

Importance of Road maintenance – Good Practices – Example



PAVEMENT PRESERVATION & RECYCLING SUMMIT

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IMPORTANCE OF ROAD ASSET MAINTENANCE | 1



Importance of road asset maintenance

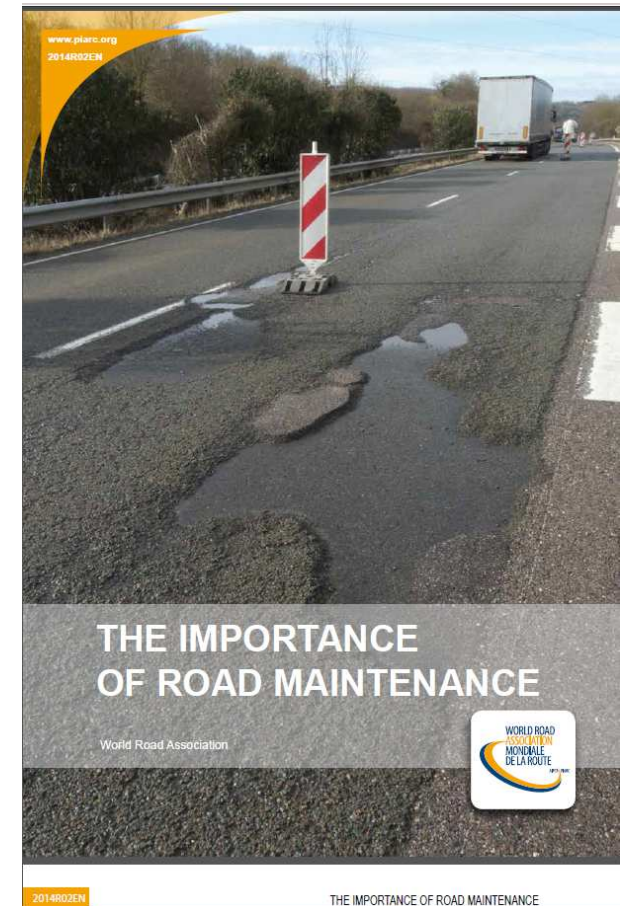
› Road networks : A considerable asset

- Political authorities needs to be more aware of the need maintaining road asset

› The PIARC initiative

➔ *The Road World Association launched a Special Project entitled “**The Importance of Road Maintenance**” to provide road owner, road operator with a clear and sharable vision of the strategic position of road assets and their maintenance.*

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Importance of road asset maintenance

- › Roads are key national assets
 - Tens millions of kilometers across the world (average : half millions km per OECD countries)
 - Roads are often the single largest publicly owned national asset
- › Road transport is a foundation for economic activity
 - Value added by road commercial transports lies between 3% and 5% of GDP
 - With induced or related activities, the contribution to GDP is 10 to 20%
 - Road transport accounts for about 80 – 85 % of passenger travel
- › Ageing infrastructure requires road maintenance
 - With age, road infrastructures become more fragile, less resilient and journeys are more susceptible to disruption



Importance of road asset maintenance

- › Traffic volume continue to grow and drive an increased need for maintenance
 - In developing countries, traffic is rapidly growing; in developed countries, age of stock increases and asset become more and more complex
- › Impacts of road maintenance are diverse and must be understood
 - Road maintenance provides safety, economic, environmental and social well-being benefits
- › Investing in maintenance at the right time saves significant future costs
 - Maintenance is a fraction of initial cost (2-3% on paved road, 5-6% on unpaved roads)



Importance of road asset maintenance

- › Maintenance investment must be properly managed
 - Adoption of sound asset management will improve road network performance
 - Establishing different classes of roads with different levels of service, according to real needs
 - Effective maintenance programming using robust decision making process based on regular monitoring and use of prediction models
 - Valuation of assets and their depreciation to demonstrate investment needed
 - Adequate and robust institutional arrangements in place (funding, legislation...)
- › An imperative for road maintenance for future generations

