

**Review Form 3**

Journal Name:	<b>International Journal of Environment and Climate Change</b>
Manuscript Number:	<b>Ms_IJECC_123564</b>
Title of the Manuscript:	<b>Implications of Land Use and Cover Transformation on Biomass and Carbon Sequestration in Coastal Areas of Kinondoni, Tanzania</b>
Type of the Article	

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#### **PART 1: Review Comments**

<b>Compulsory</b> REVISION comments	Reviewer's comment	<b>Author's Feedback</b> (Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<b>Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.</b>	This manuscript is important for the scientific community as it addresses critical issues related to land use and land cover changes, biomass loss, and carbon sequestration in coastal ecosystems, specifically in Kinondoni, Tanzania. The findings highlight the urgent need for conservation strategies in mangrove forests, which play a vital role in mitigating climate change through carbon storage. The manuscript provides valuable insights into the ecological and economic impacts of land degradation, offering a foundation for further research on sustainable land management. However, incorporating more recent references and clearer visual data representations could enhance its overall clarity and impact.	
<b>Is the title of the article suitable? (If not please suggest an alternative title)</b>	<b>Suggestions:</b> 1. Title: <i>Original: Implications of Land Use and Cover Transformation on Biomass and Carbon Sequestration in Coastal Areas of Kinondoni, Tanzania</i> <i>Suggested: Impacts of Land Use and Land Cover Changes on Biomass and Carbon Sequestration in Coastal Kinondoni, Tanzania</i> Reason: "Transformation" can be replaced with "changes" for better readability, and "Coastal Kinondoni" makes it more specific. Also, "Impacts" is more direct and commonly used.	

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<p>Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.</p>	<p>This is a well-structured abstract with a clear focus on the impacts of land use and land cover changes on biomass and carbon sequestration. Here are my suggestions for refining and improving the abstract:</p> <ol style="list-style-type: none"> <li>1. <b>Sentence Structure:</b>  Original: <i>Mangrove forests, vital for carbon sequestration, have been significantly degraded, leading to an estimated biomass loss of 65,600 tonnes, with mangroves accounting for 93.1% of these losses.</i>  Suggested: <i>Mangrove forests, crucial for carbon sequestration, have experienced significant degradation, resulting in an estimated biomass loss of 65,600 tonnes, with mangroves contributing 93.1% to this total.</i>  Reason: "Resulting in" makes it sound more active and "contributing" feels smoother than "accounting for."</li> <li>2. <b>Data Presentation:</b>  You could introduce a comparative perspective for the data to strengthen the narrative. <ol style="list-style-type: none"> <li>i. Example: <i>The 30-year period saw a biomass loss of 65,600 tonnes, primarily from mangrove degradation, which is approximately equivalent to X% of Tanzania's total coastal biomass.</i> (If such a comparison is available)</li> <li>ii. This would make the data more relatable and impactful.</li> </ol> </li> <li>3. <b>Clarification on Methodology:</b>  Original: <i>Using the National Forest Resources Monitoring and Assessment (NAFORMA) models and geospatial analysis, the research quantifies...</i>  Suggested: <i>Using NAFORMA models combined with geospatial analysis, this research quantifies...</i>  Reason: This simplifies the sentence and makes the methodology flow more naturally.</li> <li>4. <b>Economic Impact:</b>  The economic loss related to carbon sequestration potential (US\$ 452,610) is mentioned. Could this be contextualized? For example, compare it to regional GDP or local economic activities to make the significance clearer.</li> <li>5. <b>Carbon Trading Market:</b>  You mention the carbon trading market but without much detail. <ol style="list-style-type: none"> <li>i. Suggested: <i>... which could have been mitigated through participation in carbon trading markets, a mechanism that offers financial incentives for reducing emissions.</i></li> <li>ii. Reason: This provides a little more context for readers unfamiliar with carbon trading markets.</li> </ol> </li> </ol>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p><b>Introduction Section</b>  This is a well-developed introduction with a strong structure, clearly outlining the research problem, background, and significance. Below are some suggestions to improve clarity, cohesion, and overall effectiveness:</p> <p><b>Define LULC Early:</b></p> <ul style="list-style-type: none"> <li>• Introduce the term "LULC" more clearly, possibly providing a brief definition when it is first mentioned. For readers unfamiliar with the term, this will help prevent confusion.</li> <li>• Example: <i>Land use and land cover (LULC) changes refer to the ways in which human activities alter the physical characteristics of the land, impacting ecosystems and their ability to sequester carbon.</i></li> </ul> <p><b>Local Context:</b>  You mention that Kinondoni faces intense pressure due to population growth and economic activities. However, more local specifics would help. For instance, what kinds of agricultural activities, urban expansions, or specific industries are driving these changes?  Adding this will help ground the global issue in the local context and make it easier for readers to understand why Kinondoni is an important study area.</p> <p><b>Repetition:</b>  There is some repetition in the first few paragraphs regarding LULC and its impact on carbon</p>	

