CONTEMPORARY SOCIAL SCIENCES
PEER REVIEWED, INDEXED & REFEREED QUARTERLY INTERNATIONAL JOURNAL
ISSN 0302-9298
https://www.jndmeerut.org
[Vol. 34, No. 4 (October-December), 2025]
https://doi.org/10.62047/CSS.2025.12.31.13

Rural-Urban Disparities on Adequacy and Consumption of Drinking Water and Electricity across Provinces of Nepal

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Abstract

This paper examines the adequacy and consumption of drinking water and electricity facilities across Nepal's seven provinces, highlighting significant regional disparities. Utilizing extensive national level survey data of Nepal Living Standard Survey (NLSS-IV-2022/23) carried out among 9,600 households with 46,870 individuals. The analysis reveals that while government-provided services constitute the primary source of these utilities, their quality varies markedly by province. Provinces such as Bagmati and Gandaki generally report better service conditions, whereas Karnali, Sudurpaschim, and Madhesh face considerable infrastructure challenges. Private facilities remain limited in coverage and unevenly distributed. Statistical tests confirm a strong association between provincial location and utility service quality, underscoring the influence of geographic and structural factors. These findings emphasize the need for regionally made policy interventions to improve equitable access and quality of essential utilities, thereby supporting Nepal's broader goals of sustainable development and inclusive prosperity. Finally, the findings show that government-provided utilities dominate, with higher coverage in urban areas, while private sources remain negligible. Overall, water quality is low, and electricity, though widely available, varies in reliability and "Good" coverage across provinces. Rural households, particularly in Karnali and Sudurpaschim, experience significant service gaps and limited awareness, underscoring the need for targeted infrastructure improvements and enhanced community engagement.

Keywords

Province, Rural-urban, Basic services, Drinking water, Electricity, Nepal.

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1. Introduction

Access to safe drinking water and reliable electricity are fundamental components of sustainable development and human well-being in the modern world. These essential utilities support health, education, economic productivity, and overall quality of life. In developing countries like Nepal, ensuring equitable access to such services remains a critical challenge due to geographic, socio-economic, and infrastructural disparities. The availability of and access to water and electricity involves a complex relationship between public institutions and private entities, with government infrastructure typically serving as the main source, while private facilities often supplement or fill gaps in service. Understanding the distribution, quality, and accessibility of these utilities across diverse regions is vital for informed policy-making and targeted investment. As Nepal continues its development trajectory, assessing regional disparities in drinking water and electricity infrastructure provides crucial insights to guide efforts toward inclusive growth and sustainable resource management.

Obuaku-Igwe (2015) mentioned that research has shown that the health of the general population of a nation depends in part on access to health care, the major determinants of which range from the availability of health services to the quality and effectiveness of professionals and the financial resources to access general and specialized care by patients. Consequently, it is not surprising that policy makers, practitioners and other stakeholders in the global health sector should be concerned about the growing disparities in health especially, despite the intervention efforts by governments. Researchers show that health inequalities are determined by a range of social factors such as; race, education, ethnicity, gender, geographical location and income amongst others, and these factors reflect on and affect other components of a health system, resulting in poor health outcomes, mortalities and financial losses. This is observed more in Low and Middle-Income Countries where life expectancy varies between 36 to 57 years compared to 80 years in high income countries. In South Africa, life expectancy at birth is 61 years (South Africa's life expectancy ranked 162 for females and 169 for males out of the 188 countries). Statistics reveal that health inequalities grew. This growth in health inequalities correspond to an increase in income inequalities. For example, income inequality in the country increased from 0.6 in 1994 to 0.679 in 2013. Of significance is the regional variation in health inequalities: for example, in the Western Cape Province where the white population in South Africa are mostly based, health inequalities and indeed income inequalities are stark (Obuaku-Igwe, 2015). This kind of inequalities appear in various aspects of access to resources and opportunities among individuals, households, groups and even among countries in the world.