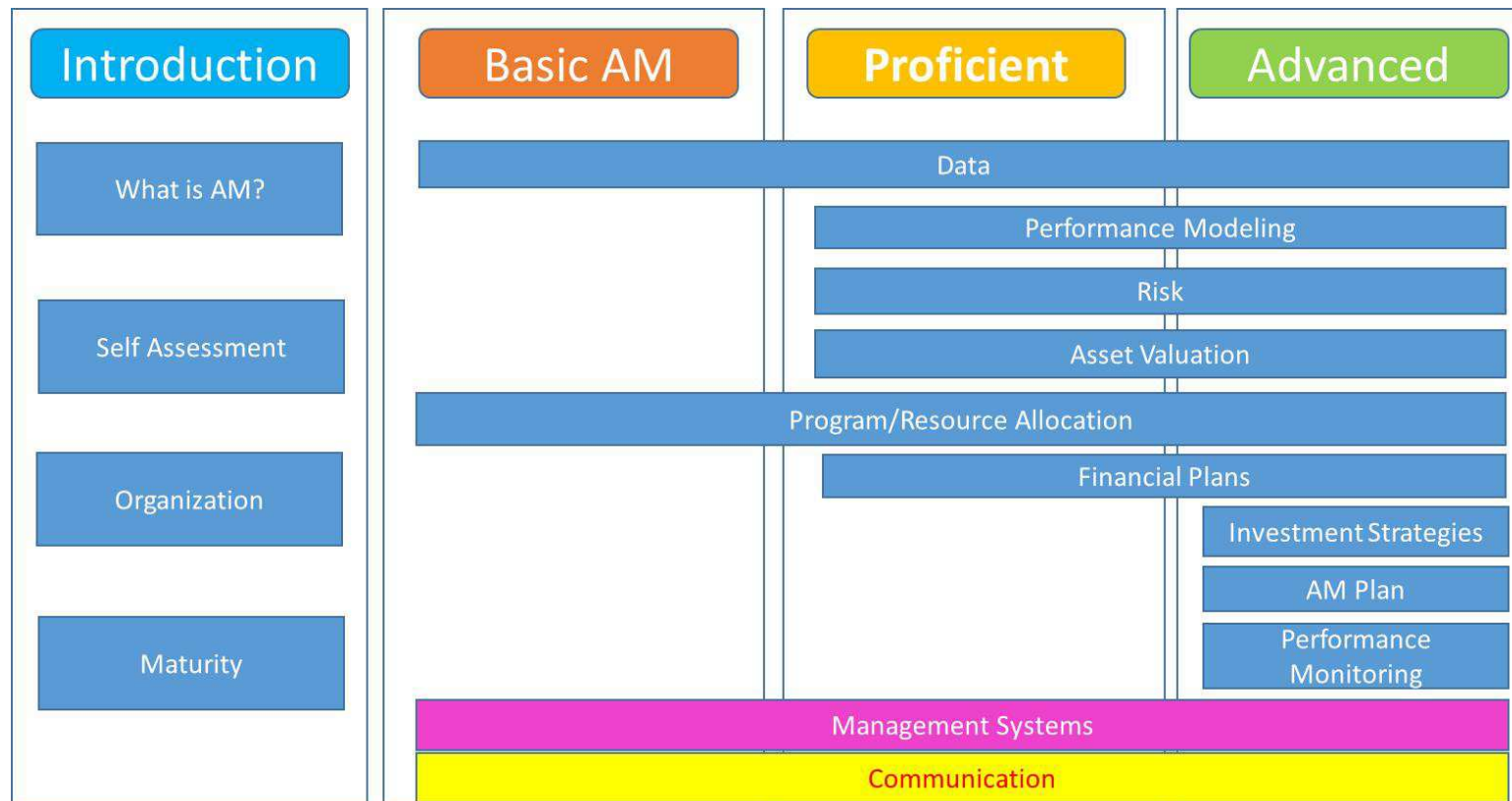
ROAD MAINTENANCE | 2
MANUAL



Road maintenance manual

- › A long experience of road maintenance management
 - A significant experience of road maintenance management has been accumulated over decades in a number of (developed, developing) countries
 - This experience must be preserved, shared and consolidated
- › A wide use manual
 - A common methodological framework (based on the Manual) doesn't necessarily mean a unique set of practices.
 - The Manual recognizes that there are different “levels of maturity” applying to and by different road operators, according to their context, their history...
 - The Manual will be available on line, via internet.

Road maintenance manual



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Road maintenance manual

Chapter Format/Structure

- What? (0.5 page)
- Why? (background) (0.5 page)
- Maturity levels-**Basic, Proficient, Advanced** (1 page)
- Process (2 to 10 pages) – use photos and diagrams (minimum 1 / page)

- Case Studies
- References
- Multimedia Kit (videos, photos, presentations)



Road maintenance manual

Basic (Level 1)

Proficient

Advanced

Data

- What? Inventory and Condition Assessment
- Why? Without knowing what assets you own and what condition its in, you can't manage it
- Maturity (all)
- Process:
 - What data to collect (tied to your goals and objectives)
 - Coverage (sample vs. 100%)
 - Frequency
 - Technology (manual vs. automated)
 - Assets (pavement, bridges, drainage structures, ITS, etc...)
 - Quality Control/Quality Assurance
 - Data Standards
 - Condition indices



Road maintenance manual

Basic (Level 1)	Proficient	Advanced
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Resource Allocation/Programming

