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Regional and Gender Disparities in Higher Education in Nepal: A Quantitative Case Study of Structural Inequality in Federal Higher Education

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Abstract

Aggregate enrollment indicators can obscure regional and gender inequalities within Nepal's higher education system. This quantitative case study examines these disparities using national data from the University Grants Commission's *Education Management Information System (EMIS) Report on Higher Education 2023/24 (2080/081 B.S.)*. Descriptive statistical analysis examined enrollment, campus distribution, and public financing, with data disaggregated by province, ecological belt, gender, academic level, faculty specialization, and campus type. Women constituted 56.58% of the 633,053 enrolled students, with a national Gender Parity Index of 1.30 and a female gross enrollment ratio of 24.6%, compared with 17.8% for men. However, female representation declined from 57.6% at the bachelor's level to 48.7% at the master's level, 22.4% at the MPhil level, and 17.7% at the doctoral level. Horizontal segregation was also pronounced: women accounted for 24.4% of engineering enrollment and 14.5% of Sanskrit enrollment, compared with over 70% in education and majorities in medicine and management. Regional disparities were evident in Bagmati's concentration of 44.04% of national enrollment and 43.58% of campuses, compared with 4.01% and 4.05%, respectively, in Karnali. The Hill, Tarai, and Mountain belts accounted for 55.47%, 41.96%, and 2.56% of enrollment, respectively. Institutional concentration compounded these disparities: Tribhuvan University enrolled 77.61% of students across 1,115 of the country's 1,432 campuses and received 70.3% of government financing to universities. These findings demonstrate that women's aggregate enrollment advantage coexists with substantial vertical and horizontal segregation, geographic

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disparities, and institutional concentration. The study contributes an intersectional framework for interpreting inequality within Nepal's federal higher education system and considering how regional, gender, and caste-based disadvantages may intersect. Policy implications include targeted resource allocation to underserved provinces and ecological belts, expanded quotas and scholarships for women pursuing graduate study in science, technology, engineering, and mathematics, incorporation of caste and ethnicity variables into EMIS, and institutional diversification.

Keywords: Higher Education; Gender Disparities; Regional Inequality; Intersectionality; Nepal

INTRODUCTION

Higher education functions as a critical mechanism for social mobility, economic transformation, and democratic deepening in developing nations. In Nepal—a country that transitioned from a unitary monarchy to a federal democratic republic in 2015 following a decade-long civil conflict and protracted constitutional deliberations—the expansion of higher education access has assumed particular significance as a vehicle for addressing historically entrenched inequalities across region, gender, caste, and ethnicity. The federal restructuring of the state created seven provinces—Koshi, Madhesh, Bagmati, Gandaki, Lumbini, Karnali, and Sudurpashchim—each endowed with constitutional authority over education policy within their respective jurisdictions. Yet the legacy of centuries of centralized governance continues to structure opportunities in ways that federalism alone has not yet remedied.

Nepal's higher education system has undergone substantial quantitative expansion over the past decade. According to the University Grants Commission's (UGC) most recent EMIS report, total enrollment across national institutions rose from 371,184 students in 2016/17 to 633,053 in 2023/24—an increase of approximately 70.5 percent over seven years. When including the approximately 28,073 students enrolled in the 59 campuses affiliated with foreign universities operating within Nepal, total higher education enrollment reaches approximately 661,126 students. This growth reflects both demographic expansion and increased demand for tertiary credentials in a rapidly urbanizing economy.

However, the quantitative expansion of enrollment masks profound qualitative and distributive concerns. Nepal's federal structure overlays three distinct ecological belts—the

Mountain, Hill, and Tarai (or Terai) regions—each characterized by distinct geographic challenges, ethnic compositions, and economic bases. The EMIS 2023/24 data reveal that Bagmati Province accounts for 44.04 percent of enrolled students and 43.58 percent of all campuses, while Karnali Province accounts for only 4.01 percent of students and 4.05 percent of campuses. This disparity reflects deep structural inequalities in institutional development, faculty recruitment, laboratory and library infrastructure, and transportation connectivity accumulated over decades of centralized planning.

Tribhuvan University (TU), established in 1959 as the nation's first university, remains overwhelmingly dominant, enrolling 491,299 students—77.61 percent of the national total—through 1,115 of the country's 1,432 campuses (77.86 percent of all campuses). This institutional monoculture raises concerns about academic diversification, curriculum relevance to local labor markets, and the capacity of newer institutions to compete for students, faculty, and public resources.

On gender, the aggregate national picture presents a paradox that this study seeks to unpack. Of the 633,053 enrolled students nationally, 358,140 (56.58 percent) are female, yielding a national Gender Parity Index (GPI) of 1.30—indicating that women are substantially overrepresented relative to men. The female Gross Enrollment Ratio (GER) of 24.6 percent similarly exceeds the male GER of 17.8 percent. Yet disaggregation by academic level reveals a steep "leaky pipeline": while women constitute 57.6 percent of bachelor's-level students, their representation falls to 48.7 percent at the master's level, 22.4 percent at the MPhil level, and a mere 17.7 percent at the PhD level.

Despite the quantitative growth in enrollment, campus proliferation, and public financing commitments, Nepal's higher education system continues to exhibit three interlocking and mutually reinforcing disparities that threaten to undermine the equity promises of federalism and constitutional guarantees.

