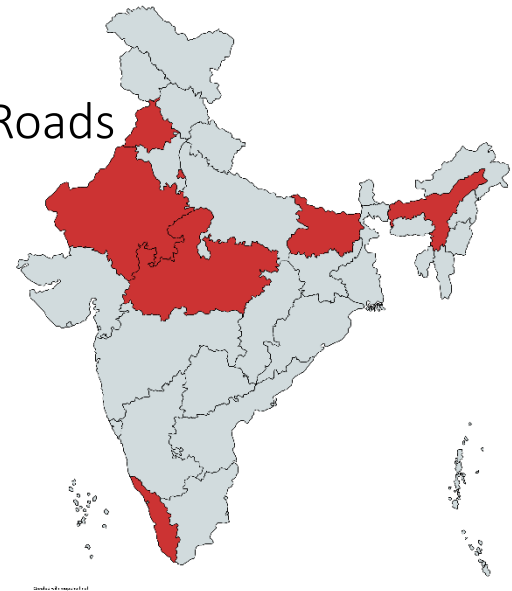


Road Asset Management for Rural Roads

International Conference on
New Technologies and Innovations in Rural Roads
Delhi, India

24th to 26th May 2022

Dr Ian Greenwood
Greenwood Associates Infrastructure Consultants
New Zealand



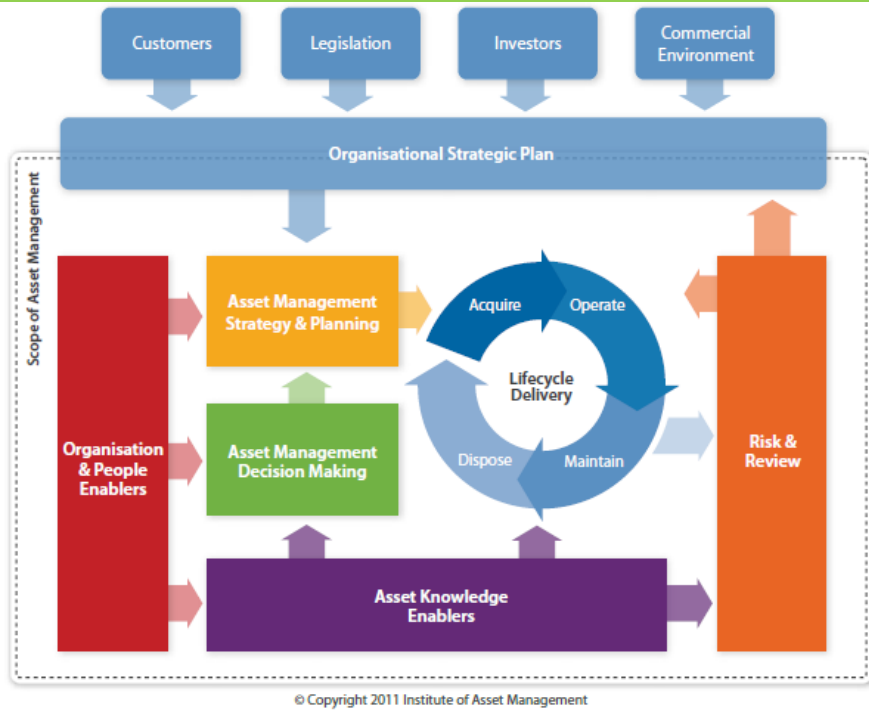
What is appropriate for rural roads in terms of RAM?



