



**18th Transport Sector Coordinating
Committee Meeting**

25-26 April 2019 | Tashkent, Uzbekistan

**18-е заседание Координационного
комитета по транспортному сектору**

25-26 апреля 2019 г. | Ташкент, Узбекистан

Road Asset Management in the CAREC Region

Performance Indicators + Knowledge Products

Performance Indicators

To monitor road asset management performance of CAREC countries

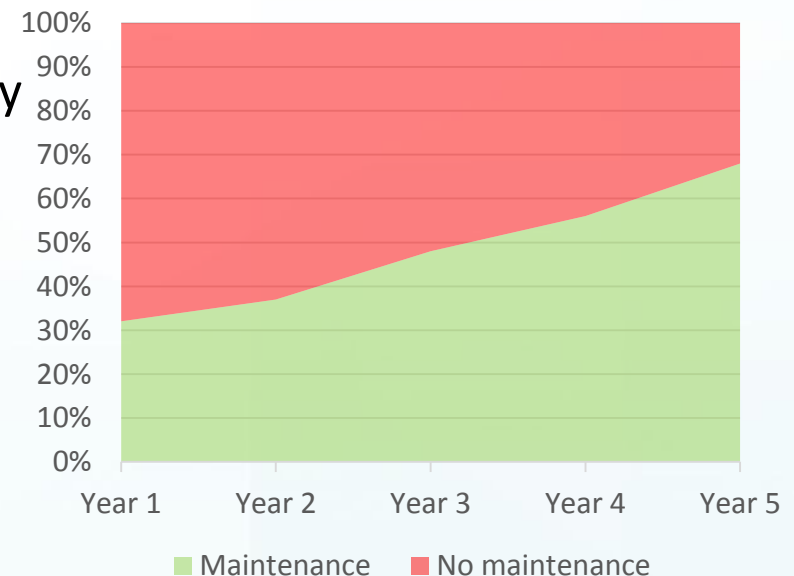
Performance Indicators

- Performance Indicators for road asset management
 - Supports measuring progress in implementing asset management
 - Monitor performance in CAREC countries
 - Wider context of road network performance
 - Including financing performance
 - Demonstrate how funding is being used effectively
 - Provide link between corporate vision, asset management strategy, levels of service and operations
 - Facilitate effective communication with stakeholders
 - Support demonstration of implications of shortfall in funding
- Output indicators
 - Indicators that are directly influenced (e.g. number of km maintained)
- Outcome indicators
 - Indicators that are indirectly influenced (e.g. percentage of good roads)

Output Indicator 1: Maintained Length

Length of road receiving maintenance (km)

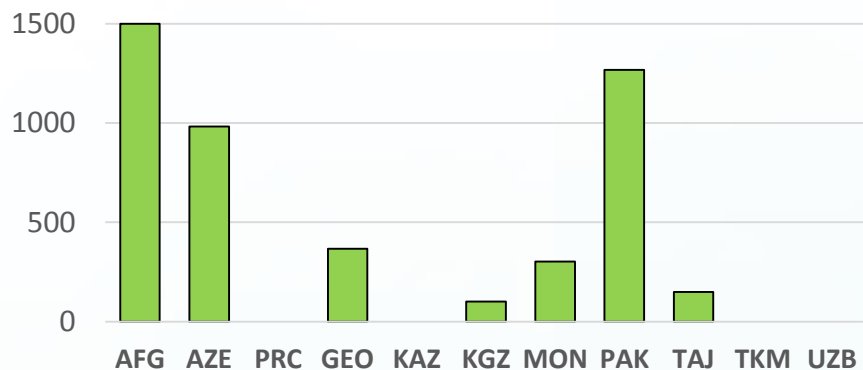
- Differentiated by routine/periodic maintenance (minor/medium)
- Focus on the main network (e.g. national roads) or CAREC corridors
- Alternatively presented as percentage of network
- Data generally available in country
- To be reported on annual basis



Output Indicator 2: PBM Length

Length of road under performance-based maintenance (km)

- Focus on the main network (e.g. national roads) or CAREC corridors
- Alternatively presented as percentage of network
- Data generally available in country
- To be reported on annual basis