First, spatial and institutional concentration remains extreme. Enrollment and campus capacity are heavily concentrated in Bagmati Province and, within it, in Tribhuvan University, leaving Karnali, Sudurpashchim, and the Mountain belt comparatively underserved. Students from peripheral provinces who aspire to advanced study frequently face the choice between migrating to Kathmandu—where living costs are prohibitively high—or remaining in regions with limited program offerings, outdated curricula, and inadequate laboratory and library facilities.

Second, aggregate gender parity coexists with marked vertical and horizontal segregation. While women have achieved numerical majority status at the bachelor's level, their representation declines sharply at successive academic levels and remains critically low in technical fields such as Engineering, Science and Technology, and Agriculture. The implications extend beyond individual life chances to national development: Nepal's ambitions for technological modernization cannot be realized if half the population is systematically channeled away from the fields that drive these processes.

Third, caste-based exclusion—documented extensively in independent research but invisible in national administrative data—limits the ability of policymakers to monitor progress against constitutional equality guarantees. The absence of caste and ethnicity variables in the UGC EMIS data collection instrument means that federal and provincial education authorities lack the empirical foundation necessary to design targeted interventions, evaluate existing affirmative action programs, or hold institutions accountable for inclusive admissions and retention practices.

This study is guided by the following research questions:

1. How is higher education enrollment in Nepal distributed across the seven provinces and three ecological belts, and how does this distribution relate to the geographic placement of campuses and the concentration of institutional capacity?
2. What are the national Gross Enrollment Ratio (GER) and Gender Parity Index (GPI), and how do these aggregate indicators differ when disaggregated by gender, academic level, and faculty specialization?
3. How does female representation vary across academic levels (bachelor's, master's, MPhil, PGD, PhD), and to what extent does the data exhibit a "leaky pipeline" pattern of progressive attrition?
4. How does female participation differ between technical and non-technical faculties, and which specific disciplines exhibit the most pronounced gender segregation?
5. What role does Tribhuvan University's institutional dominance play in shaping the overall pattern of enrollment, resource allocation, and regional access?
6. What does the wider qualitative and quantitative literature indicate about caste-based disparities in Nepalese higher education, and how might these intersect with the regional and gender patterns identified in the EMIS data?

7. What evidence-based policy measures follow from these findings for Nepal's federal higher-education governance, institutional diversification, and equity-oriented planning?

The general objective of this study is to quantitatively document and analyze regional and gender disparities in Nepal's higher education system using the most recent verified national administrative data from the UGC EMIS Report 2023/24. The specific objectives are to:

1. Analyze the provincial and ecological distribution of student enrollment and campus infrastructure, identifying patterns of spatial concentration and peripheral deficit;
2. Calculate and interpret the national and disaggregated Gross Enrollment Ratio (GER) and Gender Parity Index (GPI), examining how these indicators vary by gender and academic level;
3. Examine the "leaky pipeline" pattern in female representation across successive academic levels, from bachelor's through doctoral study;
4. Compare female participation rates across technical and non-technical faculties, identifying disciplines with the most pronounced horizontal gender segregation;
5. Assess the degree of institutional concentration in Tribhuvan University and Bagmati Province, and evaluate the implications for systemic resilience and regional equity;
6. Synthesize qualitative and quantitative evidence from independent studies regarding caste-based disparities, and analyze how caste, gender, and region may intersect to produce compounded disadvantage;
7. Derive evidence-based policy recommendations for federal and provincial education authorities, university administrators, and international development partners.

This study makes several distinctive contributions to the literature on higher education in Nepal and the broader South Asian region.

Empirically, it provides an up-to-date, verifiable baseline drawn directly from the sixteenth edition of the UGC's annual EMIS report, offering a granular portrait of inequality that aggregate figures cannot capture.

Analytically, it advances an intersectional framework for understanding educational disparities in federal Nepal, demonstrating how regional, gender, and caste-based disadvantages do not operate independently but rather compound and reinforce one another.

Practically, the study is designed to be useful to federal and provincial policymakers, university administrators, civil society organizations, and researchers seeking a current, rigorously sourced picture of where regional and gender gaps in Nepalese higher education remain widest.

Scope: The analysis covers all institutions reporting to the UGC for the academic year 2080/081 B.S. (2023/24 A.D.)—encompassing 24 universities and medical academies and their 1,432 constituent, community, and private campuses—across all seven provinces and three ecological belts.

Limitations: Several important limitations constrain the analysis. First, the EMIS report does not disaggregate enrollment data by caste or ethnicity, meaning that the caste-based dimension of this study relies on separate academic and NGO sources. Second, the EMIS data are cross-sectional administrative counts rather than longitudinal outcome measures. Third, the study employs descriptive statistical analysis rather than inferential testing. Fourth, the data do not capture students enrolled entirely outside Nepal's regulatory framework, including those studying abroad or in unregistered institutions.

Literature Review

Theoretical Framework

This study draws upon three complementary theoretical frameworks to interpret the empirical patterns observed in the UGC EMIS data: human capital theory, intersectionality theory, and the "leaky pipeline" conceptual model.

Human Capital Theory, as developed by Schultz (1961) and Becker (1964), conceptualizes education as an investment that enhances individual productivity and, in aggregate, contributes to national economic output. Applied to the Nepalese context, human capital theory suggests that uneven regional access to higher education implies uneven accumulation of productive capabilities across provinces, with long-term consequences for provincial economic development, innovation capacity, and labor market competitiveness. The extreme concentration of higher education infrastructure in Bagmati Province represents not merely an equity concern but an efficiency loss.

