Developing a safe simulant for faecal sludge

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ECRWASH 2013 – Cranfield University

Mott MacDonald

Sanitation: A global challenge

Photo: Maxine von Eye

What happens when the pit is full?

Photo: Partners in Development

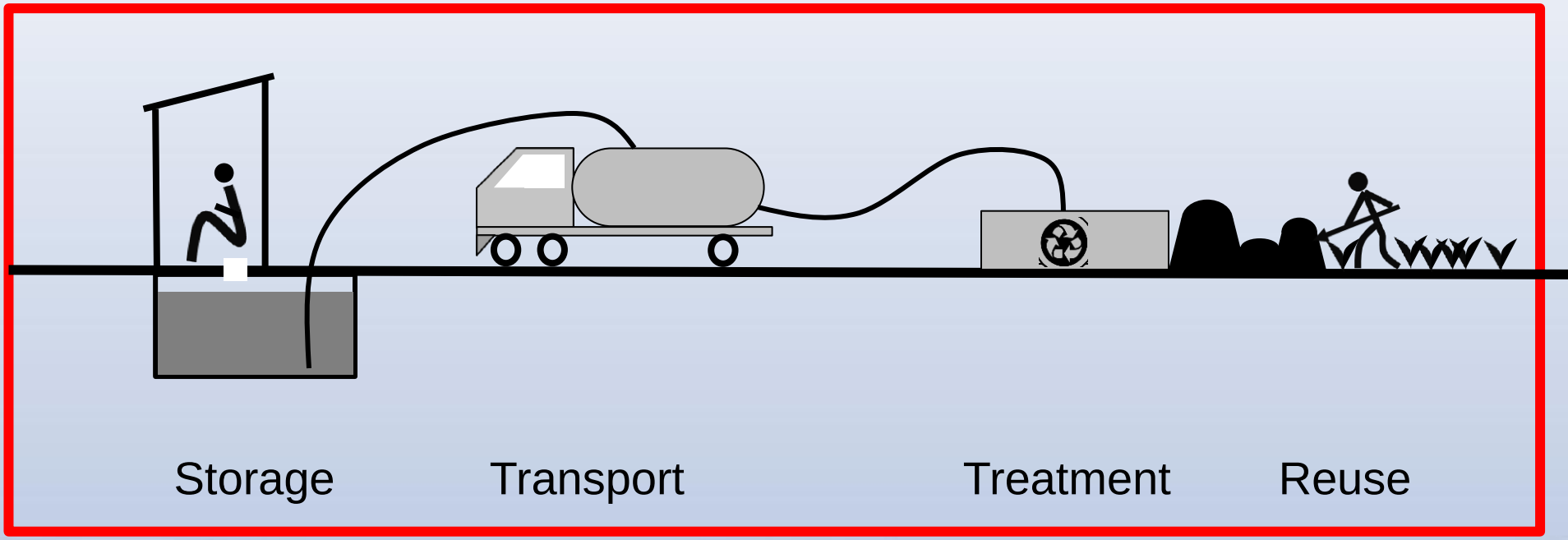
Manual pit emptying

Photo: Remi Kaupp

Mechanised pit emptying

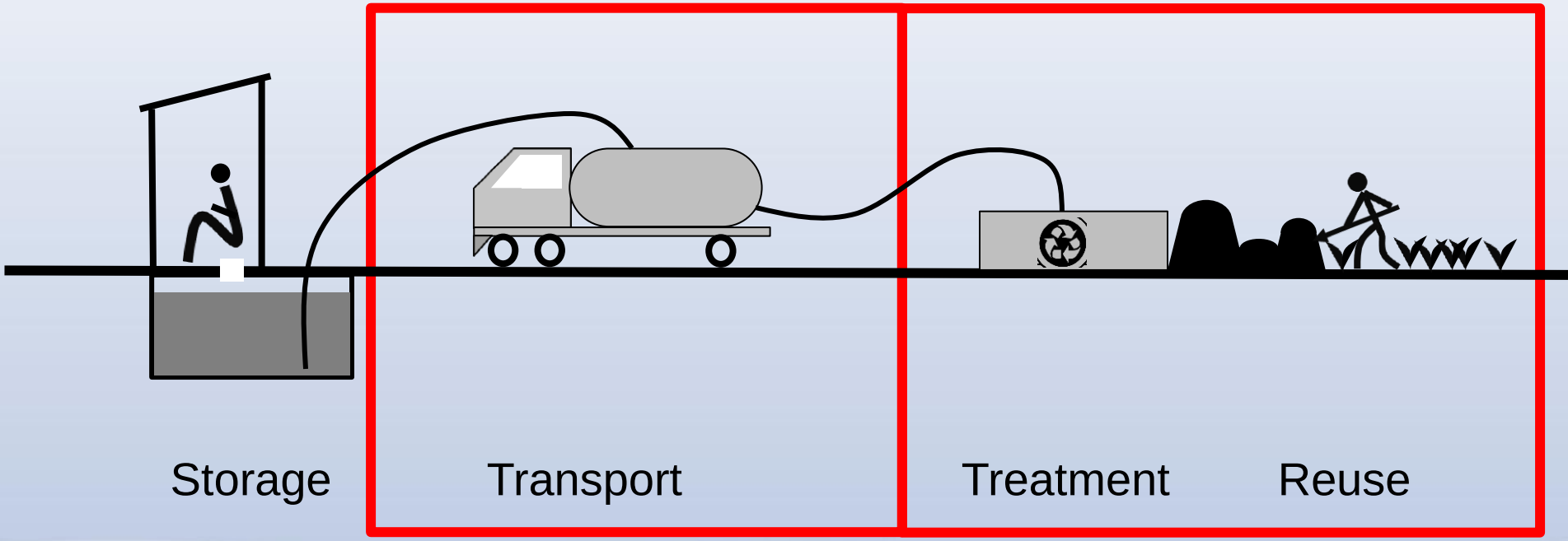
Photos: Manus Coffey, PID, Steve Sugden, Mark O'Riordan

