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REVIEWER'S REPORT

Manuscript No.: IJAR-58485

Title: HOMO ERECTUS ON UNIFIED QUATERNARY PLATFORM OF INDIA AND CHINA

Recommendation:

Accept as it is .....

Accept after minor revision.....Yes.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

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

Reviewer's ID: JPR-Dr. Jyotika Singh

Review:

The paper offers a solid, detailed sedimentological and stratigraphic account of the Narmada Quaternary sequence and a useful historical review of the Hathnora discovery, but its central claim — that depth-based correlation with Chinese loess sequences makes the Narmada hominin ~1.38 Ma and the oldest Homo erectus in Asia — is not well supported, since depth is not a valid proxy for age across geologically unrelated basins. This also conflicts with more recent ESR-based dating (Patnaik et al. 2009; Cameron et al. 2004), which places the fossil at roughly 85,000–400,000 years, and with the paper's own palaeomagnetic data. The core dating argument needs substantial methodological revision before the conclusion can be considered reliable.

Reasons for minor changes:

The manuscript needs cleanup of spacing/OCR-style run-on words, consistent citation formatting, and correction of mismatched author names between in-text citations and the bibliography (e.g., "Splishbury" vs. "Spilsbury," "Yedekker" vs. "Lydekker"). The authorial voice also shifts inconsistently between first and third person and should be standardized. These are presentation-level fixes that would meaningfully improve readability and credibility without altering the paper's substance.

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Detailed Reviewer's Report

Introduction
The paper sets out to place the Hathnora (Narmada Valley) hominin skull cap — discovered by Sonakia in 1982 and long treated as India's only Homo erectus fossil — within a broader Asian chronological framework by comparing it against three well-known Chinese Homo erectus localities: Chenjiawo, Gongwangling (Lantian), and the Luochuan reference sequence. The introduction is heavily descriptive, covering the tectonic and sedimentary setting of the Narmada Rift System, its sub-basins (Hiran, Sher, Shakkar, Dudhi, Tawa), and the general morpho-sedimentary evolution of the valley. It also folds in a substantial amount of popular-science and historical material (journalistic quotes from D.K. Bhattacharya and Parth Chauhan on the state of Indian palaeoanthropology, GSI institutional history) that sits oddly alongside the technical geological content and reads more like a magazine feature than part of a research paper's introduction.

Objectives
The stated aim, made explicit only partway through the text, is to correlate the depth of occurrence and depositional sequence of the Narmada hominin locality (Hathnora) with the Quaternary sequences at Luochuan, Chenjiawo, and Gongwangling in China, using a "unified Quaternary platform" tied to mean sea level, in order to estimate the age of the Narmada skull cap and its relative antiquity compared with Chinese Homo erectus. Secondary objectives include reconstructing the lithostratigraphy of the Narmada Quaternary blanket (glacial, fluvio-glacial, fluvial domains), documenting the sedimentological and taphonomic context of fossil preservation, and reviewing 150+ years of prior work on the valley.

Results
The paper reports that the Narmada skull cap occurs at a depth of 83 m within a ~325 m-thick Quaternary column, whereas the comparable Chinese hominin fossils occur much shallower — 38 m at Chenjiawo and 26 m at Gongwangling. From this depth comparison, an age of roughly 1.38 million years is proposed for the Narmada fossil, which the authors present as older than Chenjiawo Homo erectus (0.65 Ma) and Gongwangling Homo erectus (1.15 Ma), leading to the paper's central claim that Narmada Man is the oldest Homo erectus in Asia. Substantial supporting results are also presented on the three-fold sedimentary domain structure of the valley (glacial boulder bed, fluvio-glacial boulder conglomerate, fluvial older/younger alluvium), the formal stratigraphic units (Sohagpur, Shahganj, Hoshangabad, Janwasa formations), granulometric/statistical sediment parameters, and the associated Middle Pleistocene mammalian fauna (Hippopotamus namadicus, Stegodon namadicus, Equus namadicus, Bos namadicus, etc.).

