ISSN (0): 3139-0765
Jana Nexus Journal of Agricultural, Veterinary and Environmental Sciences
Publisher's Name: Jana Publication and Research LLP
*www.jananexusaves.com*

# REVIEWER'S REPORT

**Manuscript No.: JNAVES -009**

**Title: FOREST COVER CHANGE AND HYDROPOWER SUSTAINABILITY IN NEPAL: A CLIMATE VULNERABILITY ASSESSMENT**

**Recommendation:**
Accept as it is .....
Accept after minor revision.....
Accept after major revision .....
Do not accept (*Reasons below*) .....

| Rating | Excel. | Good | Fair | Poor |
|---|---|---|---|---|
| Originality | ✓ | | | |
| Techn. Quality | ✓ | | | |
| Clarity | ✓ | | | |
| Significance | ✓ | | | |

**Reviewer Id:JPR-612**

## Reviewer's Comment for Publication.

The manuscript presents a comprehensive and timely assessment of the relationship between forest cover dynamics and hydropower sustainability under climate change conditions in Nepal. The study effectively integrates remote sensing analysis, hydrological modeling, and climate vulnerability assessment to examine eco-hydrological interactions across multiple catchments. The topic is highly relevant considering Nepal's dependence on hydropower and the increasing impacts of climate variability on mountain ecosystems and water resources.

The paper demonstrates strong scientific relevance through its multidisciplinary approach combining Landsat/Sentinel time-series analysis, SWAT modeling under CMIP6 scenarios, and Climate Vulnerability Index assessment. The discussion clearly highlights the influence of forest composition, especially pine monocultures and broadleaf regeneration, on dry-season flow regulation and sediment dynamics. The comparative evaluation of Kulekhani, Bhote Koshi, and Ratuwa catchments provides valuable regional insights into hydropower vulnerability and watershed management challenges.

The literature review is detailed and well-structured, covering climate change impacts, forest hydrology, sedimentation processes, and governance fragmentation in Nepal. The manuscript successfully connects ecological processes with hydropower performance and policy implications. The findings are significant for researchers, environmental planners, watershed managers, and energy policymakers working on climate resilience and sustainable hydropower development in mountainous regions.

Overall, the manuscript is well organized, scientifically sound, and contributes meaningful knowledge to the fields of climate vulnerability assessment, eco-hydrology, and renewable energy sustainability.