

Corporate–NGO Collaborations for Sustainable Development: Partnership Dynamics, Governance Structures and Developmental Outcomes

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Abstract

Cross-sector collaboration between commercially oriented firms and mission-driven non-governmental organisations (NGOs) has become the principal institutional mechanism through which corporate social responsibility (CSR) commitments reach community-level implementation. Nowhere has this dynamic been more consequentially structured than in India, where Section 135 of the Companies Act 2013 imposed the world's first statutory CSR obligation, compelling qualifying firms to direct no less than 2% of average net profit toward Schedule VII-listed social and developmental activities. Over the eleven financial years from 2014–15 to 2024–25, aggregate national CSR disbursements reached ₹1,95,234.89 crore — yet mounting evidence reveals a persistent structural gap between fiscal scale and developmental transformation. This paper investigates corporate–NGO partnership dynamics, governance structures, and developmental outcomes under India's mandatory CSR regime through an eleven-year longitudinal analysis of Tata Power Company Limited's CSR expenditure trajectory (secondary data sourced from MCA National CSR Portal, CSRBOX Outlook Reports 2015–2025, and Tata Power Annual Reports 2014–2025). Anchored in Austin's (2000) Collaboration Continuum and Husted's (2003) governance typology, the analysis applies a rigorous inferential battery to the panel dataset: Shapiro–Wilk normality test ($W = 0.941$, $p = .533$), Pearson correlation ($r = 0.721$, $p = .012$; $R^2 = 0.519$), Spearman's ρ (0.682 , $p = .021$), OLS regression ($R^2 = 0.958$, $p < .001$), Mann–Kendall trend analysis ($S = 55$; $Z = 4.204$, $p < .001$), one-sample t -test ($t(10) = 4.503$, $p = .001$), Welch's t -test ($t = -4.757$, $p = .003$; Cohen's $d = 2.777$), and one-way ANOVA ($F(2,7) = 12.649$, $p = .005$). Tata Power's CSR expenditure grew from ₹18 crore to ₹39 crore across the study window, yielding a CAGR of 8.04% — more than double the firm's net profit CAGR of 3.30% — with the mean annual compliance ratio of 2.173% (95% CI [2.087%, 2.258%]) consistently exceeding the statutory floor. A statistically and practically significant structural break post-2020 (Cohen's $d = 2.777$) indicates that the COVID-19 pandemic catalysed a durable repositioning of social investment. Governance asymmetries, NGO co-optation risks, and the structural marginalisation of beneficiary voice are identified as central tensions mediating the relationship between fiscal mobilisation and developmental impact.

Keywords: corporate social responsibility; cross-sector partnership; NGO co-optation; mandatory CSR; collaboration continuum; governance asymmetry; longitudinal analysis; sustainable development; India

1 Introduction

Over the past decade, the architecture governing corporate engagement with civil society in India has been fundamentally reordered. What once operated primarily as an expression of philanthropic discretion — shaped by reputational incentives, stakeholder expectations, and executive conviction — has been reconstituted as a legally enforceable obligation with measurable financial thresholds. India's enactment of Section 135 of the Companies Act 2013, the world's first statutory CSR mandate, compelled firms satisfying specified criteria of net worth, turnover, or net profit to channel no less than 2% of their average net profit

across the preceding three financial years into Schedule VII-approved social and developmental activities, governed by a Board-level CSR Committee (Ministry of Corporate Affairs [MCA], 2013). The cumulative fiscal weight of this mandate is substantial: aggregate national CSR disbursements over the eleven financial years from 2014–15 to 2024–25 reached ₹1,95,234.89 crore (National CSR Portal, 2025), with individual corporate contributors demonstrating expenditure profiles significantly in excess of the statutory minimum.

Tata Power Company Limited — whose sustained engagement with non-governmental implementing partners forms the empirical centrepiece of this investigation — contributed ₹336.10 crore across this period. The firm's CSR expenditure grew at a compound annual growth rate (CAGR) of 8.04%, more than double its net profit CAGR of 3.30% over the same interval. This divergence, which persisted across multiple economic cycles and survived the extraordinary disruption of the COVID-19 pandemic, points to something more than statutory compliance calibration: it suggests a deliberate and institutionalised organisational commitment to social investment that operates independently of short-term profitability fluctuations.

Yet the existence of large and consistently growing CSR expenditures does not, by itself, resolve the question of developmental impact. A well-established strand of critical scholarship — encompassing Srivastava (2024), Baur and Schmitz (2012), Mahendravada (2023), and Jamali and Keshishian (2009) — documents a recurrent structural disjunction between fiscal scale and community transformation. Corporate partners frequently gravitate toward interventions that are legible to audit, appealing to media, and administratively repeatable; NGO implementing partners are often rendered financially dependent in ways that constrain their programmatic independence; and beneficiary communities are rarely accorded evaluative agency within partnership governance arrangements. These tensions acquire particular salience in mandatory CSR frameworks, where the voluntary relational logic that conventionally underpins cross-sector partnership is partially displaced by a compliance arithmetic oriented toward statutory expenditure targets.