Sanitation value chain

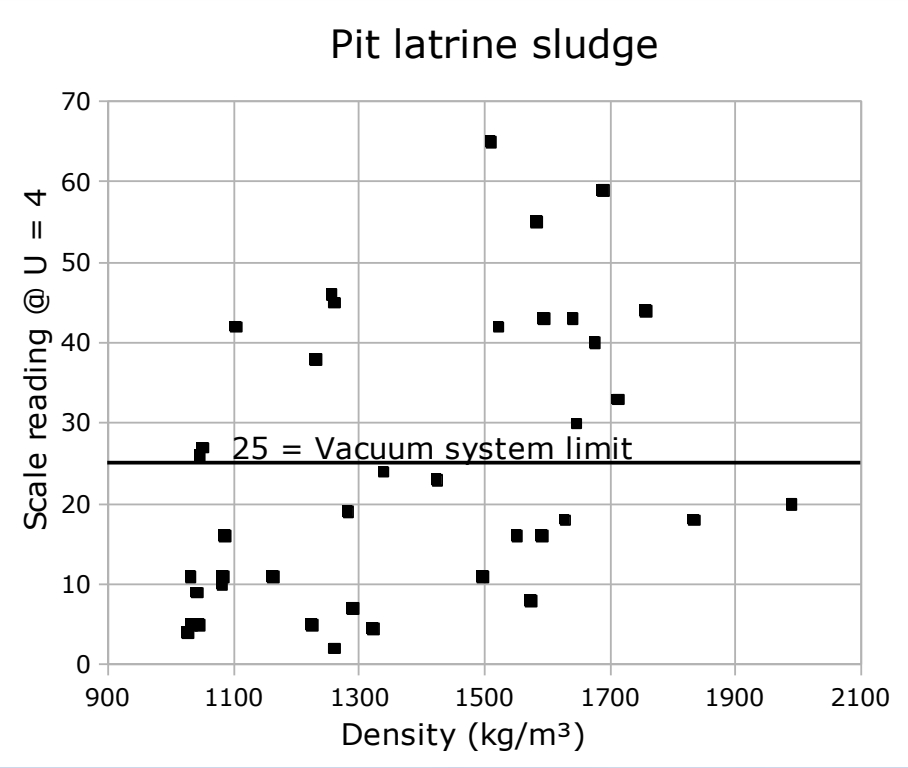


Reinvent the Toilet Challenge

Sanitation value chain



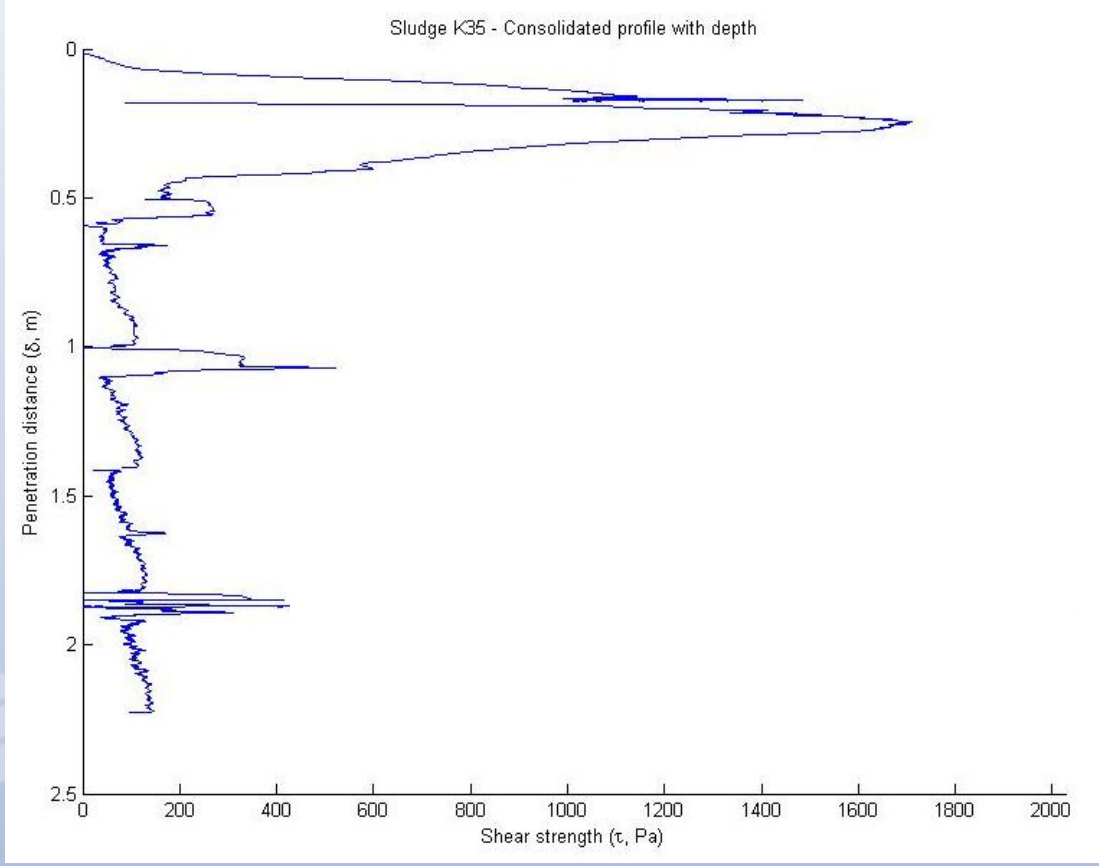
Faecal sludge rheology