Maliti (2019) write that measuring trends in inequality within and between countries, and the consequences of inequality on development outcomes are receiving considerable attention in academic literature and among development agencies. As methods of measuring inequality are advancing, it is well documented that inequality not only constrains potentials for future economic growth (Perotti, 1996; Nissanke and Thorbecke, 2006; Berg and Ostry, 2013), but also decelerates efforts on poverty reduction (Ravallion, 1997, 2005; Thorbecke and Charumilind, 2002; Nel, 2006). In the wake of such evidence, it is no surprise that 'reduce inequality within and among countries' emerged as one of the 17 Sustainable Development Goals (SDGs) to guide international development efforts in the next 15 years. In addition to vertical inequality (inequality between individuals) which has largely dominated the literature, horizontal inequality is receiving growing interest (inequality between subnational regions, locations and groups drawn along social identity lines, such as religion, ethnicity, and gender) (Stewart, 2000; Stewart, *et al*. 2010). The interest on horizontal inequality is on the rise for many reasons, for instance, the potential intersections between wealth inequality and conflicts (Lipsky, 1968; Gurr, 1970; Bush and Saltarelli, 2000 as cited in Maliti, 2019). The social and economic status of people play an important role in shaping access to resources and opportunities among individuals in any society.

Khan, Saboor, and Shah (2021) have mentioned that tremendous increase in occupational multidimensional inequality has become an emerging challenge across the developing globe. This research, one of many others, examine the inequality in unidimensional and multidimensional spectrum across different occupations at provincial level in Pakistan through HIES/PSLM survey data for the years 1998-1999 and 2013-2014. The estimation of unidimensional inequality based upon positive and normative measures (Gini-coefficient; and Atkinson measure and Generalized Entropy Index). Analysis of multidimensional inequality employs the methodology of Araar (The hybrid multidimensional index of inequality. CIRPEE. Working Paper 09-45, 2009), while using three core dimensions i.e. health, education and housing services. Results indicate the reduction in inequality among all occupations in unidimensional context over the time, with the exception of self-employed group, which have experienced higher consumption inequality. The figures of multidimensional inequality identify that daily wage labor has experienced higher inequality in multidimensional context, because of having smaller income that restrict them to enjoy the basic facilities of life as compare to higher income groups associated with other professions. At the provincial level, Punjab has lower multidimensional inequality across all professions, which was mainly attributed to the fact that wider population of such provinces belong to urban areas and having good access to basic facilities and other necessities of life. Contrarily, Baluchistan has higher multidimensional inequality, mainly due to over spread rural sector along with poor access to basic facilities like as health, education & housing services (Khan, Saboor, and Shah, 2021, in abstract). The inequality in access to basic services among individuals and households prevail in many parts of the world.

Jacob (2023) noted important points as those who have less, value drinking water and sanitation more, and those who have more, value them less. He visited the areas mentioned twice, the first time in the mid- 2000s when an earlier sanitation programme was underway, and the second time in the late 2010s when the Swachh Bharat Mission was being executed. There have been many analyses of the access that people from different religions have to access to drinking water and sanitation in India. National programmes like the National Rural Water Drinking Mission, rechristened the Jal Jeevan Mission, and Swachh Mission, aim at providing universal access to drinking water and sanitation, respectively. The programmes do not take caste and religion into account and are ostensibly biased towards provisioning the poor. But there is a paradox of poor access and high usage of facilities provided by these universal access programmes. A hypothesis based on limited available data and anecdotal evidence says that while Muslims have lower levels of sanitation access, they use toilets more than Hindus. The Indian situation regarding water and sanitation needs a somewhat nuanced understanding of access and usage. There are differences in the level of access that Hindus and Muslims have to these two basic services. There are greater differences in the way they use these services. This leads to the hypothesis that there is a religion-blind paradox in the ways in which 'universal access' missions to provision the two are executed, and the facilities provided are used (Jacob, 2023). However, the inequality of any kind changes over the period of time.

Islam and Mitra (2017) highlighted that the equality of opportunity framework is conceptually linked to the concept of upward mobility (Sen, 1980). Without removing differences in access to basic services, society cannot bring about upward mobility of disadvantaged groups. The intergenerational mobility literature that subsequently spawned from the model of Becker and Tomes (1986) also provides evidence to this notion. For sustained poverty reduction it is important to make different the access children have to certain basic services (such as education, health, etc.) from characteristics that they inherit from their parents. If family variables are inadequate to ensure a higher standard of living for offsprings in their adult life, then favorable neighborhood variables could be used to ensure that as research has shown that community variables can affect the future outcomes of an individual (Aaronson, 1998; Datcher, 1982; Durlauf, 1996; Islam, 2013, as cited in Islam, and Mitra, 2017). Identification of the variables and their measurement may differ across time and space.

