Importance of Road maintenance – Good Practices – Example
IMPORTANCE OF ROAD ASSET MAINTENANCE
Importance of road asset maintenance

› Road networks: A considerable asset
  ▪ Political authorities need 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.
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 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

Introduction

- What is AM?
- Self Assessment
- Organization
- Maturity

Basic AM

- Data
- Performance Modeling
- Risk
- Asset Valuation
- Program/Resource Allocation
- Financial Plans

Proficient

- Management Systems

Advanced

- Communication
- Investment Strategies
- AM Plan
- Performance Monitoring

PPRS Paris 2015 - Importance of Road Maintenance - Good Practices - Example
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

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

**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

Risk
Asset Valuation
Financial Plan

Investment Strategies
AM Plans
Performance Measures/Monitoring
Road maintenance manual

Management Systems

Communication
AN APPLICATION
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
Application to a developing country

Condition rating of paved roads

PPRS Paris 2015 - Importance of Road Maintenance - Good Practices - Example
Application to a developing country

Condition rating of unpaved road
Application to a developing country

Paved road, over 3 years
Routine maintenance: 37 M€
Reinforcement: 264 M€
Application to a developing country

Unpaved roads over 3 years
Maintenance : 15 M€
Reinforcement : 107 M€
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