■ Performance-Based Maintenance

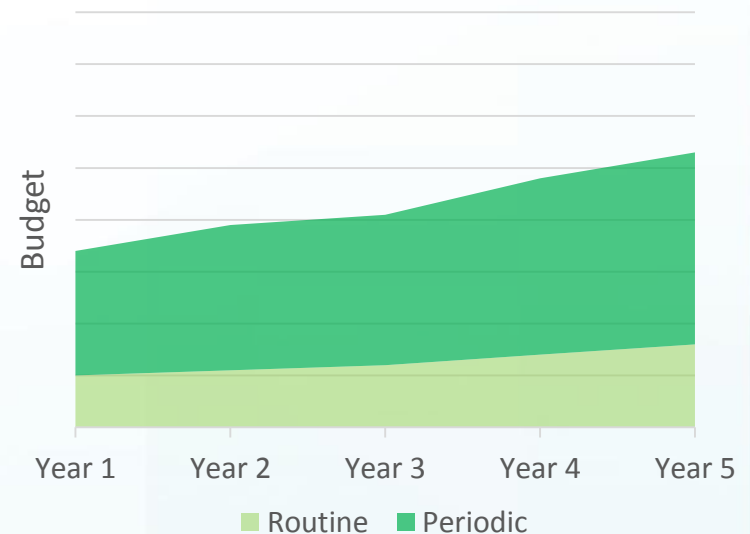


■ Performance-Based Maintenance

Output Indicator 3: Budget Allocation

Budget allocated to road maintenance (USD)

- (Differentiated by routine/periodic maintenance)
- Focus on the main network (e.g. national roads) or CAREC corridors
- Data generally available in country
- To be reported on annual basis
- Together with previous indicator, allows budget allocation per km of road network to be calculated

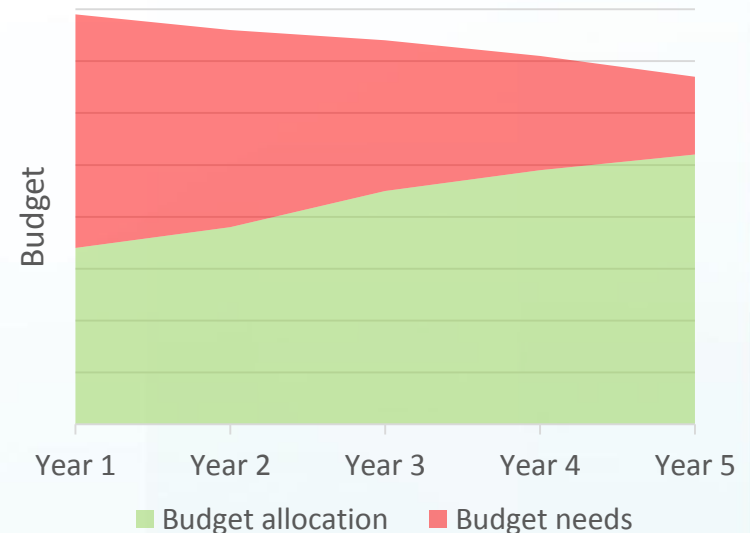


Output Indicator 4: Budget Needs

Budget needs for road maintenance (USD)

- (Differentiated by routine/periodic maintenance)
- Focus on the main network (e.g. national roads) or CAREC corridors
- Alternatively presented as budget need per km of road network

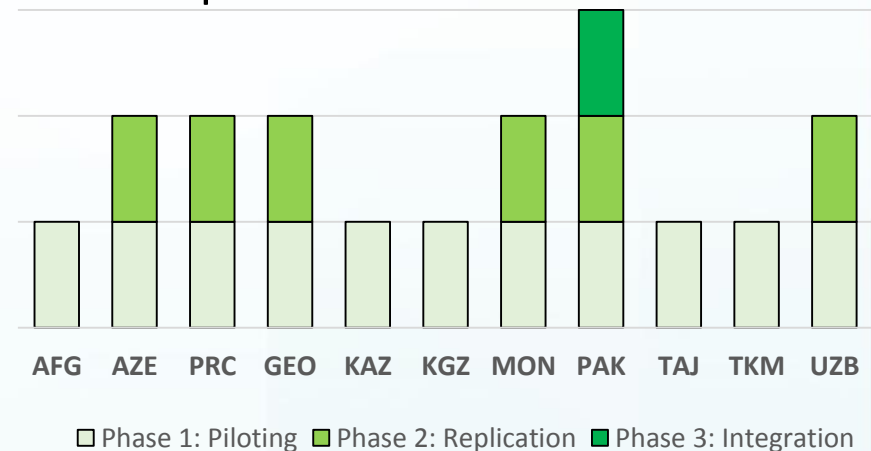
- Data to be estimated based on RAMS analysis or road survey
- To be reported on annual basis
- Together with budget allocation indicator, allows percentage of coverage to be estimated



