**Proposal for a master thesis**

**Master Programme Infrastructure and Environmental Engineering 2025/26**

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| **Title** |
| Proposal 4: Sustainable Greywater Treatment and Reuse Systems for Irrigation and Construction at Tumaini Open School |
| Description background and problem description, app. 150-500 words |
| **Background:** Tumaini Open School discharges most greywater (from laundry, showers, dishwashing) untreated into the surrounding environment. With no formal sewer connection and limited water access, greywater reuse presents a valuable opportunity for non-potable uses, especially irrigation during dry seasons.  **Research Aim:** To evaluate and propose feasible, low-cost greywater treatment systems suitable for Tumaini’s needs, enabling safe reuse while minimizing environmental contamination.  **Objectives:**   * Identify the most practical greywater sources for treatment. * Design and compare two treatment solutions:    1. Filtration barrels with gravel, sand, and activated charcoal.   2. Elevated plant filtration beds mimicking constructed wetlands. * Evaluate environmental impacts, space requirements, and maintenance needs. * Assess reuse suitability based on water quality, (including microbial growth and pH testing). * Ensure adaptability to local construction materials and labour.   **Methodology:** On-site assessments, water sampling and quality modeling (hypothetical or with partner labs), literature reviews on decentralized treatment systems, and stakeholder consultations for acceptance and usability.  **Expected Outcomes:** A blueprint for implementing small-scale greywater treatment at the school, along with cost estimates, layout plans, and recommendations for safe reuse. The study will support long-term sustainability and water resilience while reducing pollution risks. |
| **Literature suggestions** |
| Suggestion: |
| **Special prerequisites** e.g. courses |
| The master thesis will require that you visit Tanzania for three months in order to conduct field work. Funding for your field studies can be applied for via the link below:   1. [Nils Rud Olson minnesfond (chalmers.se)](https://www.chalmers.se/utbildning/studera-hos-oss/studentliv/stipendier-for-studenter/nils-rud-olson-minnesfond/) 2. [The Global Mentorship Program (chalmers.se)](https://www.chalmers.se/en/education/study-at-chalmers/student-life/scholarships-for-enrolled-students/the-global-mentorship-program/) |
| **Specific timeframe** (start date-end date, if needed) |
| Starting from the beginning of 2026 until the end of the academic year. |
| **Supervisors** (name, email) |
| From Engineers without borders: Alicia Bizet, [alicia.bizet@ewb-swe.org](mailto:alicia.bizet@ewb-swe.org) |
| **Examiner** (name, email) |
| Unknown |
| **Other information** |
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