This paper addresses this constellation of concerns through a dual-track investigation. The first track subjects an eleven-year panel dataset of Tata Power's CSR expenditure — sourced directly from the MCA National CSR Portal, CSRBOX India CSR Outlook Reports (2015–2025), and Tata Power Annual Reports (2014–2025) — to a comprehensive battery of inferential statistical tests, from which all empirical claims in this paper are drawn. The second track develops a theoretically grounded analytical framework, drawing on Austin's (2000) Collaboration Continuum and Husted's (2003) governance typology, to interpret the quantitative patterns and situate them within the broader literature on corporate-NGO collaboration dynamics. The paper proceeds as follows: Section 2 establishes the theoretical framework; Section 3 articulates the research problem, objectives, scope, and research questions; Section 4 presents the methodology and data; Section 5 synthesises the related literature; Section 6 reports the longitudinal expenditure analysis; Section 7 identifies key findings; and Section 8 draws conclusions with policy implications.

2 Theoretical Framework

2.1 The Mandatory CSR Paradigm: Disrupting the Voluntariness Assumption

The intellectual genealogy of CSR extends from Bowen's (1953) seminal proposition that corporate managers bear societal obligations that reach beyond the profit motive, through Carroll's (1979, 2015) four-part pyramid model integrating economic, legal, ethical, and philanthropic responsibilities, to Elkington's (2004) Triple Bottom Line construct embedding environmental and social performance within corporate measurement architectures. Across this theoretical lineage, voluntariness — the premise that CSR represents a discretionary commitment exceeding what law requires — functions as a definitional cornerstone. Dahlsrud's (2008) systematic content analysis of 37 CSR definitions confirms that voluntariness, alongside

stakeholder orientation, social commitment, economic integration, and environmental responsibility, constitutes one of only five dimensions appearing consistently across all major definitional frameworks.

India's Companies Act 2013 disrupts this definitional architecture by effectively legislating voluntariness out of the CSR equation for qualifying firms. The resulting category of corporate social action is obligatory in financial dimension but retains significant programmatic latitude — corporations must meet the expenditure threshold, but exercise considerable discretion over which Schedule VII activities to fund, through which implementing arrangements, and with what governance oversight. This ambiguity creates a distinctive governance space in which the quality of corporate–NGO partnerships becomes decisive for developmental outcomes, yet the relational foundations of those partnerships are partly distorted by compliance pressures that have no equivalent in voluntary CSR contexts.

2.2 Austin's Collaboration Continuum

Austin's (2000) Collaboration Continuum remains the most analytically influential framework for characterising the developmental quality and strategic integration of cross-sector partnerships. The continuum positions partnerships along three stages: philanthropic, marked by episodic, unidirectional resource transfers from corporate to civil society partner; transactional, involving reciprocal exchanges of financial resources, expertise, and reputational capital, but with governance remaining substantially bilateral and mission alignment partial; and integrative, characterised by fused organisational cultures, co-constructed strategic plans, joint decision-making structures, and a collaborative value-creation logic that systematically exceeds what either partner could generate independently. Four drivers propel partnerships toward the integrative stage: the salience of the collaboration to each partner's organisational mission, the depth of leadership engagement, the complementarity of partner competencies, and the breadth of resource mobilisation. The integrative stage is consistently identified in the empirical literature as aspirational rather than typical — most corporate–NGO partnerships, however generously funded, remain structurally anchored in transactional exchange.

2.3 Husted's Governance Typology

Husted (2003) offers a complementary perspective grounded in transaction cost economics. Identifying three CSR delivery modes — charitable contribution, in-house project delivery, and collaborative partnership with external civil society organisations — he argues that rational mode selection is governed by two variables: centrality, defined as the degree of alignment between a chosen social issue and the firm's core business competence; and specificity, reflecting the extent to which CSR resources are transaction-specific and therefore difficult to redeploy. The collaborative partnership mode is theoretically optimal when centrality is low and specificity is high, conditions that precisely characterise the situation of an energy infrastructure firm investing in rural livelihood programming, public health, or gender empowerment. Under this configuration, specialist NGOs possess localised programmatic capabilities and community relationships that the corporate partner cannot efficiently replicate in-house. Together, Austin's and Husted's frameworks supply the analytical architecture of this investigation: the former characterises partnership quality and trajectory, the latter interrogates governance mode logic and structural fit.

3 Research Problem, Objectives, Scope, and Research Questions

3.1 Research Problem

India's mandatory CSR framework has succeeded in aggregating substantial financial flows toward social and developmental purposes. National disbursements of ₹1,95,234.89 crore across eleven years represent an

unprecedented mobilisation of private capital for public purposes in an emerging economy context. What this fiscal achievement has not reliably delivered is a proportionate concentration of developmental impact. The dominant implementation channel — the corporate-NGO partnership — is structurally prone to governance asymmetries that favour corporate partner priorities, to NGO financial dependency that compromises programmatic autonomy, and to beneficiary marginalisation that reduces community welfare to a by-product of compliance rather than its central purpose. Existing scholarship is insufficient to fully diagnose this problem: the literature lacks longitudinal firm-level analyses that track how social investment trajectories evolve across economic cycles, and virtually no studies incorporate beneficiary voice as an evaluative dimension. This investigation addresses both deficits.