- What? Cross asset multi-year work program, project selection, budget allocation
- Why? Cost effective decision making, increased efficiency, accountability and transparency of the decision making process
- Maturity:
 - Basic (one-year program)
 - Proficient (multi-year –risk, etc...)
 - Advanced (cross-asset and comprehensive strategies)
- Process:
 - Data and performance models
 - Maintenance/rehab strategies
 - Prioritization/Optimization criteria (life cycle costs, benefits, service life)
 - Cross-asset optimization
 - Management Systems (tools – no specific vendors)
 - Program development (action plan)



Road maintenance manual

Proficient

Advanced

Risk

Asset Valuation

Financial Plan

Advanced

Investment Strategies

AM Plans

Performance Measures/Monitoring



Road maintenance manual



Management Systems



Communication

AN APPLICATION | 3



Application to a developing country

› The basic maturity level

- A rational approach of maintenance management
- Based on a general survey of the road network, in application of strictly defined data collection procedures
- Collected data are processed according to maintenance strategies defined by the road authority, and produce maintenance programs over one to three years
- No performance models (evolution laws)

Application to a developing country (Niger)



- 19 000 km paved and unpaved roads
 - Of which : 11 000 km of trunk roads
 - Of which : 4 400 km paved roads

Objective : Implement, on the national road network a basic approach

2011 : Implementation of a AMS (pavement and bridges) :

- Visual data collection devices
- A geographic road data base
- A programming software

2012 : Employees training

2013 : Application on a pilot region (Dosso)