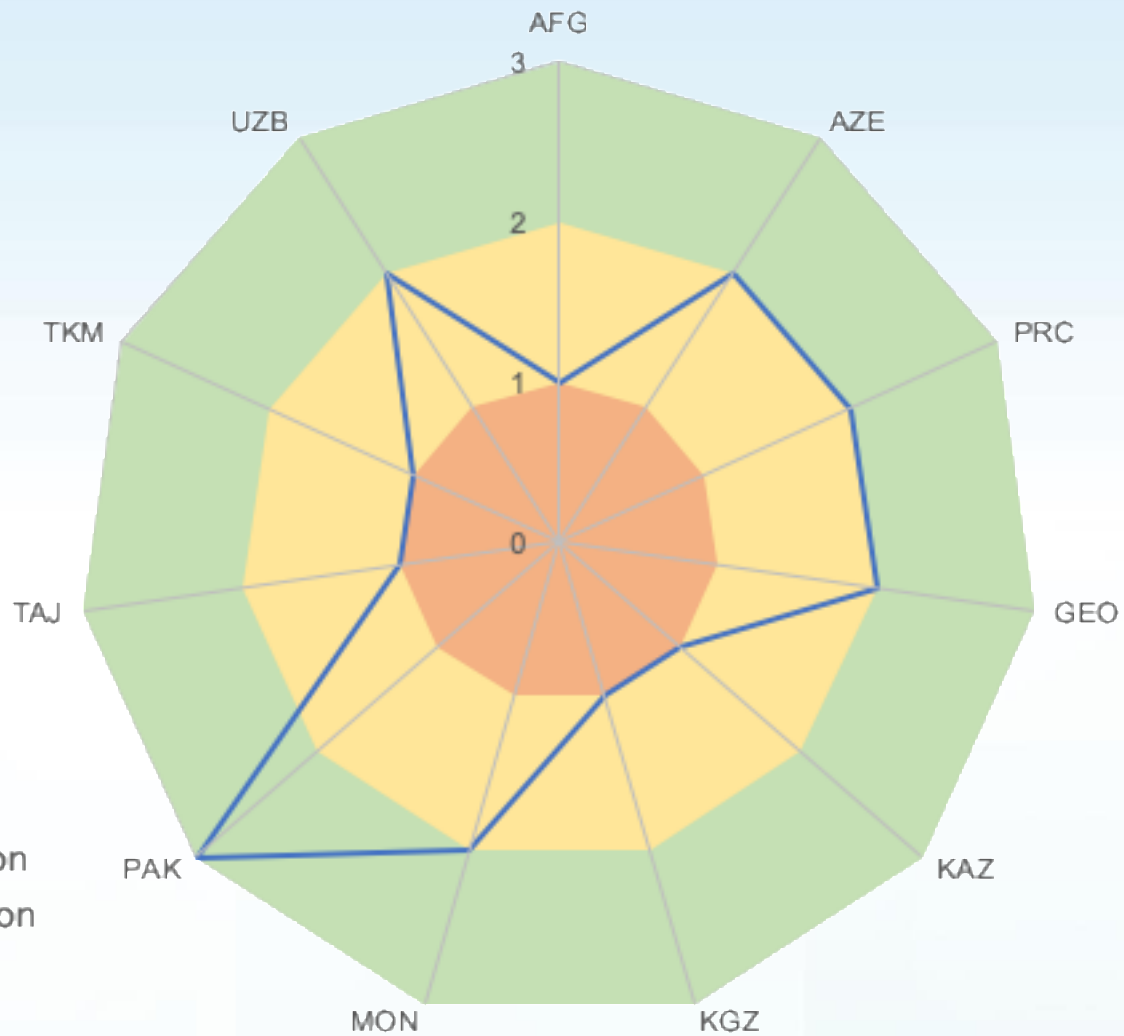
Outcome Indicator 1: RAMS Maturity

Level of maturity of the RAMS (1/2/3)