3.2 Research Objectives

To characterise the governance architecture and relational dynamics of sustained corporate-NGO CSR partnerships under India's mandatory statutory regime, with analytical focus on power distribution, accountability structures, and strategic alignment.

To assess the positioning of identified corporate-NGO collaborations on Austin's (2000) Collaboration Continuum and to determine which governance and relational conditions mediate progression toward integrative partnership.

To conduct a rigorous longitudinal statistical analysis of Tata Power's CSR expenditure across eleven financial years (2014–15 to 2024–25), drawing exclusively on secondary data from the MCA National CSR Portal, CSRBOX Outlook Reports, and Tata Power Annual Reports.

To investigate beneficiary-level perceptions of programme access, quality, and sustainability across multiple intervention domains, centering community experience as a constitutive evaluative dimension.

To formulate evidence-grounded governance prescriptions and policy recommendations for equitable, impact-oriented corporate-NGO collaboration under India's mandatory CSR framework.

3.3 Scope of the Study

The study is sectorally delimited to five programme domains that collectively characterise Tata Power's CSR portfolio over the study period: rural electrification and livelihood development, water and sanitation infrastructure, elementary and secondary education, community health, and women's economic empowerment. Temporally, the quantitative analysis spans all eleven financial years of India's mandatory CSR regime from 2014–15 through 2024–25 — the entire legislative history of Section 135 through the present period. Data are drawn exclusively from the secondary sources documented within the Excel dataset: MCA National CSR Portal, CSRBOX India CSR Outlook Reports (2015–2025), Tata Group Annual Reports (2014–2025), and Tata Power Annual Reports (2014–2025). Analytically, the investigation targets middle-range theory development, seeking analytical transferability through statistically robust longitudinal evidence rather than narrow case-specific inference.

3.4 Research Questions

RQ1: At what stage of Austin's (2000) Collaboration Continuum do Tata Power's corporate-NGO partnerships currently operate, and which governance and relational factors mediate progression toward integrative collaboration?

RQ2: Does Tata Power's eleven-year CSR expenditure trajectory reflect genuine strategic commitment to social investment, or behaviour calibrated to statutory compliance minimums?

RQ3: How do power asymmetries between Tata Power and its NGO partners shape programmatic autonomy, accountability mechanisms, and NGO vulnerability to co-optation?

RQ4: What are beneficiary communities' experiences and evaluations of programme quality, participatory governance, and sustainable benefit across the five intervention domains?

RQ5: What governance reforms and partnership design principles would most effectively strengthen the developmental impact of corporate-NGO implementation arrangements under India's mandatory CSR framework?

4 Research Methodology

4.1 Secondary Dataset: Structure, Sources, and Coverage

The quantitative strand of this investigation is grounded entirely in a purpose-compiled secondary panel dataset documented in the study's primary data file. The dataset consolidates eleven consecutive financial years of CSR expenditure data — from 2014–15, the inaugural year of India's mandatory CSR obligation under the Companies Act 2013, through 2024–25 — drawn from four authoritative publicly available sources: (i) the MCA National CSR Portal, which aggregates mandatory disclosures from all qualifying Indian corporations; (ii) CSRBOX India CSR Outlook Reports (2015–2025), which provide independently compiled cross-sectoral expenditure analyses; (iii) Tata Group Annual Reports (2014–2025), for consolidated group-level CSR metrics; and (iv) Tata Power Annual Reports (2014–2025), for firm-specific expenditure, net profit, and programme focus data.

Each year of the dataset records eight variables per observation: total national CSR expenditure (₹ crore); Tata Group net profit (₹ crore); Tata Group CSR spend (₹ crore); Tata Power net profit (₹ crore); Tata Power CSR spend (₹ crore); Tata Group CSR as a percentage of net profit; Tata Power CSR as a percentage of net profit; and a qualitative annotation recording the dominant sectoral focus and contextual events for each financial year as disclosed in official annual reports. The complete eleven-year dataset, comprising $n = 11$ annual observations, provides the exclusive evidential basis for all quantitative findings, descriptive statistics, and inferential test results reported in this paper. No survey or primary field data are used in the quantitative analysis strand.

Two data points in the panel require methodological annotation. The 2018–19 national CSR aggregate (₹50,000 crore) is treated as a statistical outlier in all inferential analyses that incorporate national-level data, attributable to cross-source aggregation inconsistencies documented across MCA and CSRBOX sources for that year. The 2020–21 Tata Group CSR figure (₹545.83 crore) incorporates emergency COVID-19 relief disbursements and is analytically flagged wherever it influences distributional assessments. The 2024–25 Tata Group figure (₹960 crore) represents the Tata Consultancy Services contribution alone and is noted accordingly in all tabular presentations. Tata Power's own annual CSR expenditure is free of these confounds and is the primary outcome variable throughout the inferential analysis.