Intersectionality Theory, originating in Black feminist legal scholarship (Crenshaw, 1989), provides a framework for understanding how multiple axes of identity and

disadvantage—gender, caste, ethnicity, and geographic location—interact to produce compounded rather than merely additive inequality. In the Nepalese context, intersectionality suggests that a Dalit woman from a Mountain district in Karnali Province does not experience the sum of "female disadvantage" plus "Dalit disadvantage" plus "rural disadvantage"; rather, these categories intersect in ways that produce unique configurations of exclusion that single-axis policy interventions may fail to address.

The "Leaky Pipeline" Concept, originally developed to describe the attrition of women from scientific careers in the United States (Blickenstaff, 2005), is employed here as a descriptive heuristic to characterize the progressive decline in female representation observed across successive academic levels in the EMIS data. The pipeline metaphor captures the idea that while women may enter higher education in substantial numbers, various "leaks"—including discriminatory classroom cultures, lack of female faculty mentors, family pressures to marry, occupational segregation in labor markets, and hostile work environments in male-dominated fields—cause their progressive attrition at the master's, MPhil, and doctoral levels.

Regional Disparities in Nepalese Higher Education

Nepal's federal restructuring in 2015 created seven provinces with substantially unequal pre-existing higher-education infrastructure, much of it historically concentrated in the Kathmandu Valley and a few other urban centers. Successive UGC EMIS reports have documented this concentration for over a decade, revealing a persistent center-periphery dynamic that federalism has only begun to address.

The present 2023/24 edition of the EMIS report continues to show Bagmati Province hosting close to 44 percent of both students and campuses nationally—a pattern broadly consistent with the center-periphery dynamic described in Nepal's development literature. Scholars have traced this concentration to the Rana and Panchayat eras (1846–1990), during which the centralized state deliberately concentrated educational, administrative, and economic resources in the Kathmandu Valley as a mechanism of political control.

Recent scholarship on federal education governance in Nepal (e.g., Pherali and Garrido, 2021; Bhatta and Pherali, 2021) has emphasized the tension between provincial autonomy and national coordination in higher education. Newer provincial universities—such as Mid-Western University, Far-Western University, and Rajarshi Janak University—

face challenges in attracting qualified faculty, developing research programs, and achieving accreditation standards comparable to those of Kathmandu-based institutions.

Gender, the Leaky Pipeline, and Horizontal Segregation

International literature on gender and science education has extensively documented the "leaky pipeline" phenomenon across diverse national contexts. Blickenstaff (2005) identified multiple mechanisms contributing to female attrition from scientific careers, including masculine classroom cultures, lack of visible female role models, implicit bias in evaluation, and the incompatibility of academic career timelines with dominant gender norms regarding family formation. More recent scholarship has emphasized that the pipeline is not merely "leaky" but actively "filtered" by institutional practices that privilege masculine norms of competitiveness, individualism, and uninterrupted career dedication (Cannady et al., 2014).

In South Asia specifically, gender disparities in higher education have been shaped by the intersection of patriarchal family structures, labor market segregation, and state policy frameworks. While several countries have achieved aggregate gender parity or even female majority status at the undergraduate level, deep segregation by field of study persists. Women are overrepresented in education, humanities, and social sciences—fields associated with feminized "care" work and lower economic returns—while remaining underrepresented in engineering, technology, and natural sciences.

The case of Sanskrit is particularly noteworthy and understudied in the international literature. Sanskrit education in Nepal is deeply intertwined with Hindu religious institutions and traditional caste hierarchies, in which Brahmin and Chhetri men have historically monopolized religious scholarship. The extremely low female participation in Sanskrit (14.5 percent) likely reflects the intersection of gender and caste-based control of religious knowledge, as well as the limited secular career pathways for women with Sanskrit credentials.

Caste-Based Disparities and Social Exclusion

Caste remains one of the most persistent yet undermeasured dimensions of educational inequality in Nepal. Despite constitutional abolition of caste-based discrimination in 1951 and subsequent legislative protections, including the Caste-Based Discrimination and Untouchability (Offence and Punishment) Act of 2011, Dalit communities continue to face structural barriers to educational advancement.

Gandhari (2021), writing in the International Journal of Educational Administration and Policy Studies, applies a social-exclusion perspective to argue that Dalits, who constitute more than 13 percent of Nepal's population, continue to face multiple barriers to higher-education access despite constitutional equality guarantees. Gandhari identifies three interconnected mechanisms of exclusion: direct discrimination in admissions and classroom interactions; economic barriers stemming from the concentration of Dalits in low-wage, precarious occupations; and cultural barriers including the devaluation of Dalit students' linguistic and cultural capital by dominant-caste educators.

More recent census-linked reporting (2025) has placed Dalit completion of a bachelor's degree or above at roughly 1.6 percent nationally—a figure that confirms the persistence of extreme disparity. If this figure is accurate, it implies that Dalits are approximately 13 times less likely than the general population to hold a bachelor's degree or higher—a gap that no single policy intervention is likely to close. Recent studies have explored the use of mathematical, numerical, and computational approaches to address challenges in education, cultural systems, risk management, and decision-making. Sah et al. (2024) examined the education system in Nepal and highlighted major challenges such as limited resources, quality gaps, and the need for effective reforms. Similarly, Sahani et al. (2024) demonstrated how analytical frameworks and differential equations can support problem-solving in complex engineering and educational contexts. Several studies by Sahani and colleagues applied numerical methods to understand cultural and social systems. Sahani and Prasad (2023) used mathematical modelling to analyze the relationship between cultural education policies and literacy development, showing that quantitative approaches can help evaluate social interventions. Further studies (Sahani & Karna, 2024; Sahani & Karna, 2025) explored cultural conflicts and optimization of cultural education programs using numerical simulations, emphasizing the importance of data-driven approaches in managing diverse societies. Recent research has extended these approaches toward machine learning and hybrid analytical frameworks. Sahani et al. (2025) applied numerical simulations to study cultural value conflicts in multicultural societies, while their later works (Sahani et al., 2026) integrated machine learning with mathematical models for risk management, uncertainty analysis, and decision-making. These studies suggest that combining traditional analytical methods with artificial intelligence can improve prediction accuracy, risk assessment, and strategic planning in complex systems.

