Qeios

Peer Review

Review of: "From Complaint-Driven Response to Preventive Management: Strengthening Indoor Air Quality Management in Malaysian Buildings"

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Dear Author,

Thank you for the opportunity to review this commentary,*"From Complaint-Driven Response to Preventive Management: Strengthening Indoor Air Quality Management in Malaysian Buildings."* The manuscript addresses an important topic and presents a comprehensive narrative discussion of indoor air quality (IAQ) management, integrating evidence related to ventilation, carbon dioxide, particulate matter, moisture control, biological contamination, filtration, monitoring technologies, and organizational governance.

The manuscript is clearly written, well-organized, and supported by a substantial body of recent literature. I particularly appreciate the effort to contextualize international evidence within the Malaysian regulatory and occupational-health framework. The central message, namely that preventive IAQ management should complement rather than wait for complaint-driven investigations, is reasonable and worthy of discussion.

However, after careful reading, I believe the manuscript requires **major revision** because its key premise is not sufficiently substantiated. The entire commentary is anchored around the Industry Code of Practice on Indoor Air Quality 2010 (ICOP IAQ 2010), which remains the principal Malaysian IAQ code currently available through Department of Occupational Safety and Health (DOSH) sources.

The commentary repeatedly argues that the main challenge is the implementation of preventive principles rather than deficiencies in the framework itself. However, this conclusion is asserted rather than demonstrated, and the manuscript does not sufficiently examine whether reliance on a framework

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developed in 2010 remains adequate for contemporary IAQ challenges. Addressing this issue would substantially strengthen the scientific and policy value of the paper.

One of the main strengths of this commentary is its clear and coherent synthesis of current knowledge on indoor air quality (IAQ) management, integrating ventilation, particulate matter, moisture control, biological contamination, filtration, environmental monitoring, and organizational governance within a single narrative framework. The paper adopts a systems-based perspective and appropriately emphasizes that IAQ cannot be adequately assessed through a single indicator such as CO_2, avoiding several common oversimplifications frequently encountered in building management discussions. Another notable strength is the successful integration of international evidence with studies conducted in Malaysian offices, hospitals, schools, and universities, which enhances the local relevance of the discussion. The manuscript is generally well-organized, scientifically sound, and supported by a reasonably current body of literature, particularly from 2022-2026, while its central message advocating a shift from complaint-driven responses toward preventive IAQ management is timely, relevant, and aligned with contemporary approaches to occupational and environmental health.

However, I have several major concerns:

1. Insufficient Critical Evaluation of ICOP IAQ 2010: Although the manuscript argues that the principal challenge lies in implementation rather than deficiencies in the ICOP IAQ 2010 framework, this position is not examined in sufficient depth. The paper would benefit from a more explicit and systematic discussion of which elements of ICOP IAQ 2010 remain aligned with contemporary scientific evidence, which areas may require modernization, whether any subsequent policy developments have occurred since 2010, and the evidence supporting the view that implementation gaps, rather than regulatory limitations, constitute the primary obstacle to preventive IAQ management in Malaysia.

2. The Central Premise Is Not Adequately Supported**:** The manuscript argues that many of the preventive principles required for effective indoor air quality management are already incorporated within the Industry Code of Practice on Indoor Air Quality 2010 (ICOP IAQ 2010) and that greater benefits may be achieved through strengthening implementation rather than fundamentally revising the framework. While this is a plausible and potentially important perspective, the evidence presented primarily supports the importance of preventive IAQ management rather than demonstrating that implementation gaps are the principal limitation of current Malaysian practice. The manuscript does not discuss the extent of compliance with ICOP requirements, findings from regulatory inspections, recurrent deficiencies identified during IAQ assessments, enforcement challenges, or other evidence that would allow readers to

distinguish between shortcomings arising from implementation and those arising from possible limitations of the framework itself. A more explicit discussion of this distinction would strengthen the central argument of the commentary.

3. Limited Discussion of Scientific Advances Since 2010: One of the main objectives of the commentary is to connect contemporary IAQ knowledge with the Malaysian Industry Code of Practice on Indoor Air Quality 2010 (ICOP IAQ 2010). While the manuscript discusses several important developments that have emerged since the publication of ICOP 2010, including $PM_{2.5}$ monitoring, filtration-based control strategies, low-cost sensing technologies, continuous environmental monitoring, and dynamic ventilation management, it does not systematically compare these advances with the provisions of the current Malaysian framework. As a result, readers are left with a limited understanding of which aspects of ICOP IAQ 2010 remain fully aligned with contemporary scientific evidence, where potential gaps may exist, and whether the proposed shift towards preventive management can be achieved solely through improved implementation or may also require future regulatory modernization. The manuscript would benefit considerably from the inclusion of a summary table comparing key provisions of ICOP IAQ 2010 with major scientific developments since 2010 and identifying potential areas for clarification, supplementation, or future revision.

4. Practical Barriers to Preventive Management Are Underdeveloped: While the manuscript acknowledges the importance of organizational coordination, governance, and clearly defined responsibilities for effective IAQ management, the discussion of the practical barriers that may hinder implementation remains relatively limited. The commentary would benefit from a more explicit examination of the factors that may contribute to continuing reliance on reactive, complaint-driven approaches, such as resource constraints, limited technical expertise, insufficient monitoring infrastructure, competing organizational priorities, or challenges associated with coordination between occupational health and facilities-management functions. Expanding this discussion would provide a more balanced perspective and help readers better understand the practical obstacles that may affect the implementation of preventive IAQ strategies in real-world settings.

Minor Comments

Section 3

The discussion of CO_2 is well balanced. A short summary highlighting practical implications for facility managers would improve readability.

Section 5

Consider including a practical Malaysian example involving haze episodes and filtration management, as this would strengthen the local applicability of the discussion.

Sections 7 and 8

There is some overlap between the maintenance and monitoring sections. Minor restructuring could improve flow and reduce repetition.

Conclusion

The conclusion currently summarizes previous sections but could finish with a more explicit statement regarding whether Malaysia should simply improve the implementation of ICOP IAQ 2010 or consider formal modernization of the framework itself.

Recommendation: Major Revisions.

Declarations

Potential competing interests: No potential competing interests to declare.