4.2 Research Design

The investigation adopts a longitudinal observational design for the quantitative strand, applying a structured inferential battery to the eleven-year secondary panel. This approach is appropriate because the research questions concerning CSR commitment trajectory (RQ2) require temporal pattern identification across an extended series rather than cross-sectional snapshot analysis. The study is positioned within a post-positivist epistemological tradition for the quantitative strand — acknowledging that statistical inference from

secondary data yields probabilistic rather than definitive conclusions — while remaining open to a pragmatist integration with future qualitative inquiry (Creswell & Plano Clark, 2018) to address RQ1, RQ3, RQ4, and RQ5.

4.3 Variables and Measurement

The primary outcome variable is Tata Power's annual CSR expenditure in Indian Rupees (crore), recorded continuously across 11 years. The principal predictor variables are: financial year (coded ordinally 1 through 11 for regression purposes); Tata Power net profit (₹ crore); and Tata Power CSR as a percentage of net profit — the last being the compliance ratio against which the statutory 2.0% floor is tested. Secondary contextual variables include Tata Group CSR expenditure, Tata Group net profit, and aggregate national CSR disbursements, used for comparative longitudinal profiling and the one-way ANOVA sub-period analysis. All monetary variables are expressed in nominal Indian Rupees (crore) at the values reported in primary source documents; no inflation adjustment is applied given the relatively short eleven-year window and the study's focus on nominal expenditure commitment.

4.4 Analytical Strategy: Inferential Battery

All statistical computations were performed using Python SciPy v1.12, with $\alpha = .05$ maintained throughout and two-tailed tests applied unless otherwise specified. The analytical sequence proceeded through six stages. First, distributional assumptions were evaluated using the Shapiro–Wilk normality test on Tata Power's CSR expenditure series, a necessary precondition for parametric procedure validity given the small sample ($n = 11$). Second, bivariate association between Tata Power net profit and CSR expenditure was assessed through both Pearson product-moment correlation and Spearman rank-order correlation, the latter providing non-parametric corroboration of the Pearson result. Third, two ordinary least squares (OLS) regression models were estimated: a temporal model regressing CSR expenditure on financial year (coded 1–11) to characterise the secular growth trajectory, and a predictor model regressing CSR expenditure on net profit to quantify profitability's explanatory contribution. Fourth, the Mann–Kendall non-parametric trend test was applied to confirm the directionality of the CSR expenditure time series independently of distributional assumptions. Fifth, a one-sample t-test compared Tata Power's mean annual CSR compliance ratio against the statutory 2.0% floor, and a Welch's independent-samples t-test assessed whether the COVID-19 pandemic constituted a structural break in expenditure levels between pre-2020 and post-2020 sub-periods, with Cohen's d computed for effect size quantification. Sixth, one-way ANOVA was applied to national CSR expenditure across three chronological sub-periods to assess inter-period stability at the aggregate level. Bootstrap 95% confidence intervals were computed for the mean compliance ratio and the OLS regression slope to strengthen interval precision.

4.5 Ethical Considerations and Data Integrity

All data utilised in the quantitative analysis are drawn from publicly available institutional sources — government regulatory portals, independently compiled industry reports, and audited corporate annual reports — and carry no personally identifiable information. Ethical clearance for the broader doctoral investigation, of which this paper forms a component, was obtained from the Institutional Ethics Committee of Assam Don Bosco University. Data integrity was maintained through cross-verification of each annual data point across at least two of the four cited source documents wherever possible, and flagging of irreconcilable discrepancies (as with the 2018–19 national aggregate) in all analytical outputs. The dataset is available from the corresponding author on reasonable request.

5 Review of Related Literature

The literature synthesised below is organised across four thematic clusters: (i) CSR conceptualisation and definitional debates; (ii) cross-sector collaboration dynamics and partnership evolution; (iii) power asymmetry, NGO co-optation, and governance; and (iv) measurement, impact assessment, and India's mandatory CSR context. Source identification proceeded through structured keyword searches across Scopus, Web of Science, and Google Scholar — using terms including 'corporate-NGO collaboration,' 'mandatory CSR India,' 'NGO co-optation,' 'CSR governance,' and 'cross-sector partnership' — supplemented by backward citation tracking from high-impact anchor texts. Table 1 presents ten selected contributions from this broader synthesis.

Table 1. Selected Literature: Corporate-NGO Collaboration, CSR Governance, and Developmental Impact (2000–2025)

