Development of a Sanitation Safety Plan for peri-urban areas, Tanzania

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INTRODUCTION

- Lack of adequate sanitation services
- Health and environmental implications
- Unplanned rapid urban growth

SANITATION PLANNING IN PERI-URBAN AREAS

- Asses the SSP approach
  - Adapt to a specific context
  - Support the sanitation planning with a health-protective perspective

Case study in Iringa, Tanzania

- WASH cooperation project implemented by Fondazione ACRA

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THE CURRENT SITUATION

Current Sanitation System in peri-urban wards

LATRINES at hh level
45% unimproved

EMPTYING
- 23% manual
- 57% mechanised
- 20% bury and cover

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BEGIN

**METHODS**

### CLUES

Community-Led Urban Environmental Sanitation

CLUES guidelines (Lüthi et al., 2011)

### SSP

Sanitation Safety Planning

SSP Manual (WHO, 2015)

**Adaptation** of SSP to the case study

**Application** of approaches to the case study

**Assessment of strengths and weaknesses**

**Proposal of an integrated use**

END
Development of a Simplified Assessment Matrix

Risk = Likelihood * Severity

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<tr>
<th>LIKELIHOOD</th>
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<td>3</td>
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<tr>
<td>Risk score</td>
<td>&lt;3</td>
<td>3-4</td>
<td>&gt;5</td>
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<tr>
<td>Risk level</td>
<td>L</td>
<td>M</td>
<td>H</td>
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<tr>
<th>SEVERITY</th>
<th>1</th>
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Likelihood:
1. Unlikely: Never happened in the past, improbable to occur in future or only under special circumstances (1 year)
2. Possible: May have occurred before and may occur under regular circumstances in future (1 year)
3. Almost certain: Have been observed in the past and is likely or almost certain to occur several times in a year

Severity:
1. Minor: Result in no health effects or minor discomfort (irritation, nausea, headache, etc.)
2. Moderate: Result in minor illness (diarrhoea, vomiting, minor trauma, etc.)
3. Major: Result in serious illness or injuries (malaria, schistosomiasis, foodborne trematodiases, bone fracture, etc.), even loss of life.

Risk score:
1. <3
2. 3-4
3. >5

Risk level:
1. Low
2. Medium
3. High
4. Very high

Risk = Likelihood * Severity

Hypothsis for the hazard: exposure to pathogens

Hypothsis for the existing control measures assessment

Definition of a methodology to prioritize control measures

Priority =

\[(P \cdot w_P) + (TE \cdot w_{TE}) + (A \cdot w_A) + (C \cdot w_C)\]
Methodology

Current sanitation system

Application of CLUES

Selection of options

Design of S1

Integration of CM in S1

Application of SSP

Identification and prioritization of control measures (CM)

Design of the improved sanitation system S2

Validation of S2

S0

Current sanitation system

S1

Improved Sanitation system

S2

Proposed improved sanitation system
APPLICATION OF PLANNING APPROACHES (2)

CLUES:
improved system S1

SSP:
Identification and prioritization of CM for high level risks

Increasing awareness campaigns (cleaning, use of shoes in latrines, Cooking/boiling, cover pit hole disinfection)

Personal hygiene (dedicated clothes, training, tools and vehicle maintenance and washing)

PPE

Interdict access to working area

Water device near/soap

Full mixing with soil (regulations)

Emptying techniques improvement, use of closed containers

Emptying and Transport

Treatment

Reuse/Disposal

Infiltration

FOSSA ALTERNA

TWIN PIT POUR FLUSH

VIP LATRINE

POUR FLUSH WITH SEPTIC TANK

MANUAL EMPTYING AND TRANSPORT

MECHANISED EMPTYING AND TRANSPORT

Decentralised COMPOSTING PLANT

MUNICIPAL WWTP

GREYWATER

PPE

tools and vehicle maintenance and washing

cooking, boiling

S2

Incremental improvement action plans - Monitoring and verification plans

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## STRENGTHS and WEAKNESSES

<table>
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<th>CLUES</th>
<th>SSP</th>
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<tr>
<td><strong>STRENGTHS</strong></td>
<td><strong>WEAKNESSES</strong></td>
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<tr>
<td>+ Participation</td>
<td>- Informed choices</td>
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<tr>
<td>+ Ownership / Inclusion</td>
<td>- “Decentralization” of power / unpredictable</td>
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<tr>
<td>+ Guidance for technology choice</td>
<td>- Human resources and time</td>
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<tr>
<td>+ Emphasis on health</td>
<td>- Requires specific skills</td>
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<tr>
<td>+ Whole sanitation chain / exposure groups</td>
<td>- Complex at urban level</td>
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<tr>
<td>+ Multibarrier approach</td>
<td>- Quantitative data involving costs</td>
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### CLUES
- Participatory
- Guided selection of technology options

### SSP
- **Health**
  - Whole sanitation chain
  - Multibarrier approach

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SSP demonstrated to:
- be effective for identifying risks and cost-effective interventions in the concerned area
- support sanitation planning with safe reuse and disposal perspective
- support a deeper study of the current sanitation system

SSP adaptation as planning tool and to a specific contest:
- integrated use of CLUES and SSP potentiates their strengths
Thanks for your attention!

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