2014 : Application the whole trunk network

Performed by Logiroad®



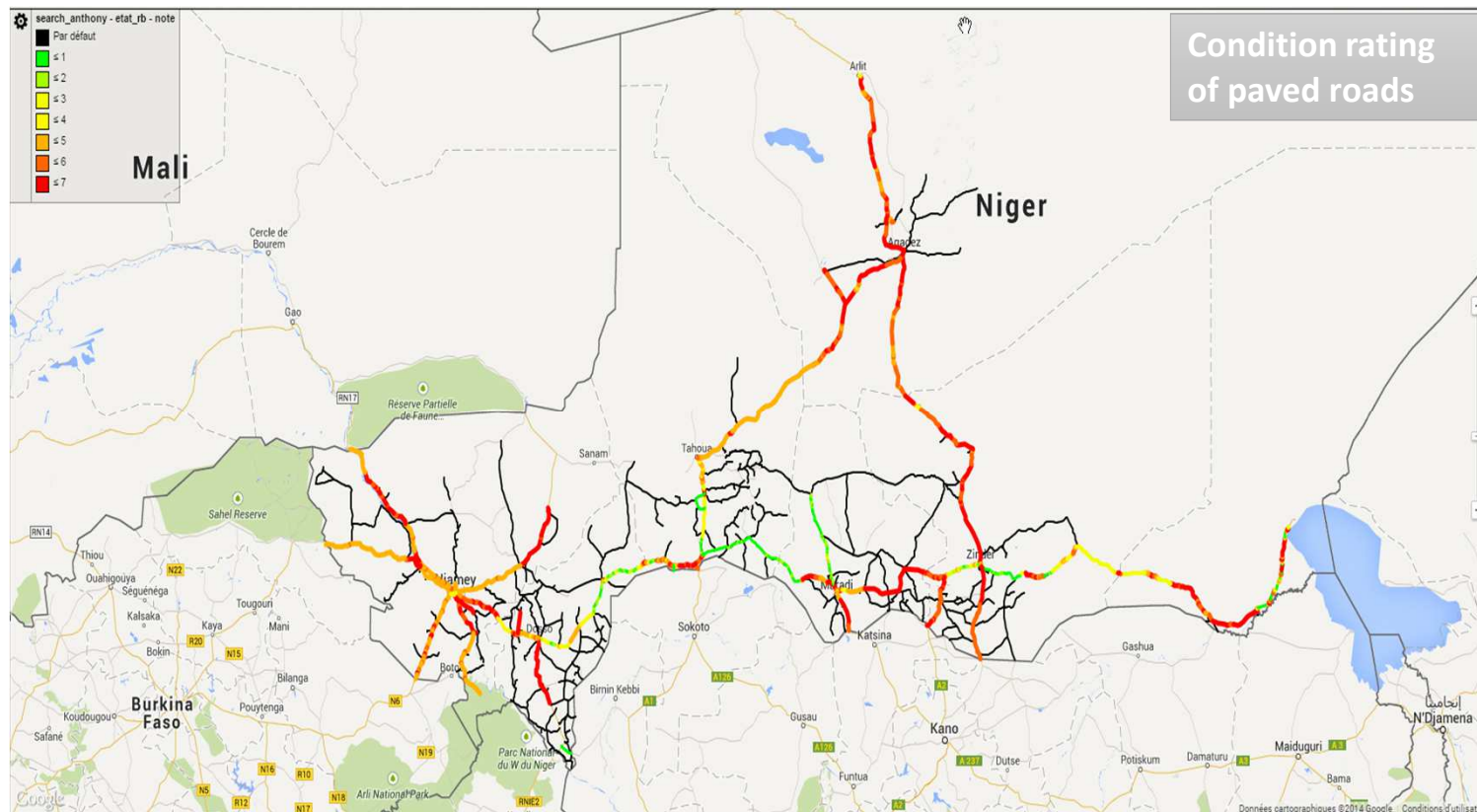
Application to a developing country (Niger)

- Visual survey conducted by 3 inspection teams
- Pavement and engineering structures
- Using an in board specialized tablet