One size doesn't fit all – its all about affordability & risk

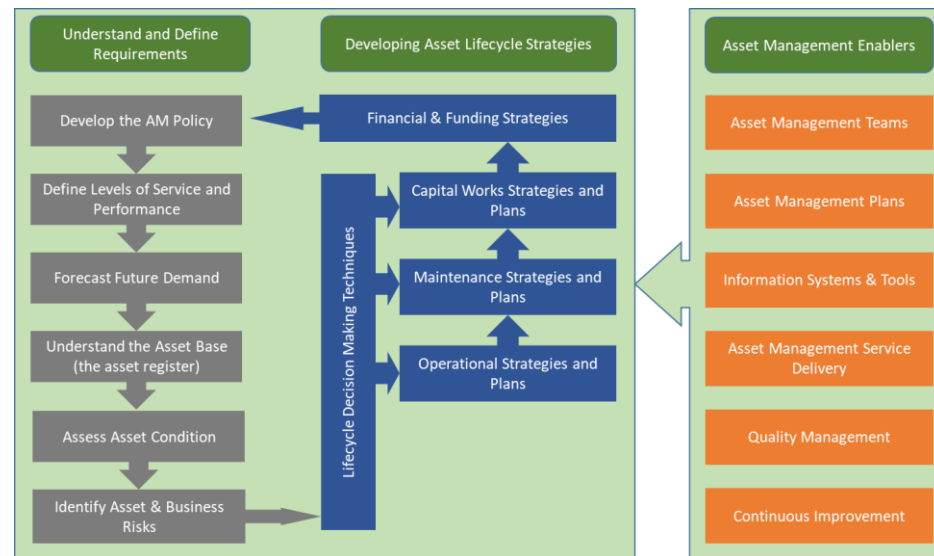


AM Process Is All Encompassing



Equally applies to low volume rural roads and high volume expressways; roads or hospitals.

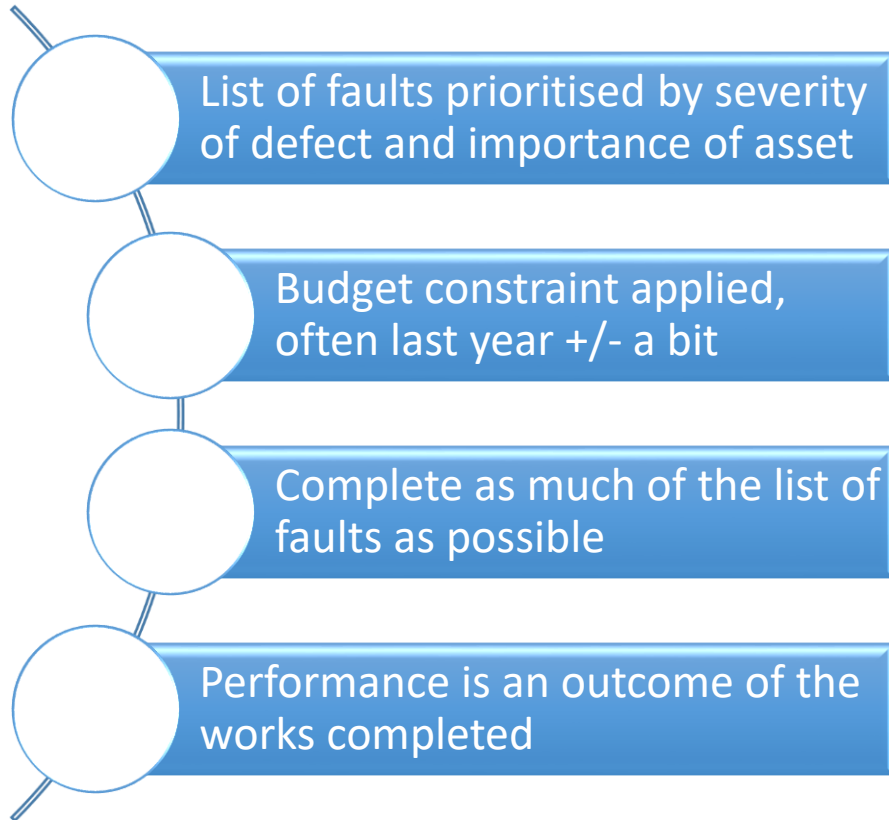
Don't change the process, change the details within each step of the process.