IRCWD, Botswana, 1985

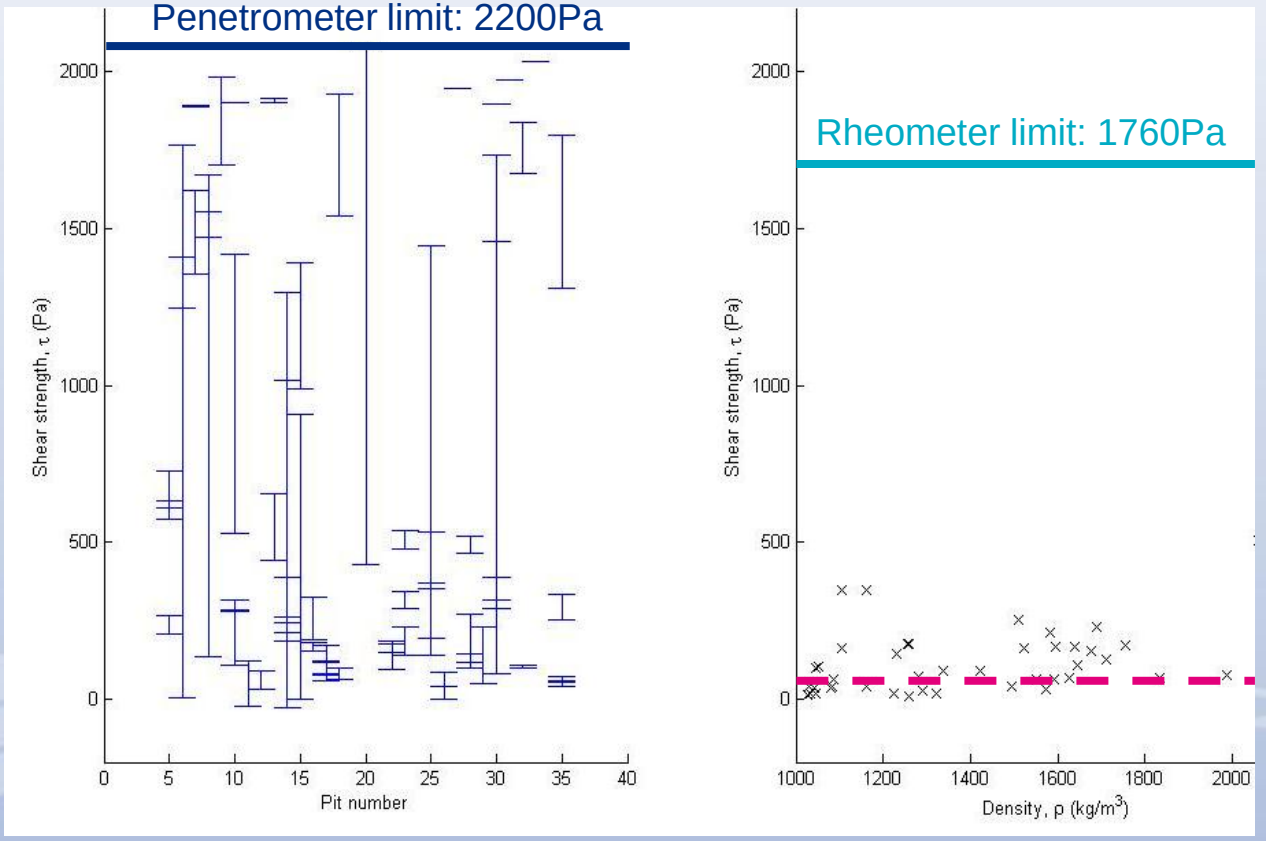
Penetrometer development

Shear strength profile



Summary of results

This study: Uganda 2012