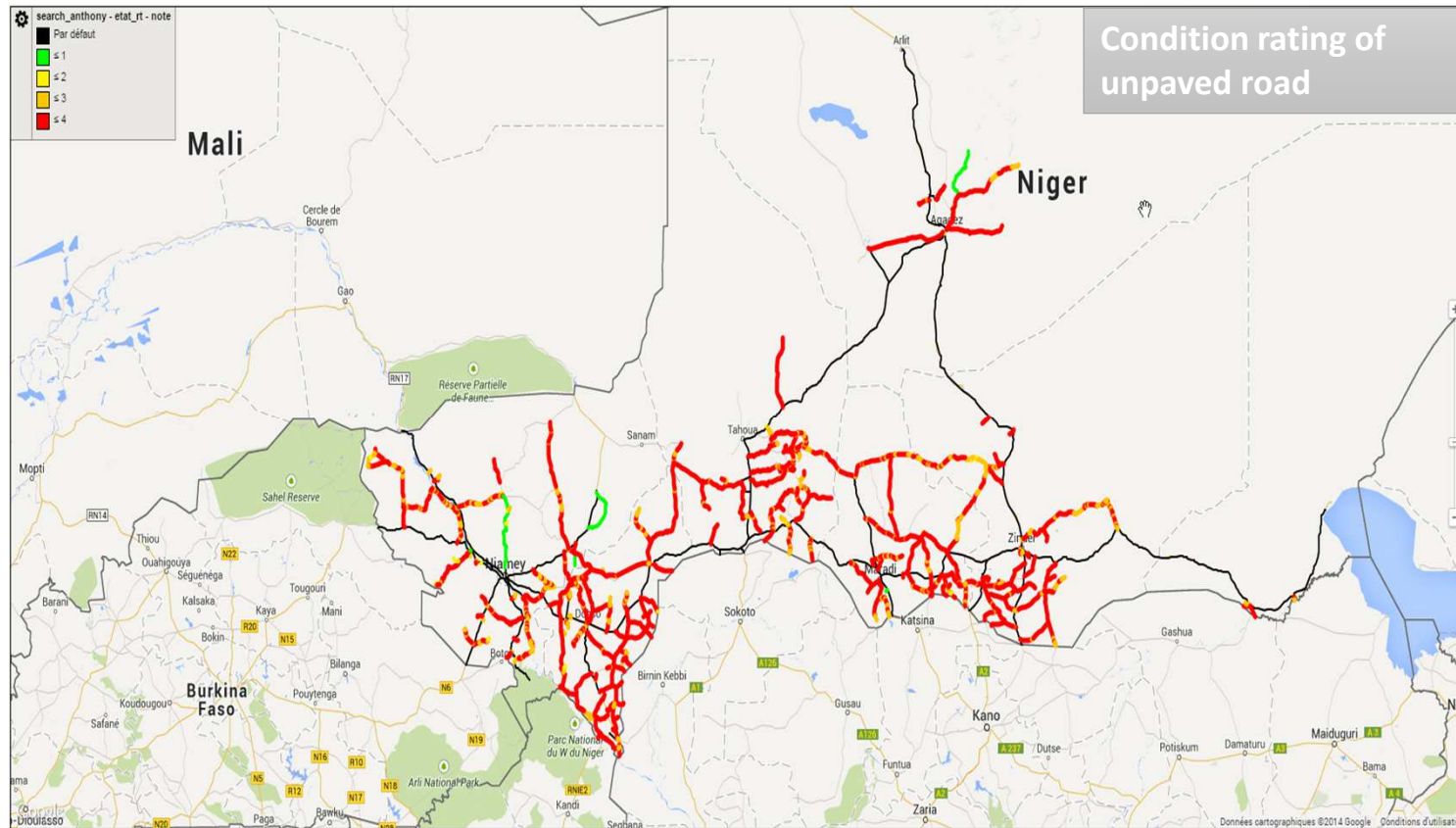
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Application to a developing country