Guillen-Royo, Velazco, and Camfield (2013) reported that although income or wealth have been the objective indicators most commonly used by economists, broader measures such as basic needs or capabilities are increasingly employed to assess societies' wellbeing; for example, the United Nations' Human Development Index. These are implicitly founded on normative theories of the 'good' such as the Capabilities approach by Sen (1985) and Nussbaum (2000) and the Theory of Human Need (THN) by Doyal and Gough (1991). Normative theories offer richer accounts of wellbeing than approaches focused only on income or wealth. They acknowledge its multidimensionality and identify 'a flourishing life' or a 'good life' as the ultimate societal goal. For example, the THN maintains that physical health and autonomy are necessary to participate in one's chosen form of life and avoid serious harm (Guillen-Royo, Velazco, and Camfield, 2013). The nature, availability and consumption of drinking water, sanitation and electricity differ by different dimensions of inequality including regions.

Ejechi and Ejechi (2008) have mentioned that it has been estimated that approximately half of the world live in cities (Montgomery, Stren, Cohen, & Reed, 2003). According to Bugliarello (2006) factors such as health, water and sanitary services among others, ensure the survival and prosperity of cities. One of the major challenges facing city or town planners everywhere and particularly in developing countries is how to ensure that safe drinking water reaches every part of the city. Safety of drinking water is of concern to consumers, water suppliers and public health authorities because of water-borne diseases. Huttly (1990) estimated the extent of water-borne diseases in the world. According to his report 1.4 billion cases of diarrhea in children occur annually with 4.9 million children dying. In the same vein, Hunter (1997) reported that about a third of intestinal diseases in the world might be water-borne (Ejechi and Ejechi, 2008). This highlights the importance of safe drinking water in human society.

Adams, Boateng, and Amoyaw (2016) studied on good sanitation and concluded that lack of access to potable water and good sanitation is still one of the most challenging public health concerns of the twenty-first century despite steady progress over recent decades. Almost a billion people globally lack access to safe water; over two billion live without adequate sanitation facilities. The challenge is even more daunting for Sub-Saharan Africa where coverage levels for both potable water and sanitation remain critically low. The urgent need to address the issue calls for adequate understanding of the socio-economic dimensions. Using the 2008 Ghana Demographic and Health Survey, the authors investigated the socio-economic and demographic factors associated with access to potable water and improved sanitation facilities. Their generalized linear models reveal that income, education, household size, and region are significant predictors of improved water and sanitation access. Their discussion and conclusion sections highlight the implications of the study results for water policy formulation and implementation in Ghana, and broadly for other developing countries (Adams, Boateng, and Amoyaw, 2016). In order to improve the status and consumption of safe drinking water, sanitation and electricity policy formulation based on research is essential.

Weststrate, Dijkstra, Eshuis, Gianoli, and Rusca (2019) have mentioned a main finding of the review is that the indicator of 'access to an improved water source' fails to take water quality into account. As a result, water sources defined as improved may contain contaminated water and vice versa. A water quality assessment in rural Cambodia, for example, showed that the water quality of rope pump wells, considered an 'improved' water source, often failed to meet health standards (Bennett, *et al*. 2010). Of the samples coming from 'unimproved' open wells, 18.3% were unsafe according to the Cambodian drinking water standards, compared to 31.7% of samples from the 'improved' rope pump wells. The indicator of 'improved source' covers a wide variety of water supply options, some better than others (Bartram, *et al*. 2014; Brown, *et al*. 2013).

A survey including 224 households in the Dan Nang province in Vietnam indicated that the quality of piped water was higher than the quality of other improved sources (Brown *et al*. 2013). The prevalence of diarrhea was lower among households with access to piped water. When water quality is included as an indicator, the population with sustainable access to safe water decreases drastically (Weststrate, Dijkstra, Eshuis, Gianoli, and Rusca, 2019). This is how the status and quality of drinking water and sanitation including electricity facility differ from one society to another and it changes across time and space.