- Maturity levels (1: piloting, 2: replication, 3: integration)
- Focus on the main network (e.g. national roads) or CAREC corridors
- Maturity level based on RAMS scorecard (to be prepared)
- Data to be provided regarding different aspects of RAMS
 - Percentage of network for which data is collected
 - Number of fulltime staff in RAMS unit
 - Etc.
- To be reported on annual basis



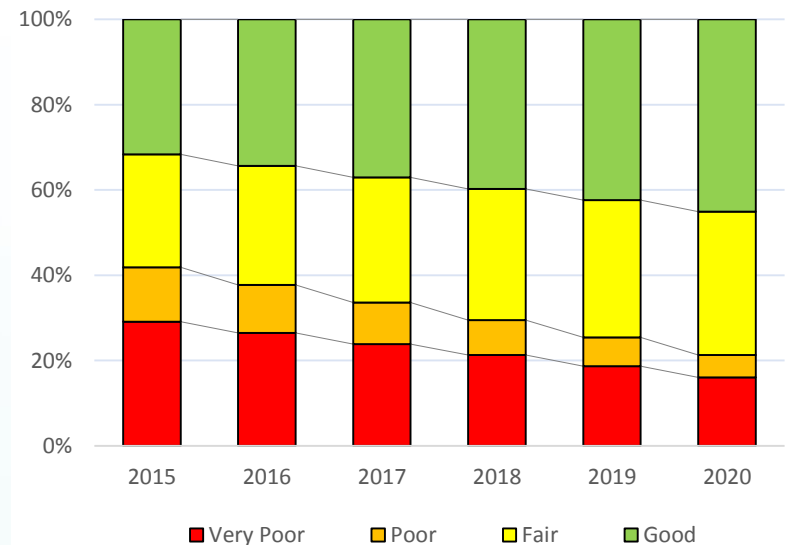
CAREC RAMS RATING



- Phase 3: Integration
- Phase 2: Replication
- Phase 1: Piloting
- RAMS rating

Percentage of road network by condition category (%)

- Condition categories (good, fair, poor, very poor)
- Focus on the main network (e.g. national roads) or CAREC corridors
- Categories based on condition definitions (to be prepared)
- Data to be provided regarding different aspects of road condition
 - Roughness
 - Surface distress
 - Etc.
- To be reported on annual basis

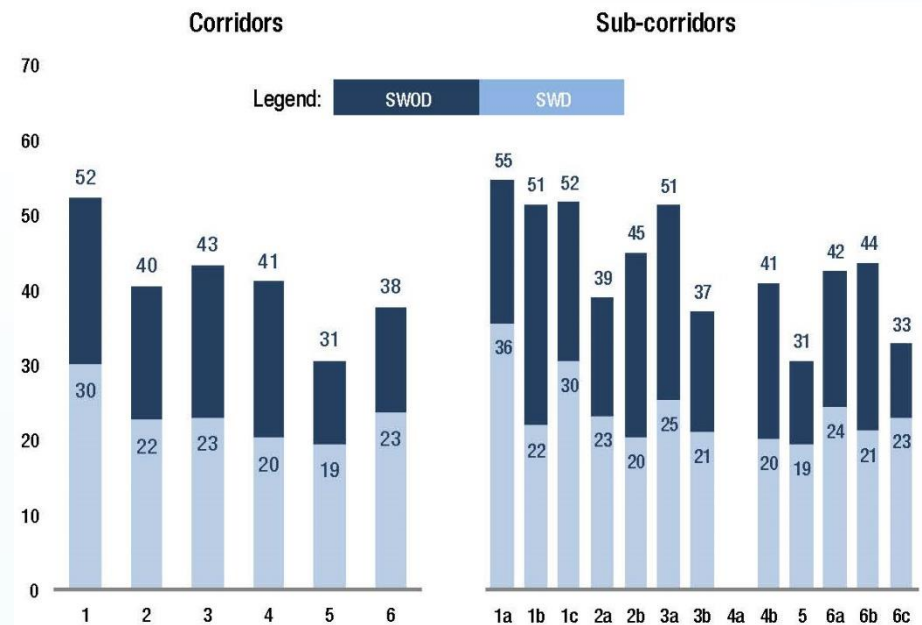


Outcome Indicator 3: Average Speed

Average speed without delays (km/h)

