ROAD CONSTRUCTION MATERIALS PROFICIENCY TEST
SCHEME (PTS) IN MOZAMBIQUE

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In Mozambique, different materials testing standards are used for the design and quality control process in the civil engineering industry. This brings variability in the results and in the process of taking decisions. In order to reduce the variability of test results and establish the relationship between the different test methods, a pilot Proficiency Testing Scheme was carried out.
Project objectives:

To improve the test results

Provide testing results that are in line with international practice,

Producing test results that can be used with confidence by the industry.
Sampling:

- Splitting of the material was carried out at the National Engineering Laboratory (LEM) in Maputo and the samples were distributed to the participating facilities.
Requested laboratory testing:

- Atterberg Limit & sieve analysis
- Crushed granular/Sand material
- CBR
- MDD & OMC

Requested laboratory testing:

- **Aggregate samples.**
  - ALD,
  - ACV
  - 10% FACT
  - Grading

- **Plastic soil.**
  - Atterberg

Analysis of laboratory results:

- The results were analysed using statistical techniques. The H15 Robust Mean and H15 Robust Standard.
In general, the variability in the results produced on the third round by the individual facilities has improved.

The split between the two methods used in Mozambique as well as the variations in the interpretations on how the test is undertaken adds to the variability in the results.
The StDev and Range improved for CBR on the A and B specimens but increased significantly for the C specimens. This indicates a more consistent performance in CBR tests on materials whose OMC and MDD values are provided.

Too big a sample size takes too long to complete operation and impedes production in the facility. Too small a sample means its less representative and if too small non-representative.
RESULTS-GENERAL COMMENTS

- The process sample preparation & distribution are well understood
- Soil Mortar based on grading analysis, is still a problem.
- So far no correlation were found between the method.
Lessons learnt during the Pilot Project:

- The PTS pilot project highlighted the need to reduce the variability of results produced by the facilities.
- This includes the importance of standardising test methods in Mozambique and ensuring that all laboratories have equipment that is compatible with the test methods.
- Strict program for result submission, data capture, analysis & report dissemination.
The way forward:

- Typical annual program:
  - Each round to contain only 1 material type
  - Repeated 2 – 3 times per year
  - Rotate granular material between crushed and sand annually.
  - PI to be conducted on both plastic & non-plastic material
  - Must have
    - fixed dates for sample prep & dissemination,
    - results submission,
    - confirmation of results,
    - draft & final report.

Thank you for your attention

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