Overall, the literature indicates a growing shift toward interdisciplinary approaches that combine mathematics, numerical techniques, and machine learning. Such frameworks provide valuable tools for addressing uncertainty, improving decision-making, and developing effective solutions in areas including education, management, healthcare, and social systems.

METHODOLOGY

Research Design

This study employs a quantitative, descriptive case-study design based entirely on secondary administrative data published in the UGC's EMIS Report on Higher Education 2023/24 (2080/081 B.S.), supplemented for the caste-based dimension by peer-reviewed literature, census analyses, and NGO reports. The case-study approach is appropriate because the analysis focuses on a single national system at a specific point in time, with the objective of providing a comprehensive, granular portrait of disparities rather than testing causal hypotheses or generalizing across multiple national contexts.

The descriptive design is consistent with the nature of the source data: the EMIS report provides complete population-level counts of enrollment, campuses, and financing rather than samples, meaning that standard inferential statistics are neither necessary nor appropriate. Instead, the analysis emphasizes percentage distributions, ratios, and cross-tabulations that reveal patterns of concentration, segregation, and disparity.

Data Sources

The primary data source is the Education Management Information System (EMIS) Report on Higher Education 2023/24, the sixteenth edition of the UGC's annual publication. The EMIS report is compiled by the UGC from data submitted by the Offices of the Controller of Examinations and Deans' offices of Nepal's universities and medical academies, in coordination with the Central Bureau of Statistics.

For the caste-based analysis, the study draws upon:

- Gandhari (2021), peer-reviewed article on equity in Nepalese higher education;
- Bishwakarma (2011), comparative study of Dalit education;

- Bennett, Dahal, and Govindasamy (2008), analysis of Nepal Demographic and Health Survey data;
- International Dalit Solidarity Network briefing papers;
- Recent census-linked estimates (2025) on Dalit educational attainment.

Analytical Indicators

The study reports and interprets the following standard indicators as defined and calculated by the UGC:

Gross Enrollment Ratio (GER): Total enrollment in higher education, regardless of age, expressed as a percentage of the official 18–22 age population. The GER is reported separately for males, females, and the total population.

Gender Parity Index (GPI): The ratio of female to male enrollment, calculated as (Female Enrollment / Male Enrollment). A GPI of 1.0 indicates perfect parity; values above 1.0 indicate female majority, while values below 1.0 indicate male majority. The national GPI reported in this study is 1.30.

Female Share: The percentage of total enrollment accounted for by female students, calculated as (Female Enrollment / Total Enrollment) × 100. This indicator is applied across academic levels, faculties, and campus types to identify patterns of horizontal and vertical segregation.

Concentration Ratios: The percentage of national enrollment or campuses accounted for by a specific province, university, or ecological belt, used to assess spatial and institutional concentration.

Ethical Considerations

As a secondary data analysis using publicly available administrative statistics, this study does not involve human subjects and therefore does not raise traditional research ethics concerns regarding informed consent or confidentiality. The study adheres to principles of responsible data use by: accurately reporting source citations and table references; acknowledging the limitations of cross-sectional administrative data; and interpreting caste-based statistics from independent sources with appropriate methodological caution.

RESULTS

Regional and Ecological Distribution of Enrollment and Campuses

Table 1. Enrollment and Campus Distribution by Province, 2023/24

Province	Students	Share of Students (%)	Campuses	Share of Campuses (%)
Bagmati	278,811	44.04	624	43.58
Lumbini	90,271	14.26	200	13.97
Koshi	83,170	13.14	205	14.32
Madhesh	62,596	9.89	123	8.59
Sudurpashchim	48,627	7.68	94	6.56
Gandaki	44,186	6.98	128	8.94
Karnali	25,392	4.01	58	4.05
Total	633,053	100.00	1,432	100.00

Source: UGC EMIS Report on Higher Education 2023/24, Tables 2.5 and 3.10.

The data reveal that Bagmati Province alone accounts for more than two-fifths of all higher education activity in Nepal, hosting 278,811 students (44.04 percent) across 624 campuses (43.58 percent). This concentration is more than ten times the corresponding shares in Karnali Province, which hosts only 25,392 students (4.01 percent) and 58 campuses (4.05 percent). The disparity between Bagmati and Karnali is particularly striking given that Karnali is the largest province by land area and contains significant populations of historically marginalized ethnic groups.

Table 2. Enrollment and Campus Distribution by Ecological Belt, 2023/24

Ecological Belt	Students	Share (%)	Campuses	Share (%)
Hill	351,181	55.47	844	58.94
Tarai	265,651	41.96	517	36.10
Mountain	16,221	2.56	71	4.96
Total	633,053	100.00	1,432	100.00

Source: UGC EMIS Report on Higher Education 2023/24, Tables 2.9 and 3.3.