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	<p>sequestration. Consider trimming redundant points to make the introduction more concise.          Example: The sentence "The conversion of forests and other vegetative cover into urban areas reduces biomass and, consequently, the region's carbon sequestration potential" repeats an earlier point about how LULC reduces carbon sequestration. These sentences can be combined to avoid redundancy.</p> <p><b>Balance Between General and Specific:</b>          The introduction could benefit from balancing global and local impacts more effectively. You cover the general impacts of LULC changes extensively, but the specific challenges Kinondoni faces due to these transformations could be more deeply explored.          Example: After discussing the global issue, emphasize how Kinondoni's specific environmental, social, or economic dynamics contribute to this problem. This can give more weight to the local relevance of the study.</p> <p><b>Aim and Objectives:</b>          While the aim of the study is mentioned, it could be more sharply defined, perhaps broken into clear objectives. This would help to guide the reader's expectations for the study.          Example: This study aims to analyze the spatial and temporal dynamics of LULC changes and their impact on carbon storage. Specifically, the objectives are to: (1) quantify biomass loss, (2) estimate carbon emissions resulting from LULC changes, and (3) provide policy recommendations for sustainable land management in Kinondoni.</p> <p><b>Methodology Section: Study area map is not clear .</b>  <b>Clarifying the "Urgency":</b>          The idea that the issue is urgent is implied but not directly emphasized. Strengthening this sense of urgency could make the introduction more compelling.          Example: Given the rapid rate of degradation in Kinondoni's coastal ecosystems, there is an urgent need for targeted interventions to mitigate further environmental harm and economic loss.</p> <p><b>Provide More Detail on the Imagery:</b>          Explain briefly why Landsat images from 1993 and Sentinel-2 images from 2023 were chosen. What advantages do these particular satellite images offer? Adding this would highlight the methodology's robustness.          Example: Landsat images were chosen for their historical coverage of the area, while Sentinel-2 images from 2023 were used for their high spatial resolution, offering detailed insights into recent LULC changes.</p>	
<p><b>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</b></p>	<p>The manuscript demonstrates scientific rigor through its comprehensive analysis of land use and land cover (LULC) changes over a 30-year period, utilizing robust spatial datasets such as Landsat and Sentinel-2 imagery. The methodology, which incorporates geospatial analysis and carbon sequestration assessment, is grounded in widely accepted techniques, ensuring that the findings are reliable and based on sound scientific principles. However, the absence of LULC imagery or maps in the paper weakens the visual and technical validation of the results. Including these visual aids would significantly enhance the manuscript's scientific integrity, allowing readers to more easily verify and interpret the spatial data and transformations discussed.</p>	
<p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b>          =</p>	<p><b>Fifteen references may be somewhat limited, especially for a topic as expansive and complex as land use and land cover (LULC) changes, biomass loss, and carbon sequestration. Given the significant developments in these fields, particularly in remote sensing, carbon sequestration modeling, and ecosystem management, incorporating more recent and relevant studies would strengthen the manuscript.</b></p>	
<p><u>Minor</u> REVISION comments</p> <p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>	<p>Moderate</p>	
<p><u>Optional/General</u> comments</p>		

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**PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<b>Are there ethical issues in this manuscript?</b>	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

**Reviewer Details:**

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