

## **Title: Sustainability of Sanitation Change in Rural Ethiopia**

**Researcher name: Biruk Getachew Mamo**

### **General comments**

Different programs and initiatives have been designed and implemented to improve the availability and utilization of sanitation services in low-income counties. Most of these efforts have focused on facility donation and promotion. However, this approach has not effectively fostered sustainable behavioral change necessary to maintain the facilities and ensure their continuous use. This research thesis addresses critical issues related to sustainable sanitation in resource-limited settings. It aims to identify the main challenges influencing sustainable change in alignment with current sustainable development goals. The findings could be vital for contributing to policy reform and program design aimed at upgrading sanitation facilities by integrating them into local businesses. I will provide specific comments point by point in each section.

**Recommendation:** Based on the quality of the thesis and published papers, I recommend the thesis for the defence.

### **Specific comments**

**Title:** Sustainability of Sanitation Change in Rural Ethiopia

**Comment:** The title appears general. I suggest creating a title that better represents the thesis. I recommend “Challenges for Sustainable Sanitation in Rural Ethiopia and Opportunities for Change.”

**Abstract:** This section sufficiently provided a comprehensive summary of the thesis. However, the concluding statement stated as “Furthermore, structural economic advancements in rural households must be pursued to improve quality of life alongside the promotion of hygienic sanitation infrastructure” is less supported by the study findings.

### **Introduction**

The researcher aimed to discuss the sanitation challenges in resource-limited countries, particularly in Sub-Saharan Africa. The discussion primarily focused on the progress toward achieving the related Sustainable Development Goals (SDGs), the various sanitation interventions implemented in the region, and their success stories and challenges, with specific examples from populous African countries, especially Ethiopia. Finally, the author discussed the rationale for the study based on personal observations, supported by other literature and current research findings.

**Comments:** Despite the extensive literature review presented in this section, specific problems related to the sanitation conditions of the study area, supported by statistical evidence, were not adequately addressed. Additionally, the researcher primarily discussed issues related to access to sanitation facilities and open defecation, which pertain to the lack of access to basic sanitation. However, he aimed to focus on challenges related to sanitation sustainability, including latrine quality, household demand for sanitation upgrades, willingness to pay for improved sanitation products and services, supply-side issues, and associated challenges. These areas are essential for the maintenance of sanitation status and the sustainable improvement of its quality and services. However, in my opinion, the major factors related to behavioral change and socio-cultural issues were overlooked, making it difficult to understand why most people continue to practice open defecation and struggle to use traditional substandard facilities. Moreover, there are some inconsistencies and incoherencies in the discussions.

**Questions:**

1. Why did the most popular interventions, such as Community-Led Total Sanitation (CLTS), fail to achieve sustainable sanitation?
2. What was the government's approach, and what was the community's contribution during implementation? Which aspects were effective, and which were not?
3. What were the behavioral change aspects of the interventions?
4. What specific knowledge does this study focus on to address the gaps that can support the implementation shortcomings of previous interventions?

## **Literature review**

### **Macro-Level Views and Global Frameworks**

#### **Theory of environmental risk transition**

The researcher used the theory of Environmental Risk Transition to discuss the patterns of societal and disease transitions based on socioeconomic developments. He will be acknowledged for demonstrating the importance of local contexts, as transitions may not follow the same paths observed in other areas. Therefore, what works for one situation may not work for all; sustainable sanitation solutions for resource-limited and culturally diverse countries like Ethiopia require a local understanding.

**Questions:**

1. What factors can make a difference in relation to the current study areas, what factors work and not?
2. Are there specific local attributes that can play the role of double burden when traditional and modern environmental risks are considered?

### **Sanitation in global strategic frameworks**

The researcher aimed to discuss the differences between the two main global development goals (MDG and SDG) from the perspective of sanitation. In this discussion, the researcher focused on how sanitation is defined and the gaps identified by the SDG regarding indicators for water quality and access inequality.