As in other societies of the world inequality persists in Nepali society as well. Mishra (2010; 2070 VS), Pandey (2010), Gautam (2013) and Nakarmi (2021) have often discussed about class and ethnicity-based inequality in the context of Nepal. Mishra (2010; 2070 VS) and Pandey (2010) have emphasized on class-based inequality in terms of development and status of people's status in Nepal. Nakarmi (2021), focusing on structural aspect of access to resources and opportunities, highlights inter and intra-group inequality within Newar community which is in the line of inter and intra-ethnic inequality analysis made by Gautam (2013). Beyond that Gautam and Nakarmi (2025) have analyzed much about region—based inequality focusing on rural-urban and provincial disparities in the perception of safe and safety. The availability of safe drinking water, sanitation and electricity in Nepal is also not similar across time and space. It is important to explore the disparity in availability of and access to drinking water and electricity that can be observed across rural-urban location and provinces of Nepal which remains unexplored till now.

2. Problem Statement

Despite Nepal's ongoing efforts to improve basic utility services, significant disparities remain in the quality and accessibility of drinking water and electricity across its provinces. While government-provided infrastructure serves as the primary source of these essential utilities, variations in service quality and coverage are evident, particularly between more urbanized provinces and remote or underdeveloped regions. Private utility facilities are limited and unevenly distributed, further exacerbating inequities in access. These disparities pose challenges to achieving inclusive development and sustainable livelihoods, as access to clean water and reliable electricity are fundamental to health, economic opportunity, and overall well-being. This study addresses the critical need to systematically analyze these rural-urban and provincial differences that can support evidence-based policy for equitable infrastructure development throughout Nepal.

3. Research Objectives

The primary objective of this study is to assess the rural-urban differences in quality and accessibility of drinking water and electricity facilities across Nepal's seven provinces, with a focus on comparing government-provided services to private alternatives. It aims to identify and analyze regional disparities in infrastructure and service quality, exploring how geographic location influences utility access. By employing statistical methods to examine these variations, the study seeks to generate evidence-based insights that can inform targeted policy interventions, ultimately supporting more equitable and sustainable development across diverse provincial contexts.

4. Methods

This study utilized data collected from a large-scale national survey encompassing 9600 households and 46,870 individuals (over millions valid responses-weighted) across Nepal's seven provinces. The quality of drinking water and electricity facilities was classified into four categories: good, fair, bad, and not applicable (N/A).

Crosstabulation was employed to examine the distribution of these categories within each province for both government and private facilities.

To evaluate the statistical significance of observed provincial differences in facility quality, Chi-Square tests were conducted, including Pearson Chi-Square, Likelihood Ratio, and Linear-by-Linear Association tests. Assumptions of the Chi-Square tests were confirmed by ensuring no expected cell counts were below five. The analysis allowed for robust identification of regional disparities and patterns in utility infrastructure and service quality.

5. Study Area

The data set borrowed from NLSS-IV (2022/23) was conducted across all seven provinces of Nepal, encompassing a diverse range of geographic, socio-economic, and infrastructural contexts. These provinces-Koshi, Madhesh, Bagmati, Gandaki, Lumbini, Karnali, and Sudurpaschim-vary significantly in terms of urbanization, topography, and development levels. This variation provides a comprehensive framework for analyzing disparities in access to and quality of drinking water and electricity facilities. The data collection spanned both urban and rural areas, capturing the lived experiences of households regarding their utility services. This wide geographic coverage ensures that the findings reflect the multifaceted nature of infrastructure challenges and opportunities across Nepal's varied provincial landscapes.

6. Rural-Urban Disparities in access to Drinking Water and Electricity across Provinces of Nepal

Access to drinking water and electricity is fundamental for improving health, education, and economic opportunities, yet it remains uneven across many regions, particularly in rural and marginalized communities. Safe drinking water reduces the prevalence of waterborne diseases and ensures better public health, while reliable electricity enables households to meet daily needs, supports schools and health centers, and drives local economic activities. Together, these basic services enhance quality of life, reduce poverty, and contribute to sustainable development, but challenges such as inadequate infrastructure, geographic barriers, and socio-economic inequalities often limit equitable access. Expanding and maintaining affordable, safe, and sustainable systems for water and electricity is therefore critical for social inclusion and long-term prosperity.

