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Sustainability Reporting for Academic Conferences: A Mixed-Methods Framework Applied to the RETASTE Conference Series

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Abstract

Academic conferences generate measurable environmental, social, and governance (ESG) impacts, with the carbon footprint of a single international attendee to an in-person STEM conference approaching the median global per capita carbon budget for 2030 (3.26 t CO_2e) (Skiles et al., 2022). However, systematic sustainability assessment, even for events dedicated to sustainability, paradoxically remains rare. This work presents a replicable, open-source methodology for ISO 20121:2024-aligned ESG assessment of academic conferences. The proposed framework introduces a mixed-methods approach that combines directly measured data, estimations from available records with stated assumptions, and published sector benchmarks (myclimate, HCMI, DEFRA), with each reported data point classified by methodology to ensure full transparency regarding data quality. A key methodological innovation is the systematic exploitation of electronic abstract submission platforms, which already capture author countries, institutional affiliations, career stage, and presentation format during the submission workflow, as structured data collection instruments. By extending the registration and abstract submission forms with a small number of additional fields (travel mode, accommodation type, dietary requirements), the framework derives social diversity metrics, travel distance distributions, and per-attendee CO_2 estimates without requiring post-hoc surveys or manual data collection. Standardised contract annexes for key suppliers (catering, venue, transport), developed in alignment with ISO 20121:2024 requirements on supply-chain sustainability, human rights (ILO Conventions 138 and 182), and fair labour, serve simultaneously as procurement instruments and structured data collection tools. The framework was implemented as an open-source WordPress plugin integrated into the conference website, supporting both internal data management and public transparency reporting. In the environmental pillar, the framework quantifies total event carbon footprint (travel, venue energy, accommodation, catering), food waste by category, local sourcing percentages, and single-use material avoidance. In the social pillar, it captures geographic and institutional diversity, gender balance, early-career researcher participation, accessibility provisions, local economic impact, and adherence to a published code of conduct and anti-harassment mechanism. In the governance pillar, it documents sustainability policy, supplier due diligence coverage and stakeholder engagement. The methodology is applied as a case study to RETASTE 2025, which serves as the baseline for the RETASTE 2026 sustainability report currently being compiled with the same framework, enabling gap analysis between editions and the tracking of improvement trajectories across a multi-year conference series. The case study demonstrates that credible ESG reporting for academic conferences is achievable without prohibitive cost or effort, provided that existing data streams are

systematically leveraged, and the open-source implementation encourages adoption by other conference organisers in the academic community.

Keywords: conference sustainability, ESG reporting, academic events, LCA

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