



*Urban Sustainable Development
in School Communities*

Use of Bamboo and Sisal in Malawian School Construction

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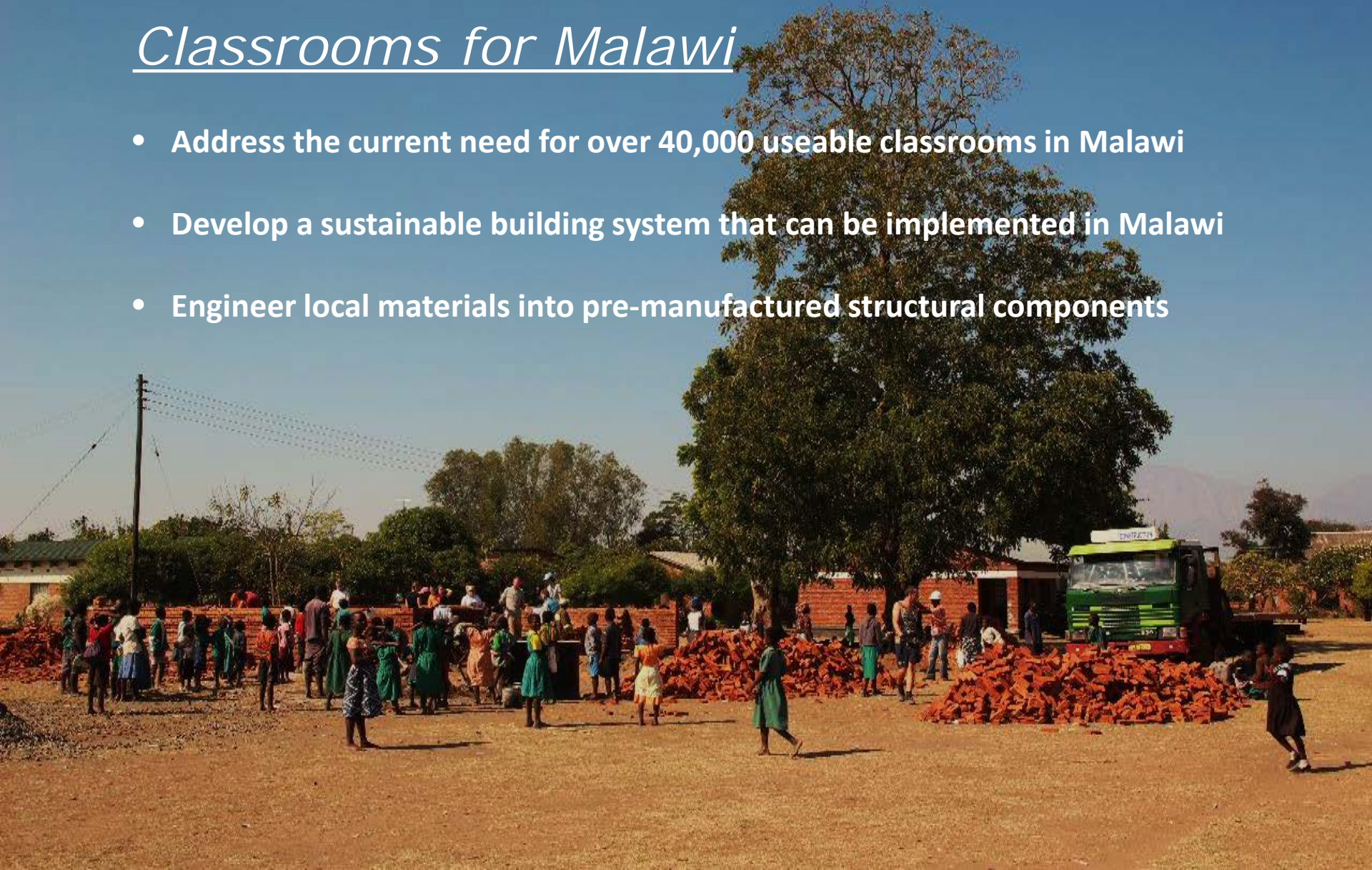
Introduction