Table-1: Rural-Urban Disparities in Drinking Water Facility-Government across Provinces of Nepal

Province	Rural-Urban	Test values	Drinking Water (Government) (In percentage)				
			Good	Fair	Bad	N/A	Total
Koshi	Other urban	χ^2=757.02	13.9	29.1	7.3	49.8	100.0
	Rural	df=3	12.1	29.4	7.2	51.3	100.0
	Total	***p*=0.000**	**13.3**	**29.2**	**7.2**	**50.3**	**100.0**
Madhesh	Other urban	χ^2=49896.15	10.0	15.5	5.0	69.5	100.0
	Rural	df=3	5.1	4.9	1.4	88.7	100.0
	Total	**ρ=0.000**	**8.8**	**12.8**	**4.1**	**74.3**	**100.0**
Bagmati	Kath-mandu	χ^2=121418.75	18.3	43.5	28.6	9.6	100.0
	Other urban	df=3	31.8	44.3	8.9	15.0	100.0
	Rural		27.3	39.6	12.0	21.1	100.0
	Total	***p*=0.000**	**23.9**	**43.1**	**19.7**	**13.3**	**100.0**
Gandaki	Other urban	χ^2=3171.82	34.8	49.1	7.4	8.7	100.0
	Rural	df=3	37.3	44.7	5.9	12.1	100.0
	Total	*p*=0.000	**35.6**	**47.7**	**6.9**	**9.8**	**100.0**
Lumbini	Other urban	χ^2=23891.86	17.7	39.2	4.4	38.7	100.0
	Rural	df=3	13.3	31.1	3.5	52.1	100.0
	Total	***p*=0.000**	**15.9**	**36.0**	**4.1**	**44.0**	**100.0**
Karnali	Other urban	χ^2=15714.07	38.5	33.9	14.0	13.6	100.0
	Rural	df=3	28.7	28.0	13.0	30.2	100.0
	Total	***p*=0.000**	**34.2**	**31.3**	**13.6**	**20.9**	**100.0**

Sudurpa-schim	Other urban	χ^2 =12718.79	20.0	24.3	7.3	48.4	100.0
	Rural	df=3	13.3	32.3	13.3	41.2	100.0
	Total	***p*=0.000**	**17.7**	**27.1**	**9.3**	**45.9**	**100.0**
	Kathmandu	χ^2=653243.19	18.3	43.5	28.6	9.6	100.0
	Other urban	df=3	19.9	31.6	6.7	41.7	100.0
	Rural	*p*=0.000	17.3	29.1	6.9	46.7	100.0
Nepal			**18.9**	**32.3**	**9.3**	**39.4**	**100.0**

Source: Computed from NLSS IV (2022/23) Data Set (The results in the table are weighted).

The distribution of drinking water facility and quality across provinces reveals notable regional disparities. Overall, only 18.9% of respondents reported having a good drinking water facility, while 32.3% rated it as fair, 9.3% as bad, and a substantial 39.4% indicated that the question was not applicable or data was unavailable.

Looking closely at individual provinces, Gandaki stands out with the highest proportion of households reporting good drinking water facilities at 35.6%, closely followed by Karnali at 34.2%. These provinces also have relatively low percentages of respondents rating their water facility as bad (6.9% and 13.6%, respectively) and the smallest shares of “not applicable” responses, indicating that most households there engage with drinking water infrastructure to some extent.

In contrast, Madhesh exhibits the lowest reported quality, with only 8.8% rating their facility as good and 4.1% as bad. However, a striking 74.3% of respondents in Madhesh selected “not applicable”, suggesting either limited access to formal drinking water facilities or a different water usage pattern in the region.

Bagmati and Gandaki provinces show relatively balanced distributions with a significant portion in the fair category (43.1% and 47.7%, respectively), indicating moderate satisfaction or ongoing challenges with water access or quality. Meanwhile, provinces like Koshi, Lumbini, and Sudurpaschim reveal mixed experiences with drinking water, where a notable share of respondents also marked “not applicable” (ranging from 44.0% to 50.3%), implying possible gaps in infrastructure or survey coverage.