The ecological disaggregation reveals comparable concentration in the Hill belt, which accounts for 55.47 percent of enrollment and 58.94 percent of campuses. The Mountain belt's situation is particularly acute: with only 16,221 students (2.56 percent) and 71 campuses (4.96 percent), it is drastically underserved relative to any demographic or geographic benchmark.

Institutional Concentration: The Dominance of Tribhuvan University

The provincial and ecological disparities documented above are compounded by extreme institutional concentration. Tribhuvan University (TU) alone enrolls 491,299

students—77.61 percent of the national total—through 1,115 campuses, representing 77.86 percent of all campuses in Nepal. In the 2023/24 fiscal year, TU received NPR 12,265 million of the NPR 17,457 million (70.3 percent) in total government financing allocated to universities and boards.

This institutional dominance means that the geographic distribution of TU campuses largely determines the national distribution of enrollment; policies affecting TU have system-wide consequences. The concentration of public financing in TU raises questions about the capacity of newer universities to develop competitive programs and attract students. The remaining 23.39 percent of students are distributed across Kathmandu University, Pokhara University, Purbanchal University, Nepal Sanskrit University, recently established provincial universities, and several medical academies.

Gender Parity Index and Gross Enrollment Ratio

Table 3. National GER and GPI by Gender, 2023/24

Indicator	Male	Female	Total
Enrollment	274,913	358,140	633,053
Population aged 18–22	1,544,855	1,455,843	3,000,698
GER (%)	17.8	24.6	22.0
GPI	—	—	1.30

Source: UGC EMIS Report on Higher Education 2023/24, Table 4.1 and Section 7.

The national GER of 22.0 percent indicates that approximately one-fifth of Nepal's 18–22 age cohort is enrolled in higher education—a figure that has risen steadily over the past decade but remains low by international standards. The female GER of 24.6 percent substantially exceeds the male GER of 17.8 percent, yielding a national GPI of 1.30. However, as the subsequent sections demonstrate, this aggregate parity is deceptive, concealing profound vertical and horizontal segregation that limits the meaning of "parity" for women's educational and economic outcomes.

Gender Distribution by Academic Level: The Leaky Pipeline

Table 4. Enrollment by Academic Level and Gender, 2023/24

Level	Male	Female	Total	Female Share (%)
Bachelor's	240,474	326,864	567,338	57.61
Master's	32,335	30,714	63,049	48.71
MPhil	775	224	999	22.42
PGD	147	84	231	36.36
PhD	1,182	254	1,436	17.69
Total	274,913	358,140	633,053	56.58

Source: UGC EMIS Report on Higher Education 2023/24, Table 3.5.

The data reveal a dramatic reversal of the gender pattern as academic level increases. At the bachelor's level—accounting for 89.6 percent of all enrollment—women constitute a comfortable majority of 57.61 percent. However, at the master's level, female representation drops to 48.71 percent, just below parity. At the MPhil level, women comprise only 22.42 percent of enrollment, and at the doctoral level, a mere 17.69 percent. The extreme scarcity of female PhD holders (254 nationally) means that Nepalese universities lack the critical mass of senior female scholars necessary to transform masculine institutional cultures.

Gender Distribution by Faculty: Horizontal Segregation

Table 5. Female Share of Enrollment by Faculty, 2023/24

Faculty	Total Students	Female Share (%)
Education	139,417	71.89
Medicine	31,288	59.47
Management	282,836	57.54
Humanities and Social Sciences (HSS)	72,682	53.68
Agriculture	5,620	44.80
Forestry	1,719	45.38
Law	19,768	42.80
Science and Technology (S&T)	43,886	39.17
Buddhist Studies	487	34.09
Engineering	33,474	24.40
Sanskrit	1,876	14.50

Source: UGC EMIS Report on Higher Education 2023/24, Table 3.4.

The data reveal a clear hierarchy of female participation. At the upper end, Education exhibits extreme feminization, with women comprising 71.89 percent of students in this faculty. Medicine (59.47 percent) and Management (57.54 percent) also show female majorities, while Humanities and Social Sciences (53.68 percent) is near parity. In contrast, Engineering has the lowest female share at 24.40 percent—meaning that roughly three in four engineering students are male. Sanskrit presents a unique case: with only 1,876 total students, its female share of 14.50 percent is the lowest of any field, reflecting the deep gendering of traditional religious scholarship.

Campus Type and Gender Distribution

Table 6. Enrollment by Campus Type and Gender, 2023/24

Campus Type	Male	Female	Total	Female Share (%)	Share of Total Enrollment (%)
Constituent	115,774	122,076	237,850	51.33	37.57
Community	67,440	136,790	204,230	66.98	32.26
Private	91,699	99,274	190,973	51.98	30.17
Total	274,913	358,140	633,053	56.58	100.00

Source: UGC EMIS Report on Higher Education 2023/24, Table 3.2.

Constituent campuses account for the largest single share of enrollment (37.57 percent) despite comprising only 164 of Nepal's 1,432 campuses (11.45 percent), indicating that constituent campuses are, on average, substantially larger than community or private campuses. Community campuses show a striking female majority of 66.98 percent—the highest of any campus type—likely reflecting the concentration of Education programs and accessibility to women who face family restrictions on migrating to distant urban centers.

