Back Analysis Project – Findings and Recommendations for Phase 2/Phase 3 Inception

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Presentation Topics

- Project Background
- Activities Conducted in Phase 1
- Activities Conducted in Phase 2
- Main Data Gaps Identified in Phase 2
- Main Activities Planned for Phase 3
- Completed Reconnaissance Visits
- Final Remarks
Project Background – What is ‘The Back Analysis Project’?

- RAF2069A: Development of Guidelines and Specifications for Low Volume Sealed Roads through Back Analysis
Project Background – What are Back Analysis Projects?

- Projects that look back in time at the PERFORMANCE OF EXISTING ROADS (or roads that EXISTED)
  - design,
  - construction,
  - characteristics of materials used,
  - All in relation to climatic conditions and traffic

- and analyse these to provide evidence for revisions to existing standards

Project Background - objectives

- **Review of performance of existing LVSRs**
  - Create a database of existing LVSR research
  - Use info to review and refine specifications and guidelines for LVSRs
  - Refine or verify catalogues currently used for design
  - Provide a basis for use of non-conventional designs and materials

- **Capacity Building**
  - Enhance capacity of AfCAP partners in assessing, analysing and managing LVSR data

- **Uptake and Embedment**
  - *Disseminate findings for adoption of outputs into national guidelines, manuals, specifications and standards*

Project Background – Why are Back Analysis Projects Important?

- Looks at roads where the climatic factors have acted on the materials for a long time

- Evidence-based performance of LVSRs

- A cheaper way of gathering performance data (Construction of full trials expensive - AASHO road about $30 m in 1958)
Activities Conducted in Phase 1

Phase 1 (Completed)

- Web-based database structure created
  lvroaddata.com

- Existing research/experimental studies identified – some added to the database (>1 million rows) includes SEACAP data

- Dissemination workshop conducted in Dar – Es-Salaam

Activities Conducted in Phase 2

Phase 2 (Completed)

- Training of advanced DB users from 12 AfCAP countries
- Further improvement of the database structure
- Further addition of data from more research/experimental studies (> 3 million rows)
- Detailed Gap Analysis and Identification of key study areas for Phase 3
Main Data Gaps Identified in Phase 2

- LVSRs with surfacing +10 yrs (no reseal) in areas of high rainfall
- Pavements that have carried traffic loading in the range 0.5 MESA to 1MESA
- Non-conventional surfacings (Otta, Sand, Combinations, Road Mix, CMA, etc) especially in areas of high rainfall
- Dealing with weak subgrades for LVSRs at 0.5 MESA to 1MESA
Main Activities Planned for Phase 3 (now underway)

- Field investigations
- Laboratory testing
- Data analysis (Combining data in database + Phase 3 fieldwork + SEACAP data)
- Dissemination of findings (to enable uptake and embedment) - Workshop
- Capacity Building
- Production of a scientific paper
Completed Reconnaissance Visits (part of Field Investigations)

- To identify study sites to fill the gaps identified in Phase 2
- Conducted in Ghana, Mozambique, Uganda, and Zambia.
- (Tanzania) – identified good roads

Completed Reconnaissance Visits (Ghana)

- DSD, 12 yrs plus (no reseal)
- Thin pavement
- Neat lateritic gravel
- High rainfall
Completed Reconnaissance Visits (Ghana)

- DSD, 20 yrs plus (no reseal)
- Thin pavement
- Neat lateritic gravel
- High rainfall
- Note particle size
- Mozambique also similar
Completed Reconnaissance Visits (Uganda)

- Double Sand Seal, 8 yrs (no reseal)
- Over 1000 vpd
- High rainfall

Completed Reconnaissance Visits (Zambia)

- DSD, 15 yrs (no reseal)
- Through swamp
- Very low embankment
- High rainfall
Final Remarks

- The Back Analysis Project will provide the evidence-based data and analysis results that will assist in the next revision manuals, guidelines and specifications. (Evidence for uptake and embedment)

- Cooperation from partner countries and in grasping this vision and continuing with this system beyond ReCAP.

- AfCAP countries – PLEASE ADD DATA TO THE DATABASE.
Thank you for your attention

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