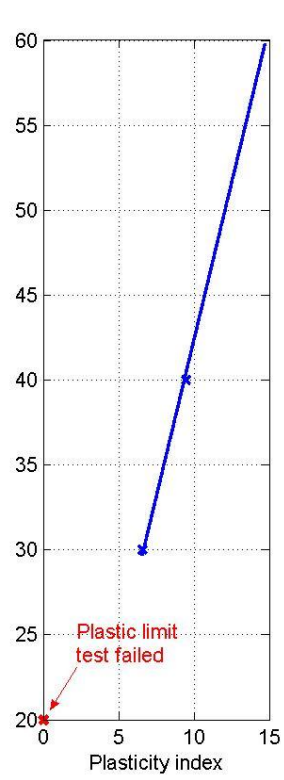


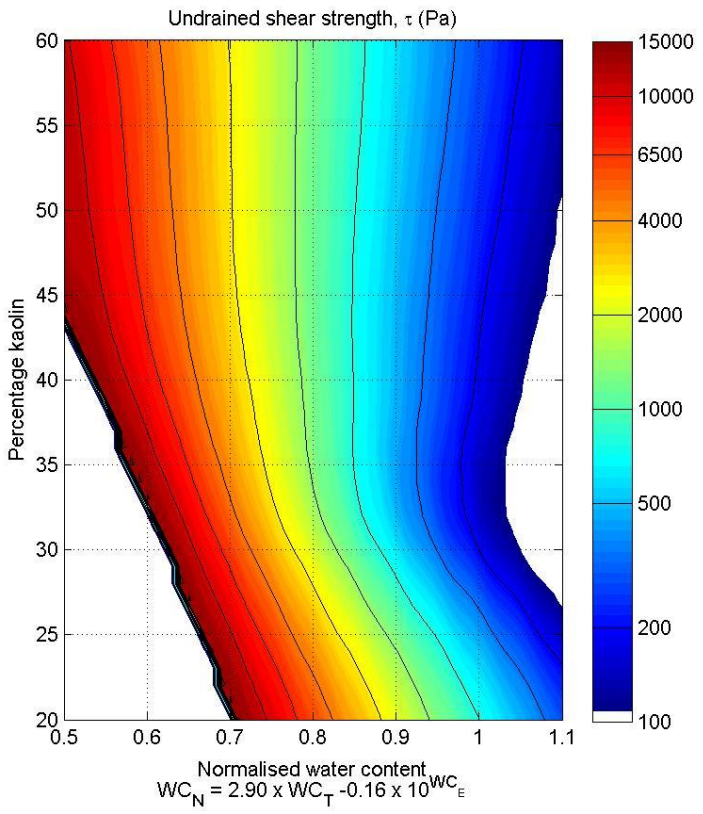
UKZN: South Africa 2013

IRCWD: Botswana 1985

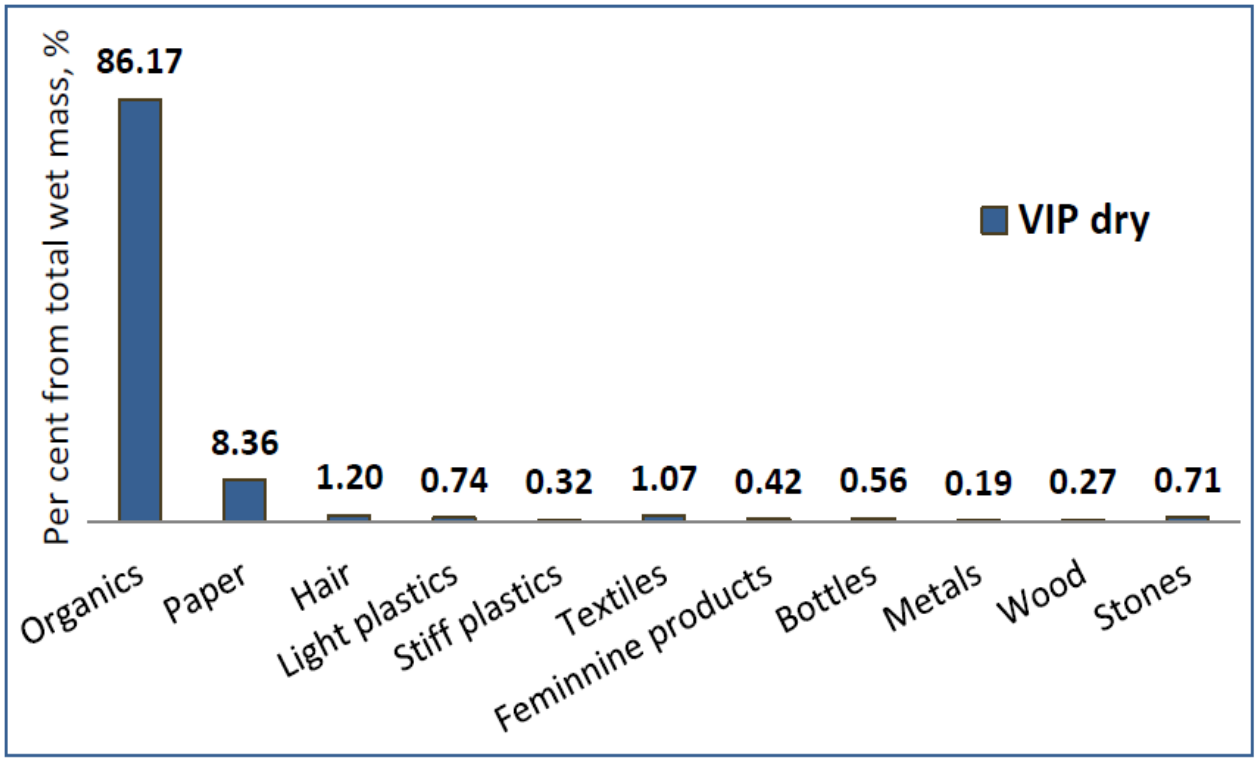
AIT: Thailand 2012