- What Classrooms for Malawi are trying to achieve
- How we approach sustainability
- How we look to quantify the sustainability of our work



Classrooms for Malawi

- Address the current need for over 40,000 useable classrooms in Malawi
- Develop a sustainable building system that can be implemented in Malawi
- Engineer local materials into pre-manufactured structural components



Project Boundaries

- Traditional Construction Culture
- Extreme Weather Conditions
- Deforestation
- Termites
- Economic Sustainability

Malawian traditional brick +
mortar construction

Offsite construction

Timber

Bamboo

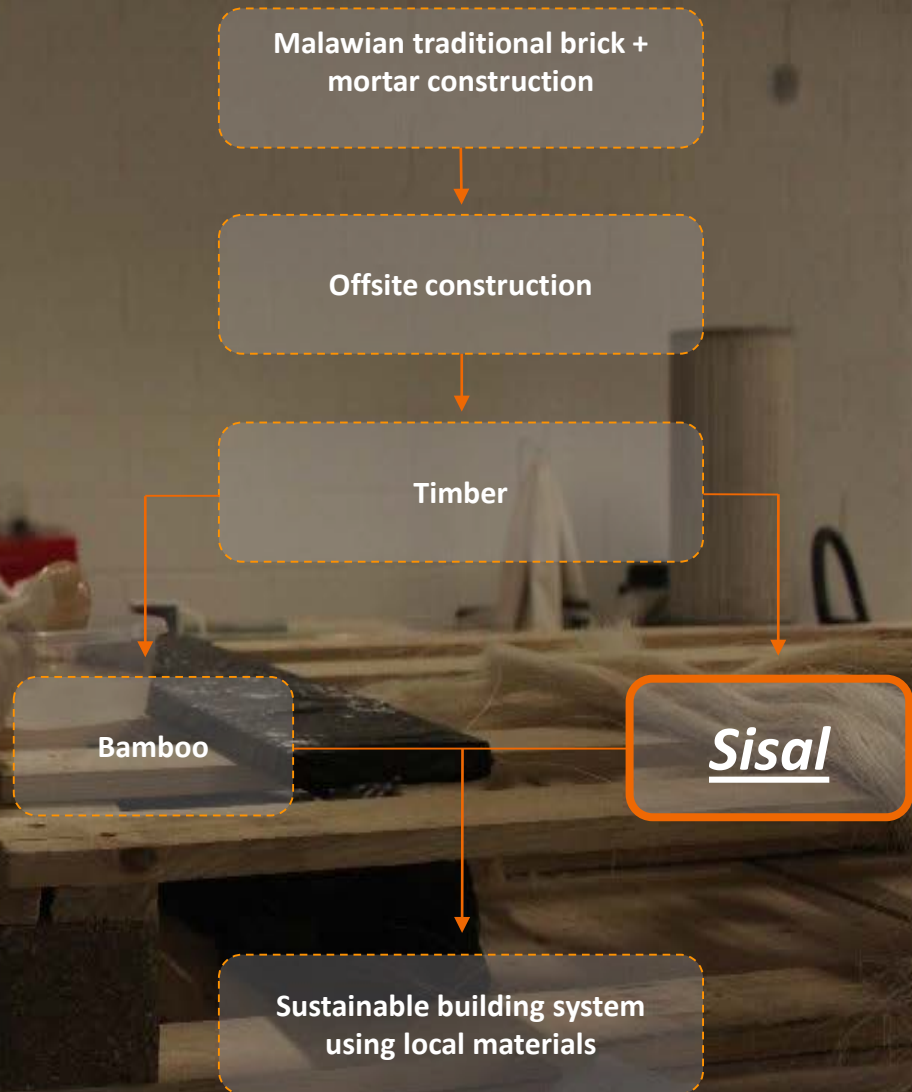
Sisal

Sustainable building system



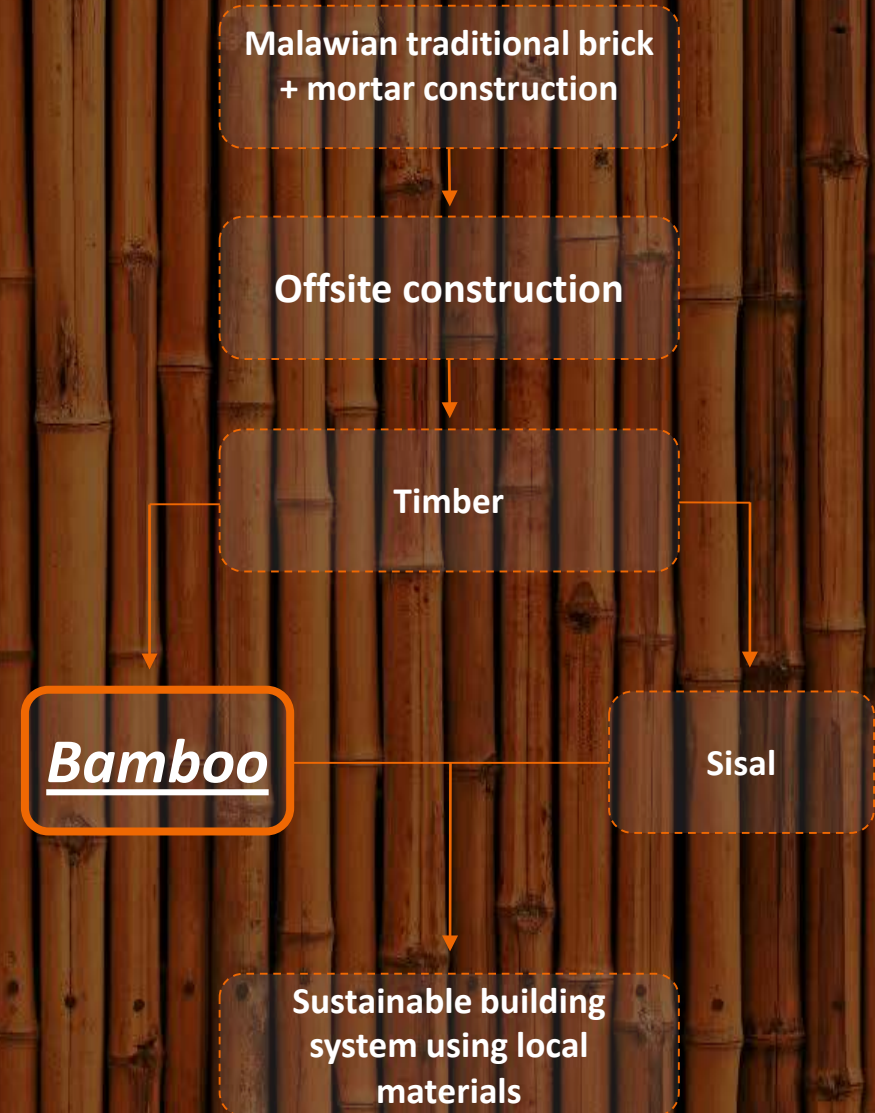
Sisal

- Strong leaf fibres used for rope and thatching
- Grown readily across Sub-Saharan Africa
- Harvested annually
- Requires low-water content to grow
- Can be used as part of a natural fibre composite board
- Termite resistant boards



Bamboo

- Historical use in construction
- Strength similar to Oak
- Currently treated against termites and moisture
- Potential for lightweight structural components
- 15m length of bamboo is 75p in Malawi



Our approach to sustainability



Social

- Replacing traditional construction
- Removing community input
- Complicating construction

Environmental

- Potential of bamboo plantations
- Use of bio-polymers
- Lifecycle of products

Economic

- Entrepreneurial support
- Recycling materials
- Introducing a growing market

Can we quantify sustainability?



Design



Evaluate



Integrate

Thank you for listening

Rory C Doak