does the roads agency coordinate district programmes at provincial and national level through established council structures?		
		Private and confidential



# Road Agency Scorecard – RAM Maturity

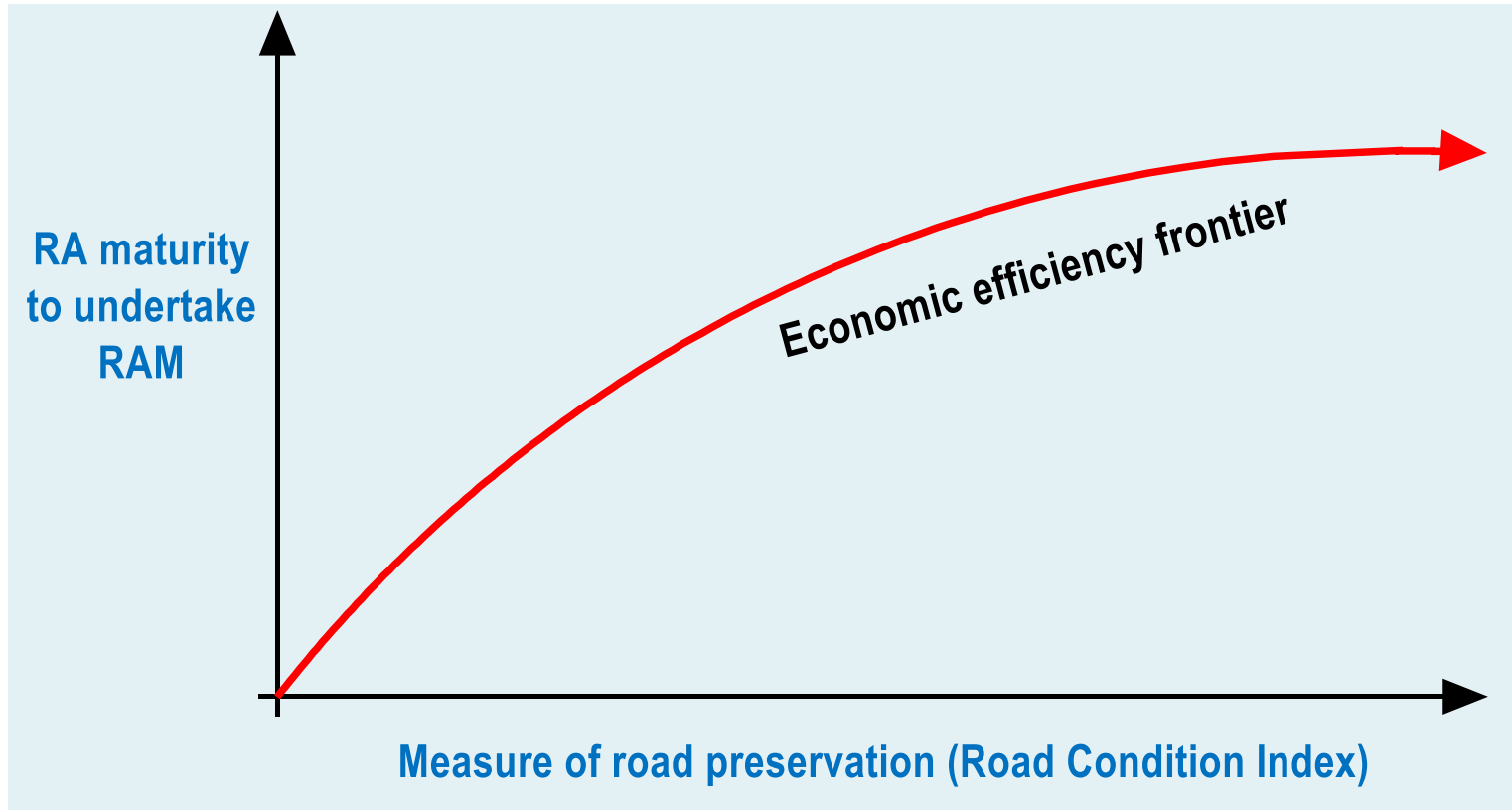


AM Score	AM Maturity	
0 - 1	Not developed	Orange
1 - 2	Minimum	Yellow
2 - 3	Core	Light Green
3 - 4	Mature	Blue
4+	Advanced	Green