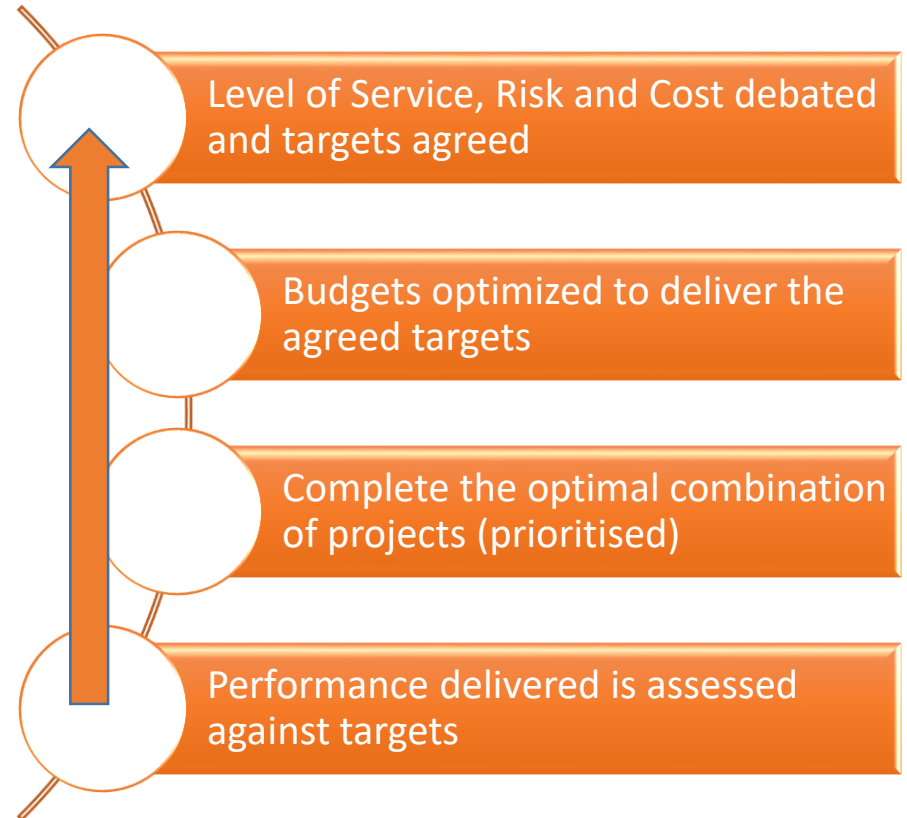
International Infrastructure Management Manual (IIMM) AM Process

The Journey

• From Maintenance Management



• To Asset Management



Asset Management Information Systems (AMIS)

- An AMIS is not AM
 - Never has been, never will be
- But AM involves lots of data, so a good AMIS is essential if you are going to do AM well
- Many systems in use around the world
 - World Bank position is generally to encourage the use of Commercial Off The Shelf (COTS) systems

Non-Sustainable RAM Initiatives

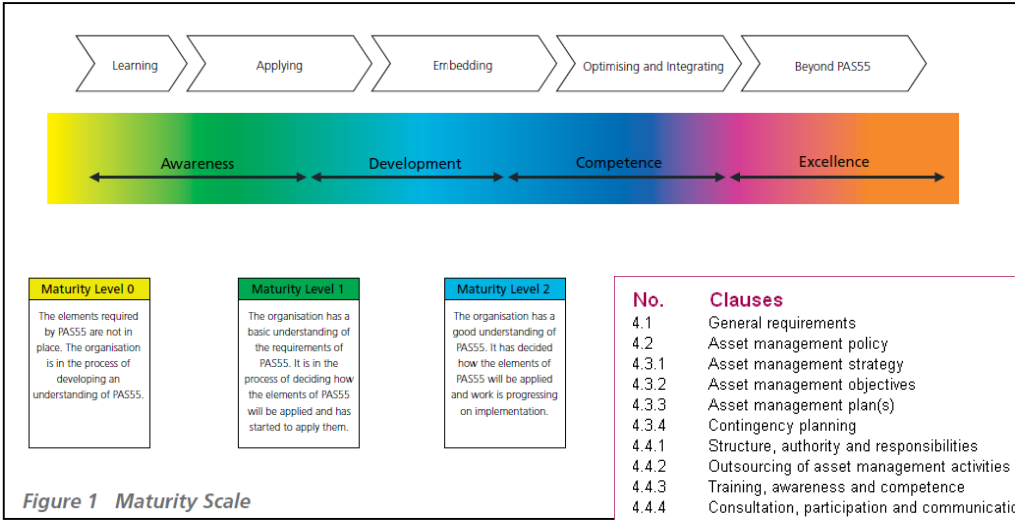
- Common Mistakes

- “First up we need to get an AMIS and collect data”
- “We have an AMIS so are doing AM”

- Many road authorities have:

- Collected data with no idea of how it will be used
 - E.g. What does a ‘poor’ bridge rating mean?
- Undertaken a one-off AMIS and data collection programme, but not been able to sustain the costs and human capacity to continue it beyond a couple of years
- Have not managed to make the AMIS an integral part of the business processes
- See RAM as a project, rather than a way of life.