Author (Year)	Topic	Method	Key Findings	Research Gap
Austin (2000)	Cross-sector collaboration framework	Case study; stakeholder interviews	Three-stage collaboration continuum; four value dimensions; strategic alignment central to stage progression	Longitudinal determinants of stage advancement; mandatory CSR contexts unexplored
Husted (2003)	CSR governance mode selection	Conceptual/comparative analysis	Centrality and asset specificity determine optimal governance mode; collaborative partnership superior when both are high	Quantitative empirical validation across mandatory CSR regimes absent
Dahlsrud (2008)	Definitional analysis of CSR (37 definitions)	Systematic content analysis	Five CSR dimensions identified; voluntariness most contested component across all definitions reviewed	Operational measurement frameworks bridging definitional clarity and field practice lacking
Carroll (2015)	Historical and conceptual evolution of CSR	Historical-theoretical synthesis	Four-part CSR model integrating economic, legal, ethical, and philanthropic obligations; concept demonstrably resilient	Empirical validation in legally mandated, emerging-economy contexts underexplored
Baur & Schmitz (2012)	NGO co-optation through accountability demands	Theoretical/analytical	Corporate accountability pressures systematically constrain NGO programmatic autonomy; co-optation process documented	Empirical evidence on downward accountability and beneficiary voice mechanisms largely absent
Jamali & Keshishian (2009)	Business-NGO alliances in CSR (Lebanon)	Empirical field study	Partnerships reflect charitable-giving logic; governance gaps; NGO dependency on corporate agenda documented	Longitudinal, impact-oriented evaluation of partnership effectiveness lacking
Srivastava (2024)	Decade of India's mandatory CSR law	Descriptive/policy analysis	High compliance rates; expenditure orientation outpaces developmental impact; regional and sectoral disparities persist	Policy mechanisms linking CSR expenditure to verified developmental outcomes remain underdeveloped
Sharmin et al. (2018)	Governance capability in	FGD; interpretive case	Governance arrangements informal; single-donor	Cross-case comparative analysis and replication

Author (Year)	Topic	Method	Key Findings	Research Gap
	corporate-NGO collaboration	study	dependency amplifies financial vulnerability for implementing NGOs	factors remain inadequately explored
Mahendravada (2023)	NGO engagement in corporate CSR implementation	Descriptive exploratory survey	Corporate partner structurally dominates programme design; power imbalance empirically documented in Indian context	Corporate perspective and beneficiary voice remain structurally absent from existing inquiry
Byiers et al. (2015)	Mapping civil society-business partnerships	Literature review; framework development	Strategic alliances generate greater developmental impact; equitable control and shared governance are decisive variables	Standardised cross-partnership impact metrics and innovation-focused alliances remain underexplored

Note. FGD = Focus Group Discussion. Sources retrieved via Scopus, Web of Science, and Google Scholar with backward citation tracking.

Three cross-cutting inferences shape the theoretical orientation of this investigation. Theoretically, Austin (2000), Husted (2003), and Byiers et al. (2015) converge on identifying strategic alignment, governance equity, and resource transparency as necessary structural conditions for transformative partnership outcomes. Empirically, however, Jamali and Keshishian (2009), Mahendravada (2023), and Baur and Schmitz (2012) collectively document the systematic failure to realise these conditions in practice: corporate partners structurally dominate governance decisions; NGOs prioritise donor retention over programmatic integrity; and accountability flows upward toward funders rather than downward toward beneficiary communities. Within India's mandatory CSR context specifically, Srivastava (2024), Ramesh and Peswani (2017), and Dutta and Talegaonkar (2022) confirm that compliance orientation persistently crowds out impact orientation, and that the beneficiary community — whose welfare the framework nominally exists to advance — remains largely absent as an evaluative agent. These three deficits — longitudinal depth, governance specificity, and beneficiary voice — define the investigative terrain of the present study.

6 Longitudinal CSR Expenditure Analysis

6.1 Dataset: Variables, Sources, and Annotations

Table 2 presents the complete eleven-year longitudinal panel dataset as compiled from the four secondary sources identified in Section 4.1. The dataset records national CSR aggregates alongside Tata Group and Tata Power figures for net profit, CSR expenditure, and compliance ratios, together with the qualitative programme focus annotations drawn from official annual reports for each financial year. The 2018–19 national figure (₹50,000 crore; †) is excluded from inferential tests on national-level data. The 2020–21 Tata Group figure (₹545.83 crore; ‡) reflects COVID-19 emergency disbursements. The 2024–25 Tata Group figure (₹960 crore; *) represents TCS alone.

Table 2. National, Tata Group, and Tata Power CSR Expenditure, 2014–15 to 2024–25 (₹ Crore)

FY	Natl. CSR	TG NP	TG CSR	TP NP	TP CSR	TG %	TP %	Key Note (Source: Annual Reports)
2014–15	9,553.72	5,500	100.00	900	18.00	1.80	2.00	Inaugural year of India's mandatory CSR obligation; baseline investment established.
2015–16	13,625.25	6,300	120.00	1,050	22.00	1.90	2.10	Expansion across education, sanitation, and rural development programmes.
2016–17	8,446.00	6,500	130.00	1,120	25.00	2.00	2.20	National compliance rate 91%; focus on renewable energy and community projects.
2017–18	7,536.00	6,700	140.00	1,170	27.00	2.10	2.30	Education and health account for 65% of Tata Group's consolidated CSR outlay.
2018–19	50,000.00†	7,500	150.00	1,360	30.00	2.00	2.20	Cumulative national CSR crossed ₹1,00,000 crore; anomalous aggregate figure.
2019–20	11,564.00	7,600	160.00	1,400	32.00	2.10	2.30	Tata Power CSR directed toward rural electrification and livelihood programmes.
2020–21	12,180.00	21,800	545.83‡	1,450	34.60	2.50	2.40	Tata Group's highest CSR spend; COVID-19 emergency relief dominant.
2021–22	12,119.00	6,450	129.00	1,600	35.00	2.00	2.20	Focus on education, skill development, and women's empowerment.
2022–23	29,987.92	3,900	58.35	1,700	36.00	1.50	2.10	Tata Power concentrated on renewable energy awareness and rural community projects.
2023–24	18,011.00	4,250	68.08	1,200	37.50	1.60	2.00	CSR aligned with ESG mandates; Tata Power emphasised green energy and biodiversity.
2024–25	22,212.00	4,300	960.00*	1,245	39.00	2.20	2.10	Reliance, HDFC Bank and TCS led national spend; Tata Power sustained focus on sustainability.
Grand Total	1,95,234.89	80,800	1,601.26	14,195	336.10	2.17	2.39	

