

Peer Review

Review of: "Quantifying Water-Food Nexus (Water Footprint) for Food Crop Production: A Case Study of Addis Ababa City"

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This manuscript presents a valuable and timely contribution to urban sustainability research by quantifying the water–food nexus through water footprint indicators for vegetable crop production in Addis Ababa, Ethiopia. The topic is highly relevant, especially considering the increasing challenges of urban food security and water scarcity in rapidly growing cities. The study adopts a well-established methodological framework (FAO Penman–Monteith method via CropWat) to analyze the water requirements and consumption patterns of key crops. However, before the manuscript can be considered for publication, several critical improvements and clarifications are necessary to enhance its scientific rigor, clarity, and policy relevance.

Key Issues and Recommendations for Improvement:

1. Clarify the Novelty and Contribution

The manuscript lacks a clear articulation of its novelty and how it advances existing water–food nexus literature. Explicitly state what makes this case study original—whether it is the first of its kind in Ethiopia, whether it integrates urban agricultural production in a new way, or whether it refines the application of existing models.

2. Over-reliance on Descriptive Reporting

The results section is overly descriptive and lacks critical interpretation of what the water demand and footprint data imply for urban planning or sustainability.

Recommendation: Include a stronger discussion section that:

Interprets the implications of onion having the highest water footprint but the lowest yield contribution.

Compares findings to global water efficiency benchmarks.

Identifies policy and planning interventions that could improve water efficiency in urban agriculture.

3. Insufficient Discussion of Limitations

While the conclusion notes that the study relies on model-based proxies due to limited real-time measurement, this is not adequately discussed as a methodological limitation.

Recommendation: Include a transparent discussion on:

The potential error margins in rainfall and evapotranspiration modeling.

The impact of assuming 60% irrigation efficiency.

The lack of validation using field-level measurements.

4. Missing Socioeconomic and Policy Context

The manuscript presents a technical analysis without grounding the findings in the socioeconomic or governance context of urban agriculture in Addis Ababa.

Recommendation: Briefly incorporate:

The policy environment for urban farming in Ethiopia.

Land tenure, farmer access to water, or crop selection incentives.

How findings could inform local or regional water allocation decisions.

Declarations

Potential competing interests: No potential competing interests to declare.