- Speed without delays – SWOD (e.g. due to border crossings)
- Focus on the main network (e.g. national roads) or CAREC corridors

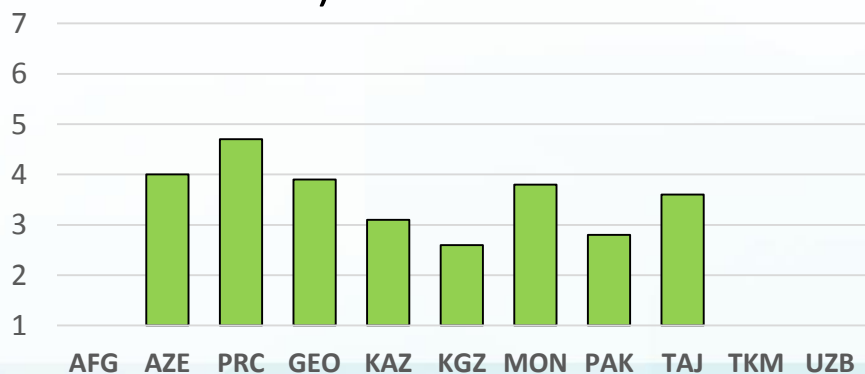
- Data already being (partly) reported to CAREC
- Alternatively WEF Quality of Road Network Index for 10 main cities (speed + straightness)
- To be reported on annual basis



Outcome Indicator 4: Quality of Roads

WEF Quality of Road Infrastructure Index (1-7)

- Extensiveness and condition of the road network (WEF Executive Opinion Survey)
- For whole road network (focus on main roads)
- Score from 1 (extremely poor) to 7 (extremely good)
- Data already being reported by WEF (not for all CAREC countries)



Country	Value	Rank
AFG	-	-
AZE	4.0	70
PRC	4.7	42
GEO	3.9	73
KAZ	3.1	107
KGZ	2.6	131
PAK	3.8	77
MON	2.8	118
TAJ	3.6	82
TKM	-	-
UZB	-	-



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Knowledge Products

To support CAREC countries in improving their performance



Knowledge Products

- To support countries in developing RAMS + PBC
- Wider support to general road asset management
 - Financing
 - Planning
 - Implementation
 - Institutional Framework
- Responding to country needs

Knowledge Product 1: Maintenance Financing

- Suitable financing sources for maintenance of main road networks
 - Review of existing practices in CAREC region
 - Review of best practices from around the world
 - Main advantages and disadvantages of different user charges
 - Fuel tax/levy
 - Tolls
 - Vehicle registration fees
 - Heavy vehicle surcharges
 - Etc.
 - Potential coverage of road maintenance costs in CAREC countries



Knowledge Product 2: RAMS design options

- Main options for RAMS design
 - Levels of complexity
 - Simple Excel database
 - Web-based application with decision matrix and GIS mapping
 - Full-fledged RAMS with pavement/contract management system
 - Data needs and collection methods
 - Inventory data
 - Condition data
 - Traffic and road user data
 - Review of applied systems in CAREC countries
 - Review of best practices in other countries around the world

- Performance-Based Maintenance standards
 - Suitable indicators and targets for different defects
 - Suitable penalties in case of non-compliance
 - Use of response times for correcting defects
 - Combination with volume-based payments (emergency/winter maintenance)
- Review of experiences in CAREC countries
- Review of best practices in other countries around the world
- Definition of base indicators for PBMs
- Definition of appropriate payment modalities, penalties and response times



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Performance Indicators + Knowledge Products

Selection of indicators and knowledge products by CAREC countries

Performance Indicators + Knowledge Products

- **Output indicators**

- Length of road receiving maintenance
- Length of road under performance-based maintenance
- Budget allocated to road maintenance
- Budget needs for road maintenance
- Other...

- **Outcome indicators**

- Level of maturity of the RAMS
- Percentage of road network by condition category
- Average speed without delays
- WEF Quality of Road Infrastructure Index
- Other...

- **Knowledge Products**

- Road Maintenance Financing
- RAMS Design Options
- PBM Performance Standards
- Other...