Discussion
This is where the paper is weakest. The core inferential move — using raw burial depth as a proxy for absolute age, and comparing depths directly across three geographically and tectonically unrelated basins (an actively subsiding rift graben in India versus loess-plateau deposits in China) — is not a defensible dating method on its own. Depth reflects local subsidence rate, sediment supply, and basin geometry, not a universal, comparable clock; without independently calibrated sedimentation rates and a shared datum genuinely tied to absolute chronology (rather than just "mean sea level" as a nominal reference plane), the resulting age of ~1.38 Ma is not well supported by the data presented. The paper does mention potentially more rigorous chronological anchors — a Toba tephra layer (~74,000 BP) and a palaeomagnetic reversal boundary (Matuyama–Brunhes, 0.78 Ma) within 19 m of the fossil horizon — but these are not used consistently to arrive at the paper's own headline age estimate, creating an internal tension: the text elsewhere states the fossil sits well above the 0.78 Ma reversal boundary, which is difficult to reconcile with a 1.38 Ma age for the same horizon.

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This matters because independent geochronological work not fully engaged with here has moved in the opposite direction. Cameron, Patnaik and Sahni's (2004) ESR dating placed the Hathnora calvarium at roughly 236,000 years, and Patnaik et al.'s (2009) more extensive ESR and stratigraphic reassessment — using multiple uptake models — produced a range from as old as ~407,000 years down to as young as ~49,000–160,000 years, with most subsequent literature converging on a Middle to Late Pleistocene age in the low hundreds-of-thousands-of-years range, not over a million years. So the paper's central chronological claim runs counter to the direction the field's more recent, instrument-based dating has taken, and the paper doesn't directly confront this discrepancy.

Beyond the dating argument, the manuscript has substantial presentation problems: inconsistent and sometimes garbled spacing/OCR-like text, unclear switching between first-person ("the first author was associated with...") and third-person voice without properly establishing authorship, inconsistent citation formatting, and reference-list entries whose names don't always match in-text citations (e.g., "Splishbury" appearing repeatedly where the historical name is almost certainly "Spilsbury"; "Yedekker"/"Lydekker" inconsistency). These are not just cosmetic issues — in a paper whose main contribution is a numerical correlation exercise, imprecise reporting undermines confidence in the underlying figures.

Conclusion

The paper concludes that the Narmada Homo erectus, recovered from 83 m depth in the Hathnora boulder conglomerate, is approximately 1.38 million years old, making it older than the Chinese Homo erectus specimens at Chenjiawo and Gongwangling, and therefore the oldest known Homo erectus in Asia. This conclusion follows directly from the paper's own depth-correlation method but, as above, is not well reconciled either with the paper's own internal stratigraphic markers (post-dating the 0.78 Ma reversal) or with the wider dated literature on the same fossil.

Final Thoughts

The paper's genuine strengths lie in its descriptive geology: it is a useful, detailed record of the Narmada Quaternary lithostratigraphy, the sub-basin architecture of the rift system, sediment texture analysis, and a fairly comprehensive historical review of over 150 years of work on the valley — material that would be valuable as a stratigraphic/sedimentological reference paper. Its central palaeoanthropological claim, however — that depth-based correlation with two Chinese loess sequences shows the Narmada hominin to be the oldest Homo erectus in Asia — rests on a comparison method (raw depth across unrelated basins) that the discipline has generally moved away from in favor of direct chronometric techniques (ESR, OSL, tephrochronology, palaeomagnetism), and the resulting age estimate is substantially older than what more recent, instrument-based studies on the same fossil have found. Before this could be considered a robust contribution, it would need: (1) a defensible chronometric argument rather than depth analogy across non-comparable basins; (2) explicit reconciliation with the palaeomagnetic and tephra data already present in the paper's own stratigraphic column; (3) direct engagement with the ESR-based age revisions in the literature; and (4) a substantial editing pass for consistency, formatting, and citation accuracy.