The analysis of government-provided drinking water across provinces shows substantial rural-urban disparities, with statistically significant differences in quality (all χ^2 tests ρ = 0.000). In Koshi and Lumbini, both urban and rural areas reported low "Good" water coverage (13-18%), with roughly half of households unable to classify water quality (N/A). Madhesh had the lowest proportion of "Good" water, particularly in rural areas (5.1%), with a majority marked N/A (88.7%). Bagmati and Gandaki provinces showed higher water quality in urban centers (up to 34.8%-43.5% "Good"), though Kathmandu itself had a high proportion rated "Fair" or "Bad". Karnali exhibited relatively better urban access (38.5% "Good") but still notable rural deficits. Sudurpaschim had moderate "Good" coverage (17.7%) with large N/A shares. Overall, across all provinces, only 18.9% of households reported "Good" water, 32.3% "Fair", 9.3% "Bad", and a substantial 39.4% could not assess the quality, highlighting pervasive gaps in both water quality and household awareness, with urban areas generally faring better than rural ones.

Overall, the data reflect varying degrees of access and quality of drinking water facilities across Nepal's provinces. While some regions demonstrate better provision and satisfaction, others face challenges that may be linked to infrastructure deficits, geographic barriers, or socio-economic factors, underlining the need for targeted interventions to improve water access and quality across the country.

The Chi-Square analysis demonstrates a highly significant association between the province and the reported quality of drinking water facilities (Pearson Chi-Square= 1,769,921.77, df 18, ρ< 0.001). This strong statistical relationship indicates that the variations in water facility conditions are not due to random chance but are meaningfully related to the province in which respondents reside.

Supporting this, the Likelihood Ratio test also confirms this significance with a value of 1,853,429.13 (df 18, ρ< 0.001), reinforcing the robustness of the association. Additionally, the Linear-by-Linear Association test, which examines the trend between ordered categories, yields a significant result (147,536.40, df=1, ρ< 0.001), suggesting a consistent pattern in the data across provinces.

The analysis is based on a large sample size of 7,185,104 (9600 households) valid cases, which strengthens the reliability of these findings. Moreover, no expected cell counts were below five, indicating that the data meet the assumptions required for valid Chi-Square testing. In practical terms, these results statistically confirm that the quality and availability of drinking water facilities vary significantly across Nepal's provinces, highlighting regional disparities that warrant further investigation and policy attention. The opinion of people on the availability and quality of drinking water facility is shown in Table-2.

Table-2: Rural-Urban Disparities in Drinking Water Facility-Private/ Non-government across Provinces of Nepal

Province	Rural-Urban	Test values	Drinking Water (Private/Non-Government) (In percentage)				
			Good	Fair	Bad	N/A	Total
Koshi	Other urban	χ^2=9013.63	7.0	25.4	4.7	62.9	100.0
	Rural	df=3	9.5	30.6	2.6	57.3	100.0
	Total	***p*=0.000**	**7.9**	**27.2**	**4.0**	**61.0**	**100.0**
Madhesh	Other urban	χ^2=10339.27	5.6	30.7	5.2	58.5	100.0
	Rural	df=3	7.8	24.7	2.7	64.8	100.0
	Total	**ρ=0.000**	**6.1**	**29.2**	**4.5**	**60.1**	**100.0**
Bagmati	Kath-mandu	χ^2=13960.50	11.3	44.4	8.8	35.4	100.0
	Other urban	df=3	10.6	41.1	6.2	42.2	100.0
	Rural		9.5	37.1	7.6	45.9	100.0
	Total	***p*=0.000**	**10.8**	**42.1**	**7.8**	**39.3**	**100.0**
Gandaki	Other urban	χ^2 =4649.49	8.6	27.5	3.1	60.8	100.0
	Rural	df=3	10.4	33.0	1.4	55.2	100.0
	Total	***p***=0.000	**9.2**	**29.2**	**2.6**	**59.0**	**100.0**
Lumbini	Other urban	χ^2=29677.83	7.2	24.2	3.0	65.5	100.0
	Rural	df=3	6.5	14.2	1.0	78.3	100.0
	Total	***p*=0.000**	**6.9**	**20.2**	**2.2**	**70.6**	**100.0**
Karnali	Other urban	χ^2=12345.07	4.2	10.5	2.8	82.5	100.0
	Rural	df=3	10.8	18.0	3.6	67.5	100.0
	Total	***p*=0.000**	**7.1**	**13.8**	**3.2**	**76.0**	**100.0**