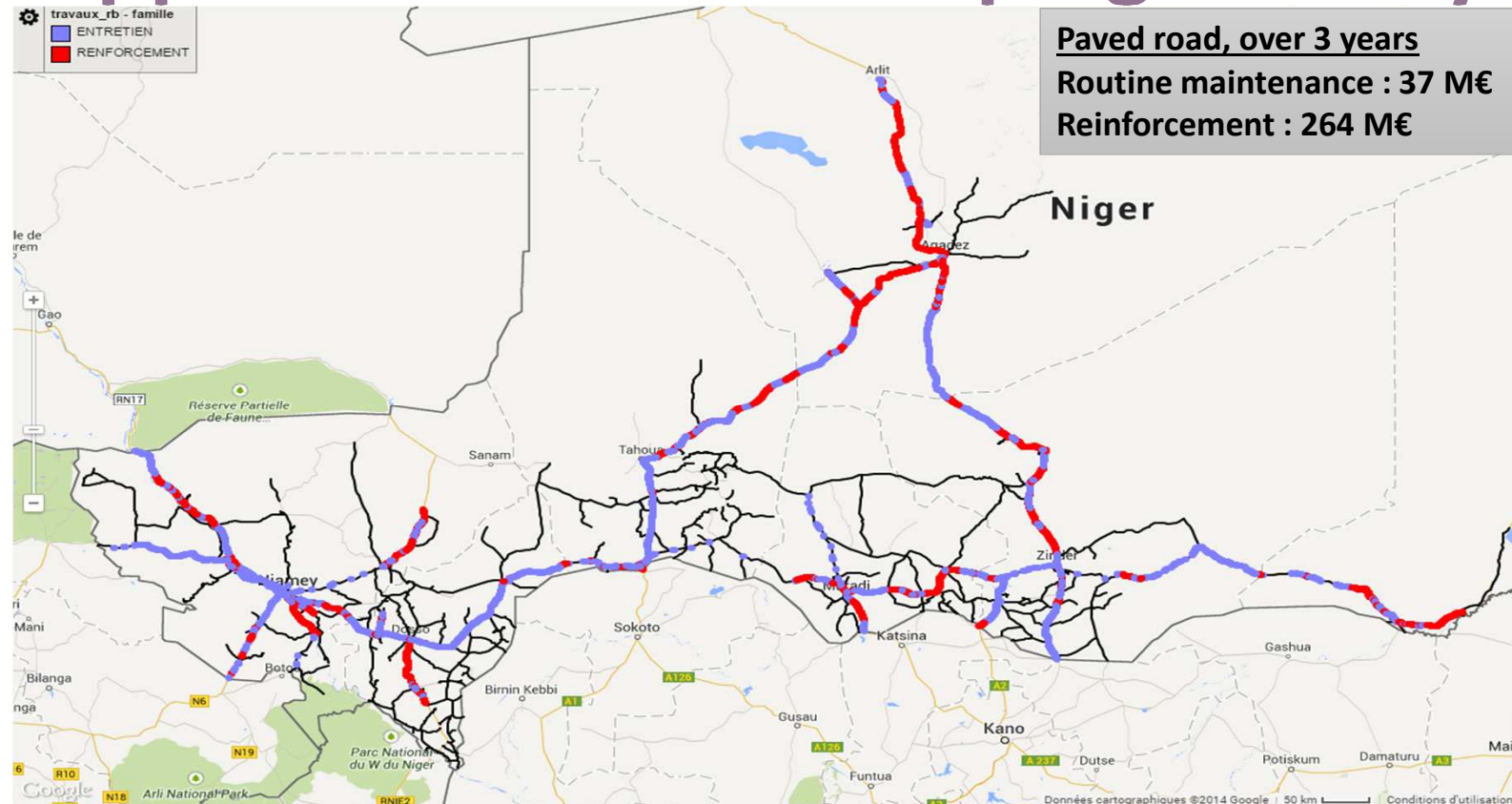
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Application to a developing country



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Application to a developing country



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CONCLUSION

- › PIARC managed a special project devoted to enlighten the importance of road asset maintenance
- › A road asset maintenance Manual is under development, the first version expected by fall 2015
- › This Manual can be used in developed countries and in developing countries as well.

More on this application and others:

« Déploiement d'un système d'aide à la gestion de l'entretien des routes au Niger »

Roads / routes, thematic issue on Asset management, April 2015

Visit :



Exhibition Hall, stand n° 29



Thank you for your attention