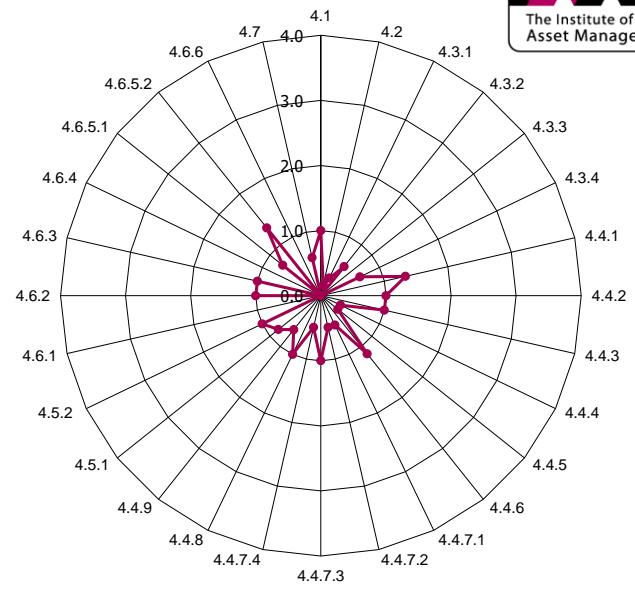
RAM Maturity Assessment (competency)



Maturity Level 0	Maturity Level 1	Maturity Level 2
The elements required by PAS55 are not in place. The organisation is in the process of developing an understanding of PAS55.	The organisation has a basic understanding of the requirements of PAS55. It has decided how the elements of PAS55 will be applied and has started to apply them.	The organisation has a good understanding of PAS55. It has decided how the elements of PAS55 will be applied and work is progressing on implementation.

- No. Clauses**
- 4.1 General requirements
 - 4.2 Asset management policy
 - 4.3.1 Asset management strategy
 - 4.3.2 Asset management objectives
 - 4.3.3 Asset management plan(s)
 - 4.3.4 Contingency planning
 - 4.4.1 Structure, authority and responsibilities
 - 4.4.2 Outsourcing of asset management activities
 - 4.4.3 Training, awareness and competence
 - 4.4.4 Consultation, participation and communication
 - 4.4.5 Asset Management System documentation
 - 4.4.6 Information management
 - 4.4.7.1 Risk management process(es)
 - 4.4.7.2 Risk management methodology
 - 4.4.7.3 Risk identification and assessment
 - 4.4.7.4 Use and maintenance of asset risk information
 - 4.4.8 Legal and other requirements
 - 4.4.9 Management of Change
 - 4.5.1 Life Cycle Activities
 - 4.5.2 Tools, facilities and equipment
 - 4.6.1 Performance and condition monitoring
 - 4.6.2 Investigation of asset-related failures, incidents and nonconformities
 - 4.6.3 Evaluation of compliance
 - 4.6.4 Audit
 - 4.6.5.1 Corrective & Preventative action
 - 4.6.5.2 Continual Improvement
 - 4.6.6 Records
 - 4.7 Management review

