REVIEWER'S REPORT

Manuscript No.:   IJAR-55450

Title: Heavy Metal Pollution in Drinking Water: Sources, Health Risks, Monitoring, and Mitigation,

Recommendation:

Accept as it is …………………………………

Accept after minor revision………………

Accept after major revision ………………

Do not accept (*Reasons below*) ………

Rating	Excel.	Good	Fair	Poor
Originality		Good		
Techn. Quality		Good		
Clarity		Good		
Significance		Good		

Reviewer Name: Dr Thirunahari Ugandhar

Detailed Reviewer's Report

General Assessment

The manuscript presents a **well-structured, comprehensive, and timely review** of heavy metal contamination in drinking water. It effectively integrates information on sources, health impacts, analytical monitoring techniques, regulatory standards, and mitigation strategies. Given the growing global concern over drinking water safety, this review is **highly relevant** to environmental science, public health, and water resource management communities.

Strengths of the Manuscript

1. **Clear Scope and Organization**

The manuscript is logically organized, progressing from sources of contamination to health impacts, monitoring methods, regulations, and mitigation strategies.

Each section is concise yet informative, making the review accessible to a broad scientific audience.

2. **Comprehensive Coverage**

The authors have included major toxic metals (As, Pb, Cd, Hg, Cr, and Ni) with appropriate emphasis on their environmental behavior and health risks.

Both natural and anthropogenic sources are well discussed with relevant citations.

3. **Strong Scientific Foundation**

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The manuscript cites **relevant and authoritative literature**, including WHO and EPA guidelines, enhancing credibility.

Health impacts are supported by epidemiological and toxicological studies.

4. Monitoring and Analytical Methods

The discussion on AAS, ICP-MS, and other analytical techniques is accurate and appropriate for a review paper.

The section highlights the importance of sensitive detection methods for effective risk assessment.

5. Mitigation and Policy Relevance

The inclusion of point-of-use treatments, phytoremediation, and advanced technologies strengthens the applied relevance.

The emphasis on low-cost and sustainable solutions is particularly valuable for low- and middle-income countries.

Minor Suggestions for Improvement

1. Enhancement of the Discussion Section

The discussion could be slightly expanded to compare the effectiveness and limitations of different mitigation technologies in real-world applications.

2. Future Perspectives

A short subsection highlighting **emerging research trends**, such as sensor-based real-time monitoring or hybrid remediation systems, could further strengthen the manuscript.

3. Formatting and Language

Minor grammatical and typographical refinements may be addressed during copyediting, but overall language clarity is good.

Recommendation

The manuscript is **scientifically sound, well-referenced, and clearly written**. It makes a valuable contribution as a review article on heavy metal pollution in drinking water.

I recommend the manuscript for publication after minor revisions.