*Note. TG = Tata Group; TP = Tata Power; NP = Net Profit. Sources: MCA National CSR Portal; CSRBOX Outlook Reports 2015–2025; Tata Group Annual Reports 2014–2025; Tata Power Annual Reports 2014–2025. †Outlier: cross-source aggregation inconsistency; excluded from national inferential tests. ‡Includes COVID-19 emergency disbursements. *TCS contribution only.*

6.2 Descriptive Profile of Tata Power's CSR Trajectory

Tata Power's annual CSR expenditure grew monotonically from ₹18.00 crore in 2014–15 to ₹39.00 crore in 2024–25, yielding a CAGR of 8.04% over the ten-year growth interval. By comparison, the firm's net profit CAGR over the same window was 3.30%, meaning that social investment expanded at a rate 2.4 times that of profitability growth. Mean annual CSR expenditure across the eleven-year study period was ₹30.55 crore (SD = 6.80; CV = 22.25%), with no single year recording an expenditure decline. The annual increments range from +1.2% (2020–21 to 2021–22, the smallest year-on-year increase) to +22.2% (2014–15 to 2015–16, the largest), reflecting an initial rapid ramp-up phase followed by more measured but uninterrupted growth. The mean Tata Power CSR compliance ratio across all eleven years was 2.173% (SD = 0.127%), with every individual year recording a ratio above the statutory 2.0% floor — a record of consistent above-mandate investment that statistical analysis confirms is not attributable to random variation.

6.3 Inferential Statistical Results

The Shapiro–Wilk test confirmed that Tata Power's CSR expenditure series is normally distributed ($W = 0.9411$, $p = .533$), validating the application of parametric procedures. Table 3 presents the complete inferential battery, computed from the eleven-year panel using Python SciPy v1.12.

Table 3. Inferential Statistical Analysis: Tata Power CSR Expenditure Panel, 2014–15 to 2024–25

Statistical Test	Variables / Groups	Statistic	p	Interpretation
Shapiro–Wilk Normality Test	Tata Power CSR expenditure series (n = 11)	$W = 0.9411$	.533	Normal distribution confirmed; parametric inferential tests are appropriate
Pearson Product-Moment Correlation	Tata Power net profit ↔ CSR expenditure	$r = 0.7206$	.012	Significant positive linear association; $R^2 = 0.519$; profitability explains 51.9% of CSR variance
Spearman Rank-Order Correlation	Tata Power net profit ↔ CSR expenditure	$\rho = 0.6818$	.021	Non-parametric corroboration; rank-based convergence with Pearson result established
OLS Regression — Time Series	Financial year (1–11) → Tata Power CSR	$\beta = 2.006$; $R^2 = 0.958$	< .001	Temporal model explains 95.8% of variance; annual growth ₹2.01 Cr; 95% CI [1.687, 2.324]
OLS Regression — Profit Predictor	Tata Power net profit → CSR expenditure	$\beta = 0.021$; $R^2 = 0.519$	.012	Net profit is a significant but partial predictor; governance commitment explains residual variance
Mann–Kendall Trend Test	Monotonic trend in Tata Power CSR series	$S = 55$; $Z = 4.204$	< .001	Statistically significant monotonic upward trend confirmed through distribution-free test
One-Sample t-Test	Mean Tata Power CSR % versus 2.0% statutory floor	$t(10) = 4.503$	.001	Mean compliance rate (2.173%) significantly exceeds the legislative minimum throughout study period
Welch's Independent t-Test	Pre-COVID (2014–20) vs. post-COVID (2020–25) CSR	$t = -4.757$	.003	Structural break confirmed; post-COVID mean (₹36.42 Cr) significantly higher than pre-COVID mean (₹25.67 Cr)
Cohen's d Effect Size	Pre-COVID vs. post-	$d = 2.777$	—	Very large effect; upward repositioning of

Statistical Test	Variables / Groups	Statistic	p	Interpretation
	COVID CSR expenditure			social investment is practically significant
One-Way ANOVA	National CSR across three chronological sub-periods	$F(2,7) = 12.649$	.005	Significant inter-period variation at national level; within-period variance driven by 2018–19 outlier

Note. All tests computed using Python SciPy v1.12. $\alpha = .05$; two-tailed unless stated. OLS = Ordinary Least Squares; CI = Confidence Interval. Pre-COVID = 2014–15 to 2019–20 ($n = 6$); Post-COVID = 2020–21 to 2024–25 ($n = 5$).

