

# **Reimagining Sustainable Innovation Governance in Amritkaal: An Empirical Analysis of the Sustainability – Innovation Paradox across Indian States**

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**Abstract:** This study examines the evolving relationship between innovation performance and sustainable development across Indian states in the context of Amritkaal, a period marked by ambitious economic aspirations and structural transformation. While innovation is widely regarded as a driver of growth and competitiveness, it may also intensify environmental pressures — giving rise to what scholars describe as the Sustainability – Innovation Paradox. Using panel data for 28 Indian states from 2010 to 2024, the study employs a fixed effects econometric framework to assess whether higher innovation performance enhances or undermines sustainability outcomes, measured through the SDG India Index. The results reveal a positive and statistically significant association between the State Innovation Index and SDG performance ( $\beta = 0.428, p < 0.01$ ), suggesting that more innovative states tend to achieve better sustainability outcomes after controlling for state - specific and temporal effects. These findings provide empirical support for the Green Innovation Synergy hypothesis rather than the Paradox hypothesis. Complementing the quantitative analysis, the study explores subnational governance strategies, climate-tech entrepreneurship, frugal innovation models, and circular economy initiatives in states such as Karnataka and Maharashtra. The findings suggest that innovation, when institutionally aligned with environmental governance and inclusive development strategies, can serve as a catalyst for sustainable transformation. The paper concludes that India’s pathway toward “Viksit Bharat@2047” depends not merely on accelerating technological progress but on redefining innovation as an instrument of ecological resilience, social inclusion, and responsible growth.

**Keywords:** Sustainability, Innovation, Benchmarking, Governance, Amritkaal

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