Simulant development





Adding detritus



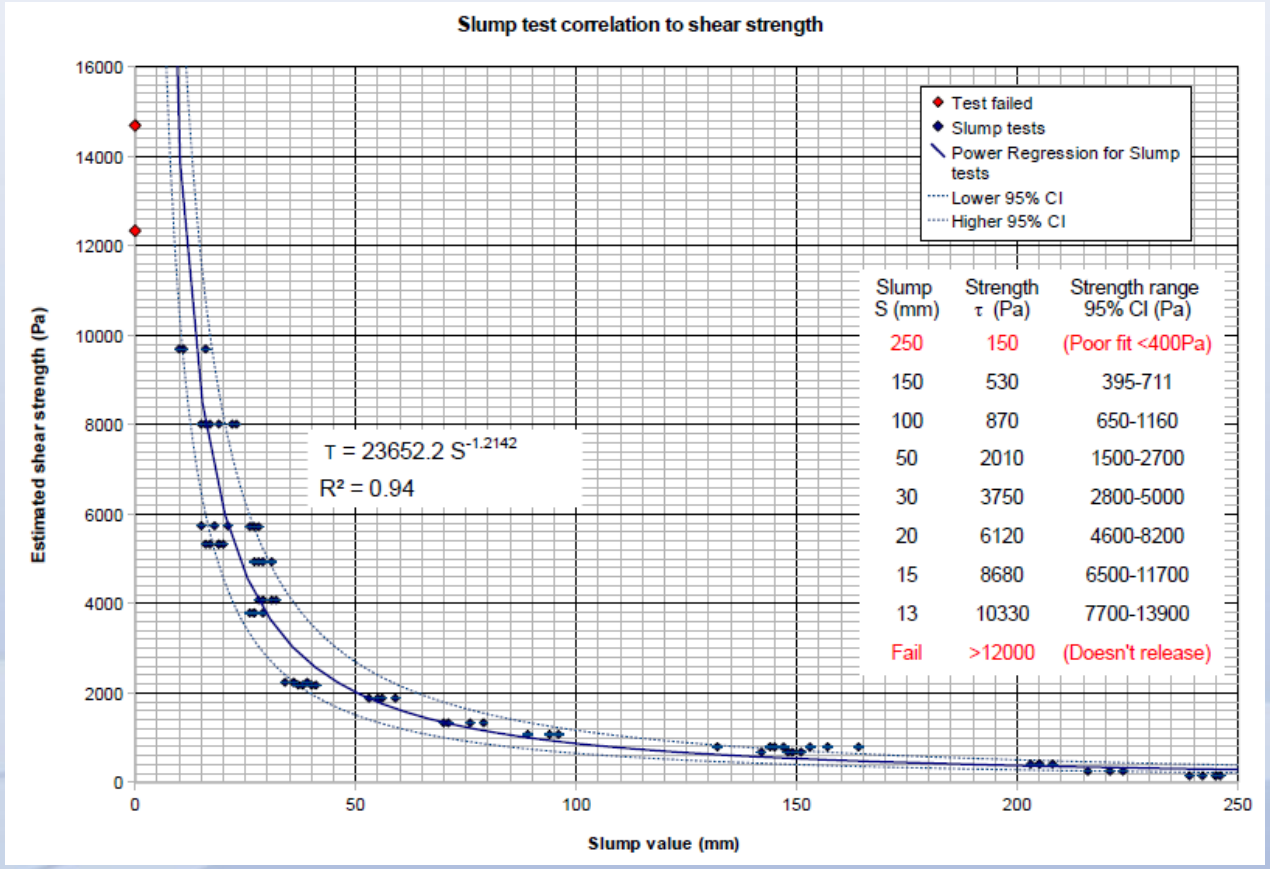
UKZN MPFS Interim Report A, August 2012

Visual strength guide

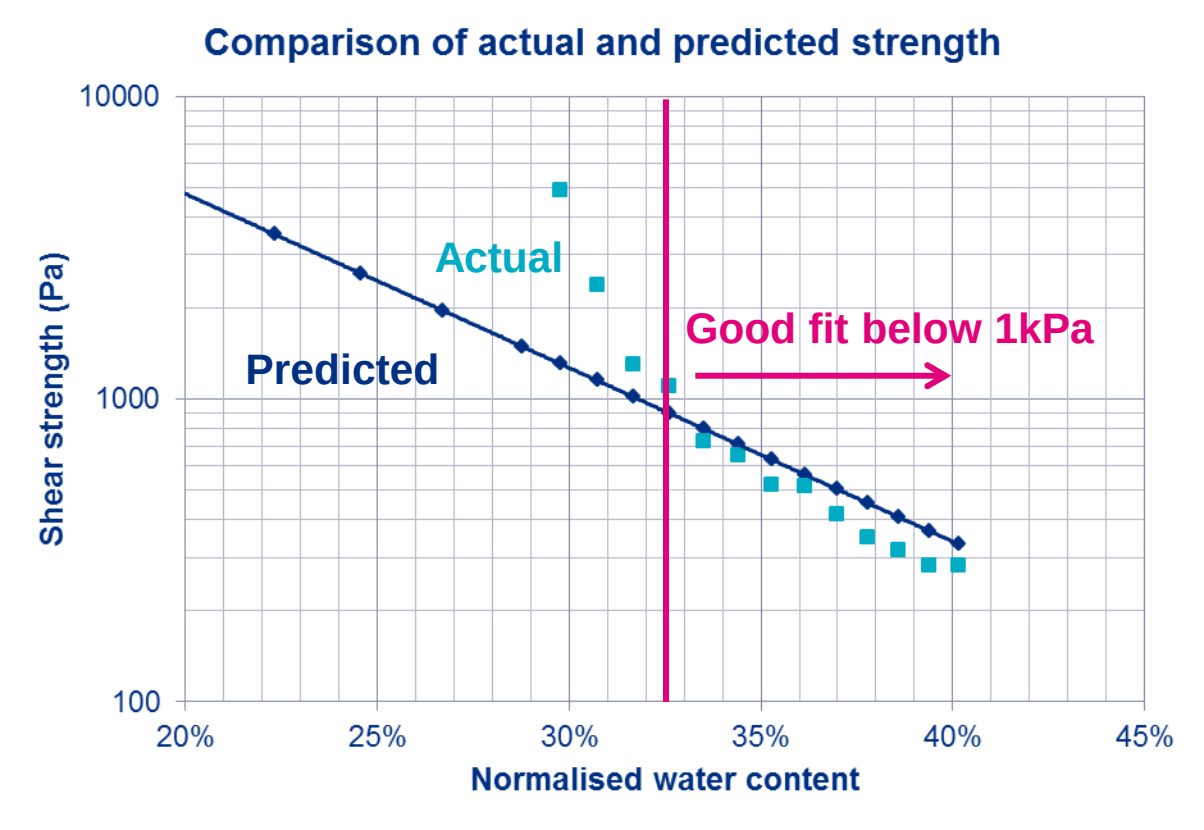