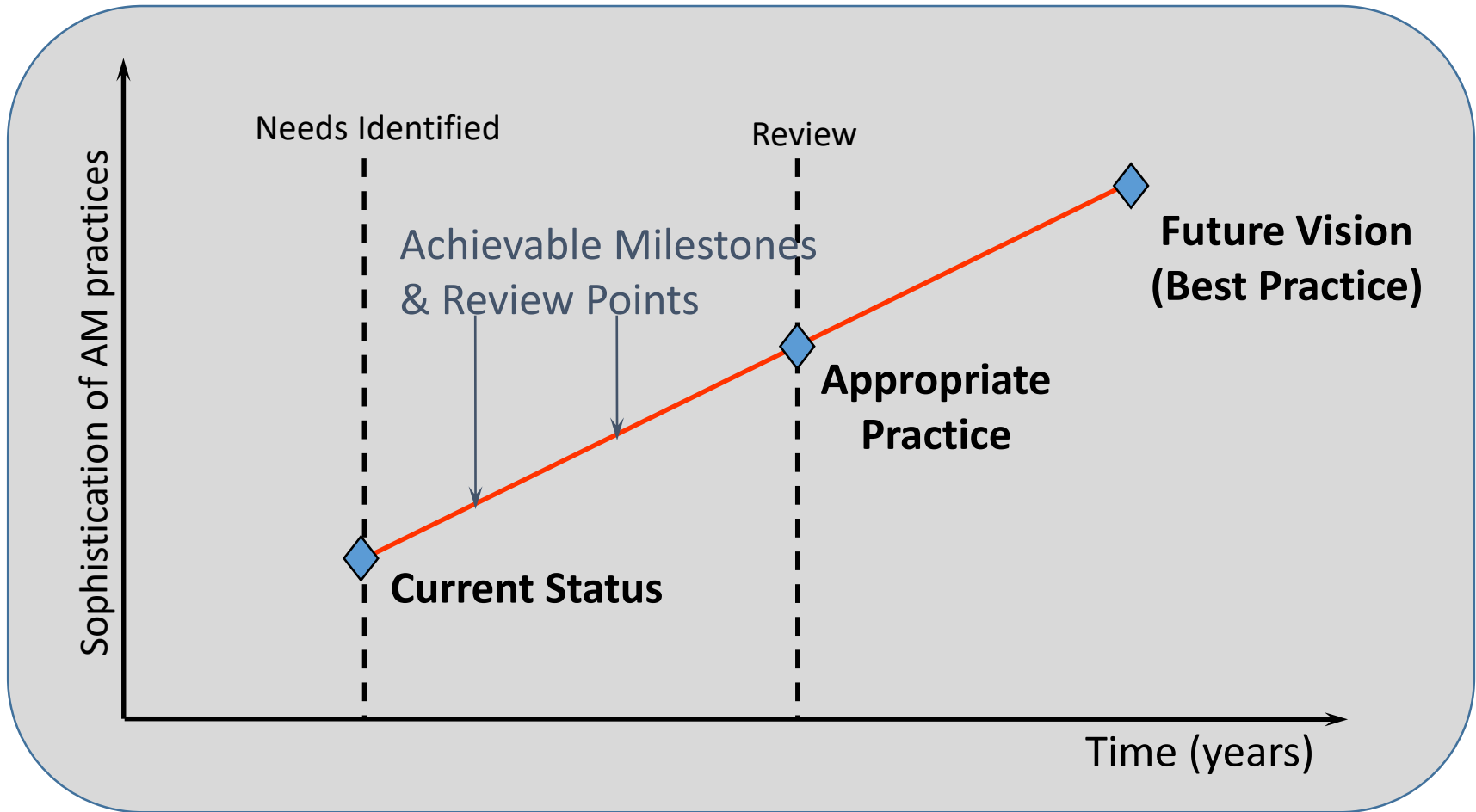
Assessment Page



The RADAR chart shows the average score range per clause



Take a continuous improvement approach

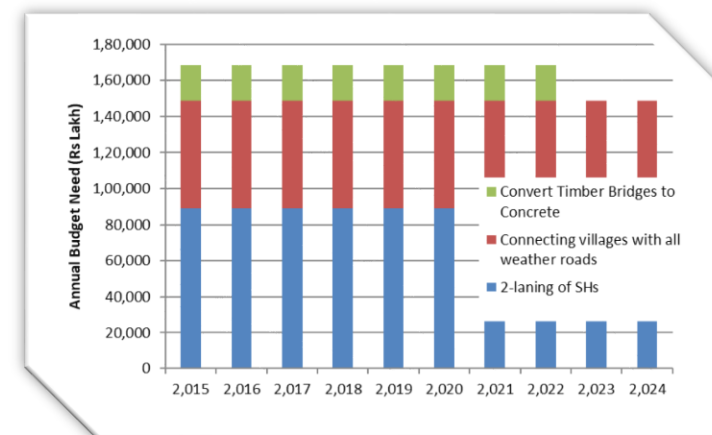
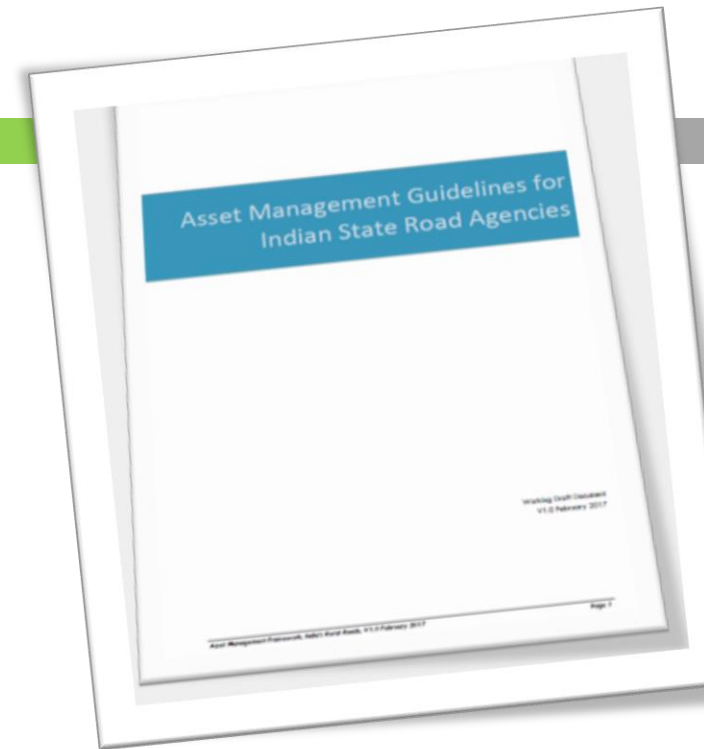