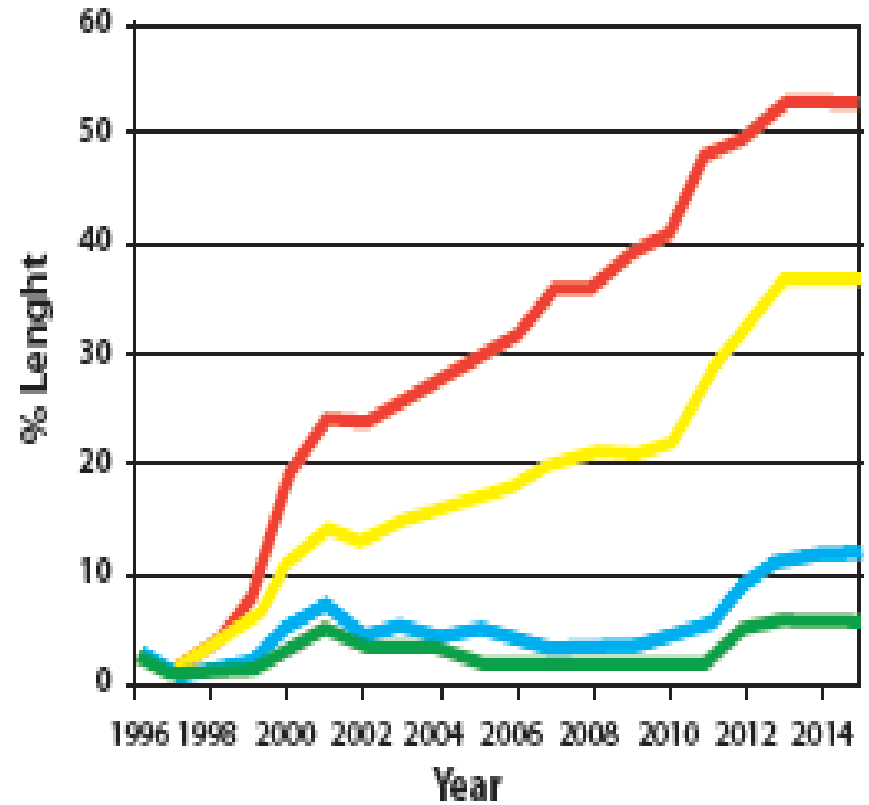
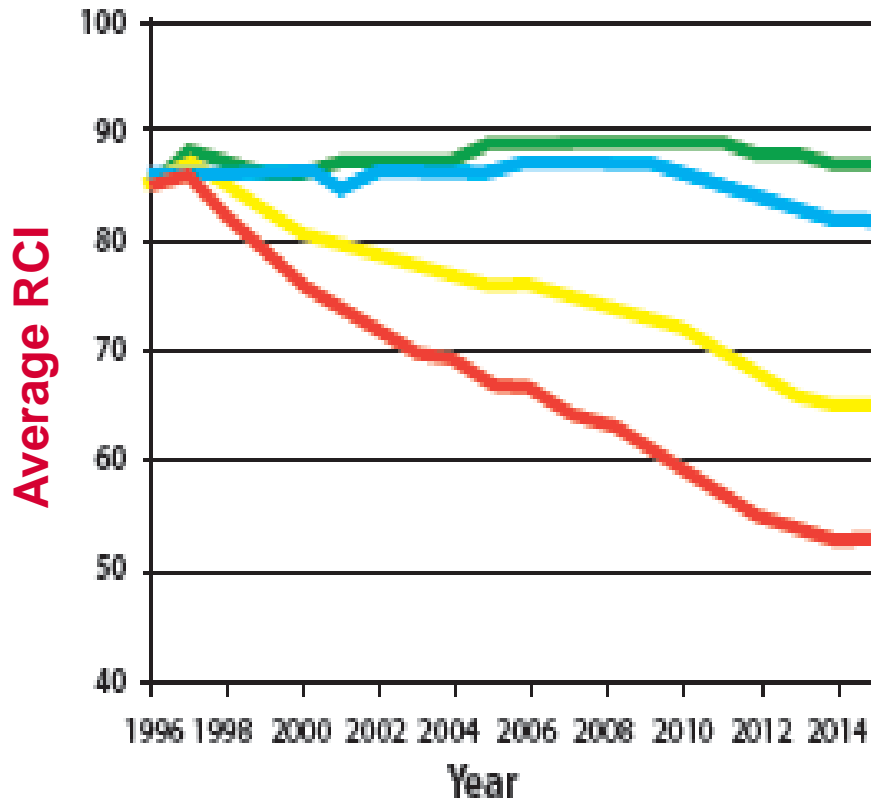
Score	Assesmenmt
0-20	<b>Unsatisfactory:</b> Agency does not operate along sound, well established, best practice AM principles which need to be introduced urgently. <b>Substantial room for improvement.</b>
21-40	<b>Poor:</b> Agency operates in a limited way along sound, well established, best practice AM principles which improved. <b>Significant room for improvement.</b>
41-60	<b>Satisfactory:</b> Agency operates partially along sound, well established, best practice asset preservation principles which need to be reviewed as soon as possible and improved. <b>Much some room for improvement.</b>
61-80	<b>Good:</b> Agency operates largely along sound, well established, best practice AM principles. Need to be reviewed periodically and improved. <b>Some room for improvement.</b>
81-100	<b>Excellent:</b> Agency operates along sound, well established, best practice AM principles. <b>Need to be reviewed periodically and improved,</b> where necessary.

**Road Agency A** needs to improve in many areas  
**Road Agency B** is doing well in most areas

# Relationship Between RA Maturity to Undertake RAM and Road Preservation



# Road Condition Index – A Reflection of RA Performance in Road Asset Management



# Discussion Questions

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1. What are the typical strengths and weaknesses of rural roads agencies in Africa?
2. What are road assets? How do we value road assets? Why is this necessary?
3. What are the key components of rural road asset management?
4. How does rural road asset management affect delivery of social services and economic development in rural communities?
5. Can we maintain all of the roads that are on our inventory list? If not, what criteria should be used for prioritisation?
6. Is public consultation important for a rural roads agency? If yes, why?