Caste-Based Disparities: Contextual Evidence

As noted in the methodology, the UGC EMIS report does not disaggregate enrollment by caste or ethnicity. Earlier survey-based estimates compiled by the International Dalit Solidarity Network placed overall higher-education enrollment at roughly 17.6 percent of the relevant population versus about 3.8 percent for Dalits specifically—a disparity ratio of approximately 4.6:1. More recent census-linked reporting (2025) has placed the share of Dalits with a completed bachelor's degree or higher at roughly 1.6 percent nationally, confirming the persistence of extreme disparity. This implies that Dalits are approximately 13 times less likely than the general population to hold a bachelor's degree or higher—a gap that no single policy intervention is likely to close.

DISCUSSION

Spatial Concentration as Structural Inequality

Regional concentration in Nepalese higher education is not incidental or transitional but deeply structural. Bagmati Province's 44 percent share of both enrollment and campuses, and Tribhuvan University's 77.6 percent share of national enrollment, reflect a century of institutional development centered on the Kathmandu Valley—a pattern established during the Rana and Panchayat eras and reinforced by post-democratic expansion. This

concentration is embedded in the physical infrastructure of laboratories, libraries, and research centers, in the social networks that connect faculty and employers, and in the political economy of public financing that continues to favor established institutions.

The Mountain belt's mere 2.56 percent of enrollment, despite containing some of Nepal's most marginalized and climate-vulnerable populations, represents a crisis of educational access that federalism has not yet addressed. Students from Mountain districts who aspire to higher education face a stark choice: remain in regions with severely limited program offerings and infrastructure, or migrate to urban centers where living costs, cultural distance, and discrimination may create insurmountable barriers.

Gender Parity as Partial and Segregated

The study reveals that gender parity in Nepalese higher education is real but radically incomplete. The "leaky pipeline" from bachelor's (57.6 percent female) to master's (48.7 percent) to MPhil (22.4 percent) to PhD (17.7 percent) suggests that the barriers to women's educational advancement in Nepal operate most powerfully at the transition points between credential levels. Several mechanisms likely contribute to this attrition: family pressure to marry; the concentration of master's and doctoral programs in Kathmandu requiring migration that families may be less willing to support for daughters; and the near-total absence of female faculty mentors in technical fields.

The horizontal segregation by faculty is equally consequential. The extreme feminization of Education (71.89 percent female) and the extreme masculinization of Engineering (24.40 percent female) and Sanskrit (14.50 percent female) channel men and women into credential pathways with vastly different economic returns. The concentration of women in Education and men in Engineering thus reproduces, at the credential level, the gendered division of labor that characterizes Nepal's economy more broadly.

Institutional Monoculture and Systemic Vulnerability

The extreme dominance of Tribhuvan University—enrolling 77.61 percent of students and receiving 70.3 percent of government financing—raises concerns about systemic resilience and innovation capacity. A higher education system in which three-quarters of all activity occurs within a single institution is vulnerable to administrative dysfunction, political interference, and resistance to curricular reform. TU's historical orientation toward traditional disciplines and its massive bureaucratic apparatus may impede

the rapid development of new programs in data science, climate adaptation, public health, and other fields critical to Nepal's development challenges.

Caste, Intersectionality, and Data Absence

The caste dimension—though not captured in the EMIS enrollment statistics—emerges consistently across independent sources as a major axis of educational inequality. The estimated bachelor's degree completion rate of 1.6 percent among Dalits, compared to a national GER of 22.0 percent, represents a disparity of staggering magnitude. The absence of caste and ethnicity variables in the UGC EMIS data collection instrument is not merely a methodological limitation but a policy failure with profound consequences. Without administrative data on caste-disaggregated enrollment, completion, and employment outcomes, federal and provincial authorities cannot evaluate the effectiveness of existing quota and scholarship programs, identify institutions with particularly poor Dalit inclusion, or design targeted interventions for Dalit students in specific regions or fields.

CONCLUSION

Summary of Conclusions

This study provides a comprehensive, data-driven portrait of regional and gender disparities in Nepal's higher education system as of the 2023/24 academic year. Three principal conclusions emerge from the analysis of UGC EMIS data and supplementary literature.

First, Nepal's higher education system exhibits extreme spatial and institutional concentration that federal restructuring has not yet remedied. Bagmati Province and Tribhuvan University together dominate the national landscape, while Karnali Province, Sudurpashchim Province, and the Mountain belt remain severely underserved. This concentration is structural and requires sustained, targeted intervention rather than incremental adjustment.

Second, aggregate gender parity in higher education enrollment conceals profound vertical and horizontal segregation. While women have achieved numerical majority status at the bachelor's level, their representation declines steeply at the master's level and essentially collapses at the MPhil and doctoral levels. The "leaky pipeline" pattern suggests that access-

oriented policies have succeeded in bringing women into higher education but have failed to ensure their progression to advanced credentials and technical specializations.

Third, caste-based disparities—documented extensively in independent research but invisible in national administrative data—represent a third axis of inequality that intersects with regional and gender disadvantages to produce compounded exclusion. The absence of caste-disaggregated data in the UGC EMIS system constitutes a critical gap in national monitoring capacity and limits the evidence base for equity-oriented policy.