**Comments:** Although the researcher attempted to highlight the gaps in the MDGs and their complementarity with specific SDG indicators, the strategies for addressing these inequalities and identified gaps were not discussed. Additionally, while he emphasized the importance of international collaboration and community contributions to fill financial gaps, a detailed discussion was lacking to support the analysis of this study (see the questions).

**Questions:**

1. What types of support and collaboration are expected from international cooperation and local communities?
2. How can sustainable financial support be provided to achieve the related Sustainable Development Goals (SDGs)?
3. What is required from local governments to translate this support into effective implementation?

**Related sanitation research**

The researcher discussed the shortcomings of some implementation approaches, particularly in relation to Community-Led Total Sanitation (CLTS). He emphasized how the program's implementation strategy in Ethiopia undermines human rights, specifically for economically disadvantaged households that cannot afford to construct their own latrines and avoid open defecation (OD). The author also thoroughly examined the significant sanitation accessibility challenges faced by women and girls in areas where OD is common. He highlighted the importance of equity in sanitation, regardless of socioeconomic status or gender, as a fundamental human right.

**Comment:** While access to sanitation is a human right, the acceptance of sanitation technologies is greatly influenced by prevailing cultural norms and behaviors. These two factors are equally important in creating demand and stimulating the supply side.

**Questions:**

1. How can prevailing culture and behavior be managed to drive the sanitation business?
2. Can advocating solely for the rights of the people (in this case, sanitation) achieve sustainability without changing the circumstances on the ground and people's behavior?
3. What better solutions can be proposed to overcome the shortcomings of the government and households?

**Conceptual Frameworks and Influencing Factors**

## **Drivers of sanitation changes**

The researcher has exhaustively examined the multidimensional factors influencing access to sustainable sanitation. The essential aspects of political will and responsibility, institutional support, prevailing sociocultural and socioeconomic conditions, local customs, the environment, and administrative responses were discussed in detail regarding how they can influence changes in sanitation.

**Comment:** Despite the detailed discussion of these influencing factors, alternative solutions were not thoroughly explored to indicate the expected changes.

## **Sanitation intervention in Ethiopia**

Different sanitation interventions have been implemented through various programs and institutional reforms. The CLTS program and Health Extension Workers (HEWs), which focus on improving sanitation access and utilization at the grassroots community level, are notable examples. These two approaches have achieved remarkable results in enhancing accessibility to sanitation and its use in Ethiopia. Nevertheless, there is much to learn from them to devise a better approach aligned with the current Sustainable Development Goals (SDGs).

**Comments:** Accordingly, the researcher discusses the lessons learned for implementing the current strategy—market-based sanitation. Previous interventions primarily focused on facility donations and promotions to increase access to sanitation. However, these approaches did not foster ownership of sanitation solutions and lacked sustainability. Market-based sanitation is effective in generating demand and supply for sanitation services. It also helps strengthen local businesses and create self-reliant communities with better sanitation practices. The researcher elaborates on these points in detail with practical examples.

**Question:** It is clear that broader socioeconomic development can enhance people's purchasing power. However, what short-term alternative approaches do you suggest to overcome the challenges and realize the market-based sanitation approach?

## **Methodology**

The methods are well described generally while specifically presented in each published paper.

## **Conclusion:**

The researcher concluded that there are multidimensional challenges influencing the sustainability of sanitation changes in Ethiopia. Socioeconomic, cultural, behavioral, political, and institutional challenges are discussed in detail. However, these factors are already evident challenges in resource-limited settings.

## **Questions:**

1. What specific short-term approaches do you recommend for addressing some of the main challenges, such as financial and non-financial constraints?
2. What is expected from the government, NGOs, and local communities to overcome some of the main barriers?
3. What strategies and approaches need to be established in the short and long term to create a local sanitation business?

**Thank you!**

Reviewer: **Prof. Dr. Gudina Terefe Tucho**

Institution: **Department of Environmental Health Sciences and Technology, Jimma University, Ethiopia**

Address: [gudina.terefe@ju.edu.et](mailto:gudina.terefe@ju.edu.et) Phone: +251911703978



Signature:

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