Sudurpa-schim	Other urban	χ^2=12233.32	8.7	10.5	1.4	79.4	100.0
	Rural	df=3	1.5	9.4	1.9	87.2	100.0
	Total	***p*=0.000**	**6.2**	**10.1**	**1.5**	**82.1**	**100.0**
	Kathm andu	χ^2=265351.05	11.3	44.4	8.8	35.4	100.0
	Other urban	df=3	7.3	26.4	4.1	62.2	100.0
	Rural	*p*=0.000	8.0	23.8	2.8	65.4	100.0
Nepal			**8.0**	**27.8**	**4.2**	**60.0**	**100.0**

Source: Computed from NLSS IV (2022/23) Data Set (The results in the table are weighted)

The distribution of private drinking water facilities across Nepal's provinces reveals a more limited presence compared to overall drinking water facilities, with only 8.0% of respondents rating their private water facility as good, 27.8% as fair, and 4.2% as bad. A striking 60.0% of respondents selected "not applicable", indicating that a majority either do not have access to or do not rely on private drinking water sources.

Examining province-specific patterns, Bagmati shows the highest share of good private drinking water facilities at 10.8%, with a substantial 42.1% rating them as fair. In contrast, provinces such as Karnali (7.1% good) and Sudurpaschim (6.2% good) report much lower percentages of good private facilities and the highest proportions of "not applicable" responses-76.0% and 82.1% respectively-implying that private water sources are less common or less accessible in these regions.

Lumbini also reflects limited access to private facilities, with only 6.9% reporting good conditions and 70.6% indicating non-applicability. Koshi, Madhesh, and Gandaki provinces show similar patterns where around 60% of respondents do not rely on private drinking water, and fair ratings hover between 20% and 30%.

Overall, the data suggest that private drinking water facilities are not widespread across Nepal, with regional disparities reflecting varying availability and reliance. Bagmati appears relatively better served by private facilities, while Karnali and Sudurpaschim face the greatest gaps. This highlights a potential area for infrastructure development and investment, especially in provinces where private water sources are scarce.

The analysis of private or non-government drinking water across provinces reveals widespread low coverage of "Good" quality water, with significant rural-urban differences (all χ^2 tests ρ= 0.000). Overall, only 8.0% of households reported "Good" water, 27.8% "Fair", 4.2% "Bad", and a striking 60.0% were unable to assess the quality (N/A). Koshi, Madhesh, and Lumbini provinces had slightly higher rural "Good" coverage than urban areas, though a majority of households still marked N/A (57-78%). Bagmati province, including Kathmandu, reported the highest proportion of "Good" and "Fair" private water (10-11% and 37-44%, respectively), but N/A remained substantial. Gandaki and Karnali showed modest urban-rural differences, with urban centers generally slightly lower in "Good" water but similar in "Fair". Sudurpaschim had the lowest rural access to "Good" private water (1.5%), with N/A dominating (87.2%). Across all provinces, urban households tended to report slightly better access to private water than rural counterparts, but overall awareness and quality remained limited, indicating that non-government sources are not widely recognized or consistently reliable.

The Chi-Square test results indicate a statistically significant relationship between province and the quality of private drinking water facilities (Pearson Chi-Square=548,812.30, df=18, ρ<0.001). This suggests that the variations in private water facility conditions across provinces are unlikely to be due to chance, underscoring meaningful regional differences.

The Likelihood Ratio test further supports this conclusion with a significant value of 567,145.35 (df=18, ρ<0.001). Additionally, the Linear-by-Linear Association test reveals a significant trend (115,827.32, df=1, ρ<0.001), indicating a consistent pattern in the ordered categories of private water facility quality across provinces.

With a large sample size of 7,185,104 (9600 households) valid cases, these findings are robust. The absence of cells with expected counts below five confirms that the assumptions for Chi-Square testing are satisfied, lending credibility to the results.

In summary, the data clearly demonstrate significant provincial disparities in access to and quality of private drinking water facilities, highlighting areas where private water infrastructure is relatively underdeveloped and pointing toward opportunities for targeted improvements.