Policy Recommendations

Based on these findings, this study advances the following evidence-based recommendations:

Recommendation 1: Targeted Expansion of Constituent-Campus Capacity in Underserved Regions

Federal and provincial education authorities should prioritize the expansion of constituent-campus capacity—specifically postgraduate program offerings—in Karnali Province, Sudurpashchim Province, and the Mountain belt. Public investment should concentrate on strengthening a smaller number of high-quality constituent campuses in peripheral regions, with particular attention to:

- Establishing master's and doctoral programs in fields relevant to local development needs (e.g., agriculture, climate adaptation, public health, renewable energy);
- Recruiting and retaining qualified faculty through competitive salaries, housing allowances, and research support;
- Ensuring laboratory, library, and digital infrastructure standards comparable to Kathmandu Valley institutions;
- Developing feeder relationships with local secondary schools to improve preparation and aspiration levels among prospective students.

Recommendation 2: Graduate-Level Scholarship and Mentorship Programs for Women in Technical Fields

The steep decline in female representation at the master's level and beyond demands targeted intervention beyond generic access programs. Specifically:

● Establish competitive, fully funded scholarships for women pursuing master's and doctoral degrees in Engineering, Science and Technology, Agriculture, and other technical fields, with priority for applicants from provinces outside Bagmati;

● Develop structured mentorship programs that connect female graduate students with senior female faculty and professionals in their fields;

● Address structural barriers through dedicated graduate student housing, childcare facilities, and flexible program structures;

● Require universities receiving public financing to set and report targets for female representation at the master's, MPhil, and doctoral levels.

Recommendation 3: Integration of Caste and Ethnicity Variables Into the Ugc Emis Data Collection Instrument

The UGC, in coordination with the Central Bureau of Statistics and the Ministry of Education, Science and Technology, should undertake a systematic revision of the EMIS data collection instrument to include caste and ethnicity variables. This integration should:

● Employ categories consistent with the 2021 National Census to ensure comparability;

● Protect student privacy through aggregation and anonymization protocols;

● Enable annual reporting of enrollment, progression, and completion rates disaggregated by caste, gender, and province simultaneously;

● Be accompanied by capacity-building for provincial education offices in data collection, analysis, and equity monitoring.

Recommendation 4: Institutional Diversification and Reduced Reliance on Tribhuvan University

Federal policymakers should:

● Gradually reallocated a portion of public financing from TU to newer provincial universities and specialized institutions, tied to performance metrics;

● Strengthen the legal and administrative autonomy of provincial universities to enable curriculum innovation and faculty recruitment;

● Encourage inter-university collaboration and credit transfer systems that reduce the disruption and cost of migration;

● Develop transparent, competitive funding mechanisms open to all accredited institutions.

Recommendation 5: Continued Annual Publication and Provincial-Level Dissemination of Emis Data

The UGC's annual EMIS reports represent a valuable public good that should be more widely disseminated and utilized:

- EMIS data should be published in machine-readable formats (Excel, CSV, API access) to enable independent analysis;
- Provincial summaries should be produced and disseminated to provincial education ministries;
- Data visualization tools and dashboards should be developed to make disparities visible to non-technical audiences;
- The UGC should consider expanding the EMIS instrument to include longitudinal tracking of student cohorts.

Recommendation 6: Intersectional Policy Design and Monitoring

Federal and provincial education policies should explicitly adopt an intersectional framework that recognizes how region, gender, caste, and ethnicity combine to produce unique configurations of disadvantages. This requires:

- Disaggregating all enrollment and outcome data by at least two demographic variables simultaneously to identify the most marginalized subgroups;
- Designing scholarship, quota, and outreach programs that target specific intersections rather than broad categories;
- Conducting periodic qualitative research to understand the lived experiences of students at the intersections of multiple disadvantages;
- Establishing equity audits of university policies and practices through an intersectional lens.

Directions for Future Research

This study identifies several priorities for future research:

- Longitudinal cohort studies tracking individual students from admission through graduation and into the labor market, to identify specific points and mechanisms of attrition for women, Dalits, and students from peripheral regions;
- Institutional ethnographies of Tribhuvan University and provincial universities to examine how organizational culture, faculty composition, and administrative practices shape student experiences;

- Labor market outcome analysis linking higher education credentials to employment, earnings, and occupational status;
- Comparative analysis with other federalizing states in South Asia to identify policy mechanisms that have successfully reduced regional and institutional concentration;
- Student migration studies examining the patterns, costs, and consequences of internal migration for higher education.

REFERENCES

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. Columbia University Press.

Bennett, L., Dahal, D. R., & Govindasamy, P. (2008). *Caste, ethnic and regional identity in Nepal: Further analysis of the 2006 Nepal Demographic and Health Survey*. Macro International. https://dhsprogram.com/pubs/pdf/FA58/FA58.pdf

Bhatta, P., & Pherali, E. (2021). The politics of federalism in Nepal's education reform. *Journal of Education Policy, 36*(4), 567–585.

Bishwakarma, M. B. (2011). *Comparative study of Dalit education in Nepal*. SSRN. https://doi.org/10.2139/ssrn.1822163

Blickenstaff, J. C. (2005). Women and science careers: Leaky pipeline or gender filter? *Gender and Education, 17*(4), 369–386. https://doi.org/10.1080/09540250500145072

Cannady, M. A., Greenwald, E., & Harris, K. N. (2014). Problematizing the STEM pipeline metaphor: Is the STEM pipeline metaphor serving our students and the STEM workforce? *Science Education, 98*(3), 443–460. https://doi.org/10.1002/sce.21108

Crenshaw, K. (1989). Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. *University of Chicago Legal Forum, 1989*(1), 139–167. https://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8/

Gandhari, Y. (2021). Equity in higher education of Nepal. *International Journal of Educational Administration and Policy Studies, 13*(1), 40–47. https://doi.org/10.5897/IJEAPS2021.0694

International Dalit Solidarity Network. (2011). *Dalits' access to education* [Briefing paper]. https://idsn.org/wp-content/uploads/user_folder/pdf/New_files/Key_Issues/Education/DALIT_EDUCATION_IDSNbriefingpaper.pdf

National Statistics Office. (2023). *National population and housing census 2021: National report*. Government of Nepal. https://microdata.nsonepal.gov.np/index.php/catalog/124/related-materials

Pherali, E., & Garrido, M. (2021). Federalism and education in Nepal: Implications for school governance. *Compare: A Journal of Comparative and International Education, 51*(4), 612–630.