RAM includes Addressing Climate Change and Climate Resilience

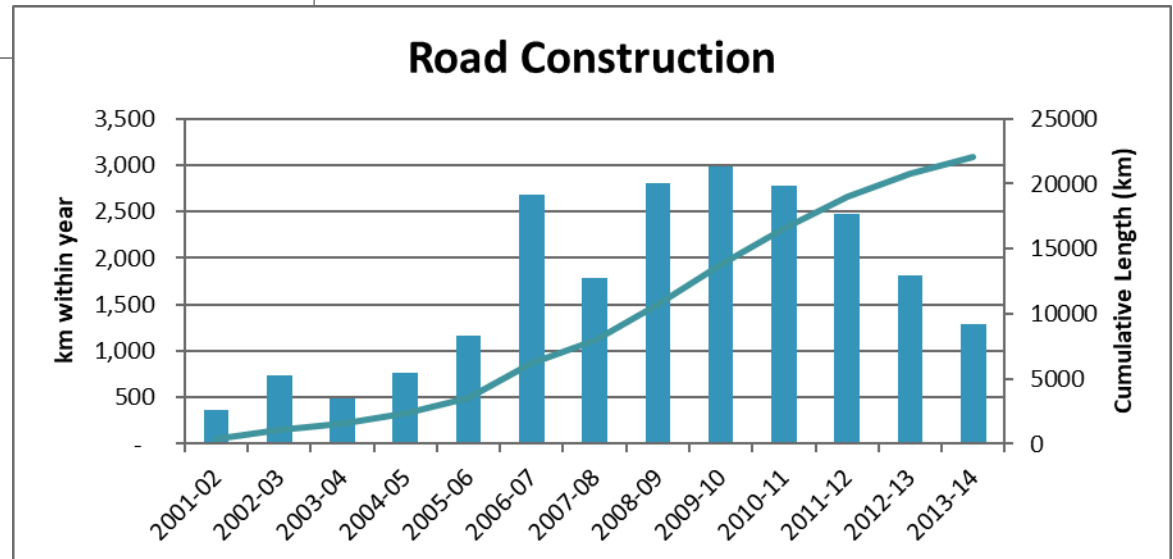
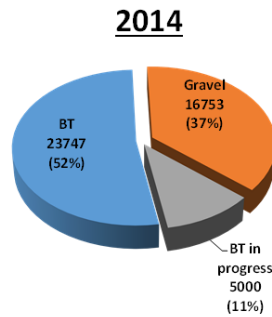
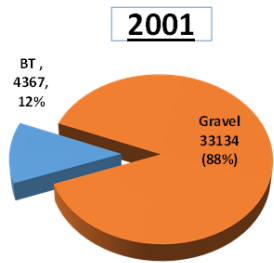
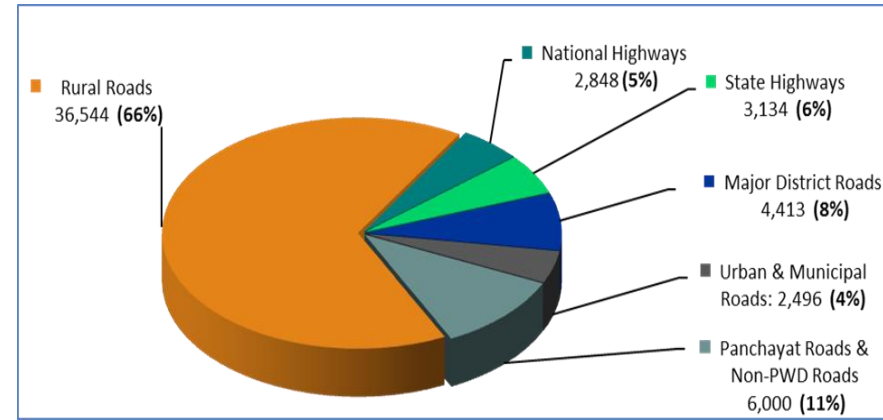
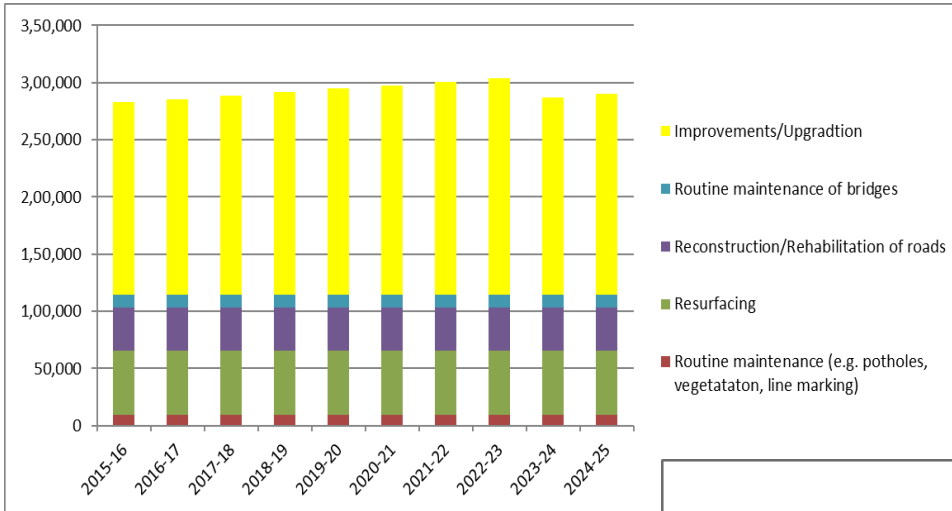
- CC and CR are not extras to RAM
 - Key documents exist and free to use
- RAM provides the framework for determining what level of CR is appropriate
 - Should have LoS for CR similar to other metrics
- A focus on routine maintenance is usually the best investment to deliver a CR road network
- GIS road network of rural roads in India provides an excellent basis for evaluating key roads