250Pa simulant

25,000Pa simulant

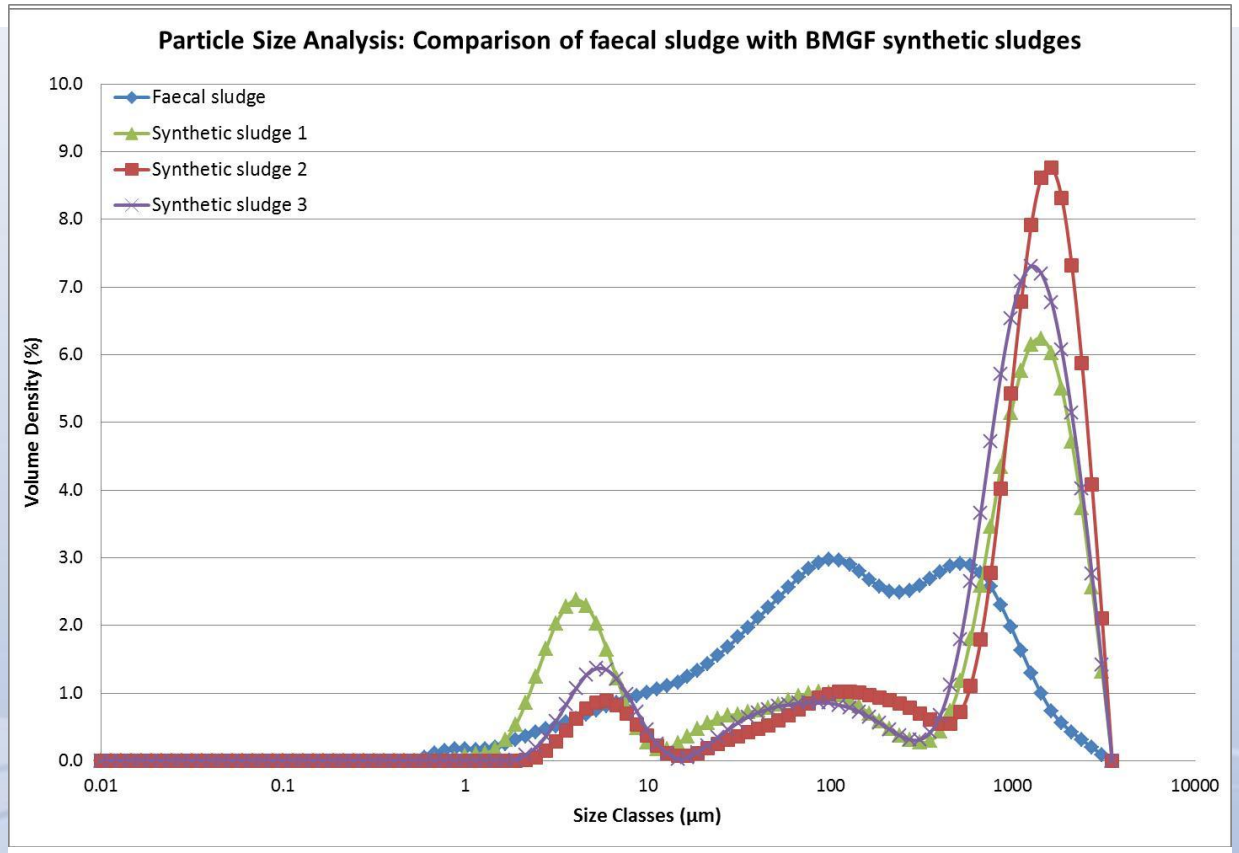
Simple strength test



Feedback from users



Separation simulant



UKZN analysis (2013, unpublished)

Future work

- Share the results with key partners developing innovations and sanitation technologies
- Large-scale study (~1000 pits) to measure faecal sludge strength, density, solids content and ‘dewaterability’.

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Acknowledgements:

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