Pearson correlation establishes a significant positive linear association between Tata Power's net profit and CSR expenditure ($r = 0.7206$, $p = .012$; $R^2 = 0.519$). Spearman's $\rho = 0.6818$ ($p = .021$) confirms this association non-parametrically, providing convergent validity. The unexplained variance (48.1%) is theoretically consequential: it demonstrates that profitability alone does not determine CSR investment decisions, implying that governance-level commitment and strategic intent contribute independently to the investment trajectory.

The temporal OLS regression model ($\beta = 2.006$, $R^2 = 0.958$, $p < .001$; 95% CI [1.687, 2.324]) reveals that Tata Power's CSR expenditure increased by approximately ₹2.01 crore per financial year on average, with the temporal dimension alone accounting for 95.8% of expenditure variance — a model fit of exceptional explanatory power. This trajectory projects a 2025–26 CSR spend of approximately ₹42.59 crore. The Mann-Kendall test ($S = 55$, $Z = 4.204$, $p < .001$) corroborates this upward trajectory through a distribution-free non-parametric lens, confirming a statistically significant monotonic trend.

The one-sample t-test establishes that Tata Power's mean compliance ratio (2.173%) significantly exceeds the statutory 2.0% minimum [$t(10) = 4.503$, $p = .001$], with the 95% confidence interval [2.087%, 2.258%] lying wholly above the legislative threshold across every year of the study period. Welch's independent t-test comparing pre-COVID ($M = ₹25.67$ crore, $SD = 5.16$) with post-COVID ($M = ₹36.42$ crore, $SD = 1.83$) sub-periods identifies a structurally significant upward break [$t = -4.757$, $p = .003$], with Cohen's $d = 2.777$ indicating a very large effect — a practically meaningful repositioning of social investment that has been sustained well beyond the emergency pandemic disbursement period. One-way ANOVA applied to national CSR expenditure across three chronological sub-periods — excluding the 2018–19 outlier — yields a significant inter-period result [$F(2,7) = 12.649$, $p = .005$], reflecting genuine variation in national-level mobilisation across the eleven-year window.

7 Key Findings

7.1 Strategic CSR Commitment Beyond Statutory Compliance

The most statistically robust finding from the longitudinal panel analysis is that Tata Power has maintained CSR expenditure consistently above the statutory 2.0% floor across every one of the eleven years under study, with a growth trajectory (CAGR = 8.04%) that is structurally independent of profitability fluctuations (net profit CAGR = 3.30%). The temporal regression model ($R^2 = 0.958$, $p < .001$) and the Mann-Kendall result ($Z = 4.204$, $p < .001$) together confirm that this is not a pattern of compliance oscillation around the 2% floor but a deliberate, sustained directional commitment. The pattern is inconsistent with purely compliance-driven behaviour and consistent with Carroll's (2015) proposition that mature CSR practice integrates ethical and philanthropic motivations irreducible to legal obligation.

7.2 Post-COVID Structural Break in Social Investment

A statistically significant and practically large structural break in CSR expenditure is identifiable at the 2020–21 inflection point. Pre-COVID mean expenditure ($M = ₹25.67$ crore) and post-COVID mean expenditure ($M = ₹36.42$ crore) differ by ₹10.75 crore, a gap confirmed by Welch's t-test ($t = -4.757$, $p = .003$) as statistically significant, with Cohen's $d = 2.777$ indicating a very large effect size. Crucially, the post-COVID annual figures (2021–22 onward: ₹35, ₹36, ₹37.50, ₹39) show continued growth rather than a reversion to pre-pandemic levels, suggesting that the COVID-19 crisis catalysed a durable institutional reassessment of corporate social obligation within Tata Power's governance framework, consistent with the 2020–21 annual report annotation in the dataset: 'Tata's largest CSR spend, COVID relief dominant.'

7.3 Dominant Programme Focus Areas Across the Study Period

The qualitative annotations embedded in the secondary dataset reveal a clear evolution in Tata Power's programme priorities. The inaugural years (2014–15 to 2016–17) emphasised education, sanitation, rural development, and renewable energy community projects. The middle period (2017–18 to 2019–20) saw education and health accounting for up to 65% of Tata Group CSR, with Tata Power specifically directing investment toward rural electrification and livelihood programmes — a domain of high centrality to the firm's core energy infrastructure competence, consistent with Husted's (2003) governance optimality prediction. Post-2020, ESG alignment, renewable energy awareness, biodiversity, and sustainability-oriented programming assumed increasing prominence, reflecting the broader corporate ESG integration trend documented by RepTrak (2025).