The Indian Rural Road Asset Management Framework (2017)

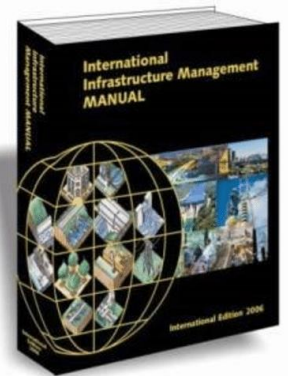


AMF Built Around Local Situation



Indian Rural Roads AMF

- Produced under World Bank funding in 2016-17
 - Lead authors of the International Infrastructure Management Manual
 - Developed with the Indian Road Congress
- Developed for Indian State Road Agencies
 - Deals specifically with PMGSY, Indian financial rules etc.
- Pilot implementations in Assam and Bihar



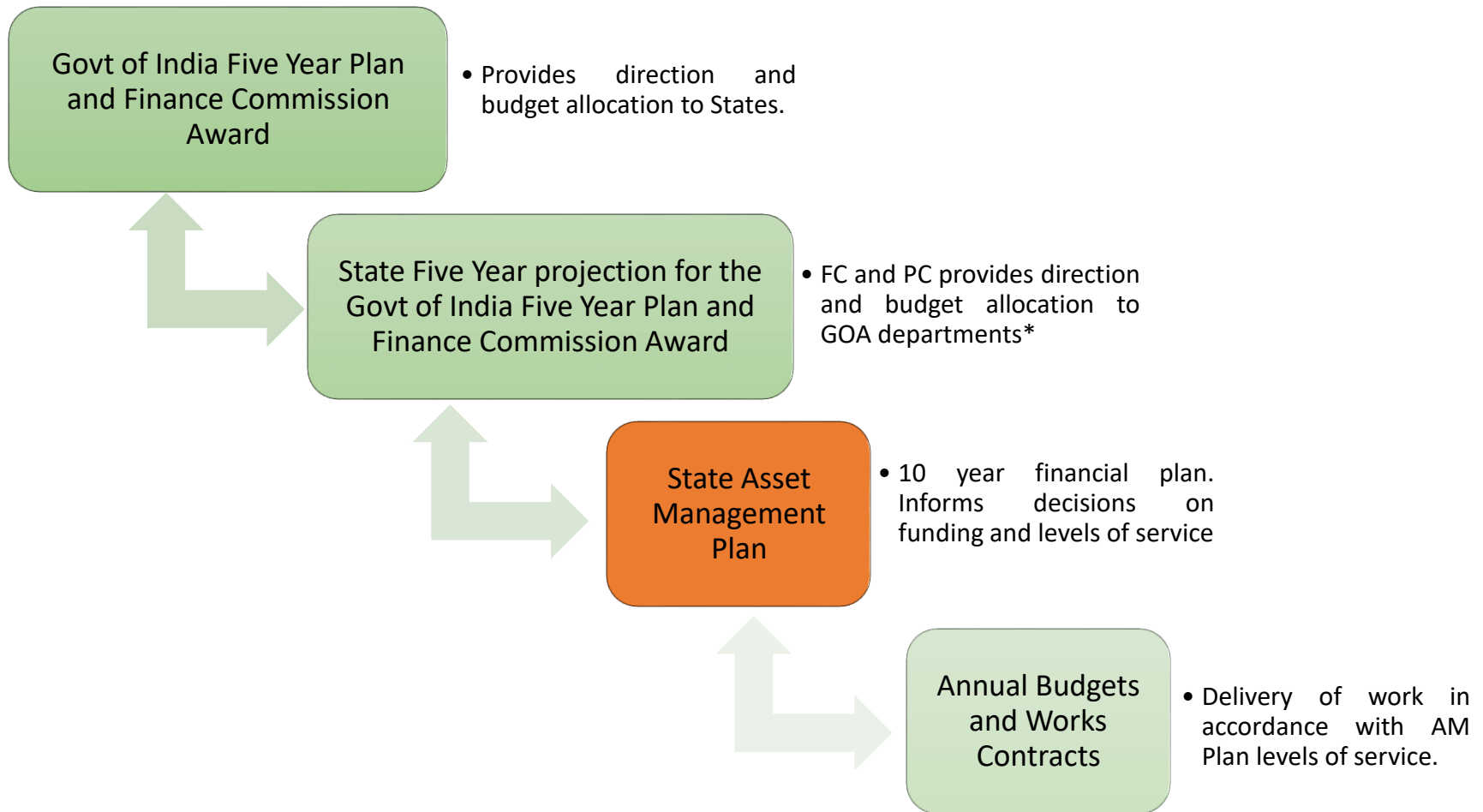
Key Principles of the AMF

1. The organisation recognises the importance of AM planning and adequately resources the AM Framework.
2. The organisation actively and transparently engages with stakeholders as to how the road network is managed.
3. An outcome-based approach is taken which guides decision making.
4. Robust asset information is available to make evidence-based decisions.
5. The value of the road network is recognised.
6. The road network is managed in a financially and environmentally sustainable manner.
7. The organisation prioritises preservation of the existing road network over building new roads.
8. A financing plan is in place for road maintenance prior to the development of new roads.
9. The AM Framework is maintained to a high quality.
10. The organisation manages risk effectively.
11. Service delivery mechanisms ensure performance is delivered at lowest lifecycle cost.
12. A continual improvement approach is taken.

What is Available

- Guidance document on the full scope of RAM
 - The AMF – based on the organisational arrangements in India
- Template (Word) for production of an Asset Management Plan