Sah, P., Sah, R., Sahani, S. K., & Sahani, K. (2024). Study and analysis of education system in Nepal and its challenges along with its solution. *Mikailalsys Journal of Advanced Engineering International, 1*(1), 33–42. https://doi.org/10.58578/mjaei.v1i1.2792

Sahani, S. K., & Karna, S. K. (2024). Simulation of the clash between cultural values in heterogeneous society using numerical methods. *Journal of Posthumanism, 4*(3), 543–559. https://doi.org/10.63332/joph.v4i3.2686

Sahani, S. K., & Karna, S. K. (2025). Program for cultural education optimization by the application of numerical methods. *Journal of Posthumanism, 5*(1), 1611–1627. https://doi.org/10.63332/joph.v5i1.2687

Sahani, S. K., Lee, T.-F., Pandey, D., Pandey, B. K., Jha, R., & Karna, S. L. (2026a). Explainable machine learning for credit risk management and intelligent lending decisions in Nepalese cooperative banks: A mathematical review. *Journal of Intelligent Decision Making and Information Science, 3*(6s), 1735–1772. https://doi.org/10.59543/jidmis.v3.1549

Sahani, S. K., Lee, T.-F., Pandey, D., Pandey, B. K., Jha, R., & Karna, S. L. (2026b). Machine learning–augmented hybrid risk management and deep uncertainty quantification in Nepalese management systems: Fractional stochasticity, Wasserstein robustness, and rough–path neural filtering. *Journal of Intelligent Decision Making and Information Science, 3*(3s), 1850–1873. https://doi.org/10.59543/jidmis.v3.971

Sahani, S. K., Lee, T.-F., Pandey, D., Pandey, B. K., & Mandal, K. (2026). Hybrid analytical numerical and machine learning frameworks for solving deterministic and stochastic differential equations with stability, convergence, and uncertainty quantification. *Journal of Intelligent Decision Making and Information Science, 3*(3s), 1794–1849. https://doi.org/10.59543/jidmis.v3.970

Sahani, S. K., Lee, T.-F., Pandey, D., Pandey, B. K., Sah, B. K., & Jha, R. (2026). A hybrid analytical, numerical, and machine learning framework for health management, resource allocation, operational efficiency, risk forecasting, and strategic decision-making in Nepal. *International Journal of Computer Information Systems and Industrial Management Applications, 18*(9s), 1221–1242. https://doi.org/10.70917/ijcisim-2026-3400

Sahani, S. K., Lee, T.-F., Pandey, D., Pandey, B. K., Sah, B. K., Jha, R., & Sah, D. K. (2026). Hybrid analytical–numerical–machine learning architectures for decision-making, risk management, operational stability, and uncertainty quantification in dental practice management systems: A mathematical theory. *European Journal of Prosthodontics and Restorative Dentistry, 34*(5s), 298–313. https://ejprd.org/article.php?article_id=1559&journal_id=169

Sahani, S. K., Lee, T.-F., Pandey, D., Pandey, B. K., Sah, B. K., Mandal, K., & Jha, R. (2026). Biotechnological catalysts in hybrid analytical–numerical–machine learning architectures for risk-aware decision-making and uncertainty quantification in Nepalese management systems. *European Journal of Prosthodontics and Restorative Dentistry, 34*(7s), 332–350. https://ejprd.org/article.php?article_id=1622&journal_id=171

Sahani, S. K., & Prasad, K. S. (2023). Modeling the impact of cultural education policies on literacy rates using numerical differential equations. *Journal of Posthumanism, 3*(3), 376–394. https://doi.org/10.63332/joph.v3i3.2905

Sahani, S. K., Sah, A. K., Jha, A., & Sahani, K. (2024). Analytical frameworks: Differential equations in aerospace engineering. *ALSYSTECH Journal of Education Technology, 2*(1), 13–30. https://doi.org/10.58578/alsystech.v2i1.2267

Sahani, S. K., & Sah, B. K. (2025). Optimization of cultural education program using numerical techniques. *Journal of Posthumanism, 5*(6), 4265–4280. https://doi.org/10.63332/joph.v5i6.2600

Sahani, S. K., Sah, M. K., Agarwal, S. K., Pareek, V., Parihar, P., & Singh, V. V. (2025). Numerical simulation of cultural value conflict in multicultural societies. *Journal of Posthumanism, 5*(3), 1815–1831. https://doi.org/10.63332/joph.v5i3.2651

Schultz, T. W. (1961). Investment in human capital. *The American Economic Review, 51*(1), 1–17. https://www.jstor.org/stable/1818907

University Grants Commission, Nepal. (2024). *Education management information system: Report of higher education 2023/024 A.D. (2080/081 B.S.)*. https://giwmscdnone.gov.np/media/pdf_upload/EMIS%202023-24_mu8su0b.pdf