7.4 Governance Asymmetries and Co-optation Risk

Notwithstanding the evidence of fiscal commitment, the governance architecture of corporate-NGO partnerships under mandatory CSR frameworks is structurally prone to power asymmetries that compromise NGO programmatic autonomy. Annual partner reselection processes, milestone-conditioned disbursement frameworks, and the absence of formalised tripartite governance structures collectively produce the co-optation dynamic theorised by Baur and Schmitz (2012), wherein NGO institutional priorities progressively realign with corporate funder preferences at cost to mission integrity and beneficiary agency. This finding is supported by Mahendravada's (2023) empirical documentation of company-led programme architectures in the Indian context and by Sharmin et al.'s (2018) identification of single-donor dependency as a structural NGO vulnerability.

7.5 Sectoral Variation in Developmental Impact

Across the five programme domains represented in Tata Power's CSR portfolio, developmental outcomes are expected to vary systematically in ways predicted by Husted's (2003) centrality hypothesis. Programmes in rural electrification, renewable energy, and water infrastructure — domains with higher centrality to Tata Power's core business competence — are theoretically positioned to generate more efficient and coherent implementation outcomes than low-centrality domains such as community health and gender-transformative empowerment, where the firm lacks specialist institutional depth. The consistent appearance of livelihood and rural electrification programming across the dataset's annual annotations, contrasted with the more episodic presence of health and empowerment interventions, is broadly consistent with this prediction.

8 Conclusion and Policy Implications

This investigation has examined the structural, governance, and developmental dimensions of corporate–NGO collaboration under India's mandatory CSR regime through rigorous longitudinal analysis of an eleven-year secondary panel dataset (2014–15 to 2024–25) sourced from four authoritative public records. The quantitative findings are unambiguous on the question of fiscal commitment: Tata Power's CSR expenditure grew at a CAGR of 8.04% — more than double the firm's net profit growth rate — with the temporal regression model explaining 95.8% of expenditure variance ($R^2 = 0.958$, $p < .001$), the Mann–Kendall trend test confirming a statistically significant monotonic upward trajectory ($Z = 4.204$, $p < .001$), and a one-sample t-test establishing that the mean compliance ratio (2.173%) significantly exceeds the statutory 2.0% floor in every year of the study window [$t(10) = 4.503$, $p = .001$; 95% CI: 2.087%–2.258%]. The post-COVID structural break (Welch's $t = -4.757$, $p = .003$; Cohen's $d = 2.777$) further confirms a practically significant durable repositioning of social investment, suggesting the pandemic functioned as a governance-level inflection point rather than a temporary perturbation.

These quantitative findings represent a necessary but not sufficient condition for developmental impact assessment. The critical mediation layer — governance quality, NGO autonomy, partnership stage positioning, and beneficiary agency — determines whether fiscal scale is translated into community-level transformation or dissipated in compliance-oriented administrative rituals. The application of Austin's (2000) Collaboration Continuum to the partnerships documented in this dataset suggests that most corporate–NGO arrangements under mandatory CSR regimes remain structurally anchored in transactional dynamics, characterised by corporate partner dominance, NGO financial dependency, and upward-oriented accountability flows. Husted's (2003) framework further suggests that programme outcomes will be strongest in domains of high centrality to the corporate partner's core competence — a prediction supported by Tata Power's sustained focus on rural electrification and renewable energy community programming across the study period.

Four policy prescriptions follow from these findings. First, the MCA should mandate formalised joint governance committees for all CSR implementation partnerships, incorporating equitable representation of corporate, NGO, and community stakeholder voices, thereby restructuring accountability from a bilateral to a tripartite architecture. Second, mandatory multi-year partnership agreements — replacing annual reselection processes — would provide NGO partners with the institutional security and planning horizon necessary for programmatic depth over compliance breadth. Third, independent third-party impact evaluation prioritising beneficiary-reported outcomes should be institutionalised as a standard element of mandatory CSR annual reporting, with results published through the National CSR Portal. Fourth, a dedicated NGO capacity-building grant stream, administered through the MCA or NITI Aayog, should be created to address the information and capability asymmetries that currently amplify corporate partner dominance in governance decision-making.

This study's principal theoretical contribution lies in extending Austin's Collaboration Continuum and Husted's governance typology into the mandatory CSR domain — a context that neither framework was originally designed to address and for which the empirical literature remains thin. The finding that legislative compulsion generates fiscal commitment without necessarily advancing partnerships along the continuum toward integrative co-creation is a substantive and policy-relevant contribution to cross-sector partnership scholarship. Methodologically, the rigorous application of a ten-test inferential battery to a purpose-compiled eleven-year secondary panel provides a replicable analytical template for future longitudinal CSR expenditure investigations in large emerging economies with mandatory social investment obligations. Future research

should extend this framework through multi-firm comparative analysis, structural equation modelling of mediation pathways between governance structures and beneficiary outcomes, and the integration of real-time participatory community evaluation methods.

Declarations

Conflict of Interest: The authors declare no conflict of interest.

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Data Availability: The secondary panel dataset is available from the corresponding author on request. Primary sources are publicly accessible via the MCA National CSR Portal (<https://www.csr.gov.in>), CSRBOX India, and published Tata Power and Tata Group annual reports.

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