 - Specifically addressing local initiatives such as PMGSY
- Template (Excel) for production of input tables to the AMP
 - Asset quantities, condition, long term financial forecasts, asset valuation etc.
- Competency assessment questionnaire

Integrates with Existing Documents



Recommendations for the Implementation of Asset Management for India's Rural Roads

Need to Both 'Push' and 'Pull' in the Right Direction

- Push:

- Use of auditor's office to check on progress towards AM competency
 - Potentially as part of the Finance Commission requirements.

- Pull

- Use RAM as a prerequisite to obtaining funding from MORD for PMGSY or similar programmes (ideally also from IFIs such as the World Bank, ADB etc)
- Suggest that access to funding from MORD such that a Rural Road authority would have to:
 - Produce an AMP every 2 years
 - Submit an asset valuation summary report on an annual basis
 - Show that budget for renewals at least equals annual depreciation
 - Produce a 10 year (minimum) financing plan to show a sustainable funding model is in place

Key First Steps

- Conduct a RAM Maturity Assessment
 - It will help broaden the understanding of all the components that make up RAM
- Prepare an AMP with the data and knowledge you have
 - It will help you identify all the gaps in your knowledge
- Document your key processes and practices
 - How are projects identified and prioritised
- Develop a sustainable data collection plan and implement a suitable AMIS
 - Better to start with a simple system and add complexity in 5 years time, than to start with a complex system and have nothing left in 5 years time

Questions?

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