Another basic infrastructure essential to human life is electricity. This facility has now become primary to all kind of other facilities used at individual, household and community level. The status of government electricity is presented in Table-3.

Table-3: Rural-Urban Disparities in access to Government Electricity Facility across Provinces of Nepal

Province	Rural-Urban	Test values	Electricity Facility (Government) (In percentage)				
			Good	Fair	Bad	N/A	Total
Koshi	Other urban	χ^2=75315.23	38.3	54.7	3.6	3.3	100.0
	Rural	df=3	29.0	48.4	5.7	16.9	100.0
	Total	**p=0.000**	**35.2**	**52.6**	**4.3**	**7.9**	**100.0**
Madhesh	Other urban	χ^2=10851.30	43.9	52.6	1.8	1.7	100.0
	Rural	df=3	48.9	44.4	3.9	2.7	100.0
	Total	**ρ=0.000**	**45.2**	**50.5**	**2.4**	**1.9**	**100.0**
Bagmati	Kath-mandu	χ^2=107499.28	52.3	46.7	0.3	0.8	100.0
	Other urban	df=3	51.6	46.4	0.6	1.3	100.0
	Rural		39.0	47.8	6.2	7.0	100.0
	Total	**p=0.000**	**49.7**	**46.8**	**1.4**	**2.1**	**100.0**
Gandaki	Other urban	χ^2 =48937.14	47.8	49.1	1.0	2.1	100.0
	Rural	df=3	38.1	44.2	1.7	16.0	100.0
	Total	p=0.000	**44.7**	**47.5**	**1.2**	**6.5**	**100.0**
Lumbini	Other urban	χ^2=12707.22	28.4	67.7	1.6	2.2	100.0
	Rural	df=3	24.4	67.5	3.5	4.6	100.0
	Total	**p=0.000**	**26.8**	**67.6**	**2.4**	**3.2**	**100.0**
Karnali	Other urban	χ^2=28009.23	31.8	29.4	6.2	32.7	100.0
	Rural	df=3	14.1	20.8	7.2	57.9	100.0
	Total	**p=0.000**	**24.0**	**25.6**	**6.6**	**43.7**	**100.0**

Sudurpa-schim	Other urban	χ^2=78115.89	37.3	42.0	6.8	13.8	100.0
	Rural	df=3	17.2	27.7	9.7	45.4	100.0
	Total	***p*=0.000**	**30.4**	**37.1**	**7.8**	**24.7**	**100.0**
	Kathmandu	χ^2=426533.72	52.3	46.7	0.3	0.8	100.0
	Other urban	df=3	39.9	52.7	2.6	4.8	100.0
	Rural	*p*=0.000	31.0	48.0	5.0	15.9	100.0
Nepal			**38.7**	**50.6**	**3.0**	**7.6**	**100.0**

Source: Computed from NLSS IV (2022/23) Data Set (The results in the table are weighted).

The quality and availability of government-provided electricity facilities vary considerably across Nepal's provinces. Overall, 38.7% of respondents rated their government electricity facility as good, while a majority of 50.6% described it as fair, and only 3.0% considered it bad. About 7.6% of respondents indicated "not applicable", suggesting some households either do not access government electricity or the data was unavailable.

Among provinces, Bagmati leads with the highest share of good electricity facilities at 49.7%, closely followed by Madhesh (45.2%) and Gandaki (44.7%). These provinces also have relatively low shares of bad ratings, indicating a generally positive experience with government electricity supply.

Conversely, Karnali and Sudurpaschim exhibit lower proportions of good electricity facilities-24.0% and 30.4%, respectively-and higher percentages of bad ratings (6.6% in Karnali and 7.8% in Sudurpaschim). Karnali also shows a notably high "not applicable" rate at 43.7%, suggesting significant gaps in electricity access or infrastructure.

Lumbini stands out for having the highest share of respondents rating the electricity facility as fair (67.6%), which may reflect ongoing challenges in achieving consistently high-quality service despite widespread access.

Koshi's ratings show a majority in the fair category (52.6%) with a smaller but meaningful portion rating the service as good (35.2%) and a low "not applicable" rate (7.9%), indicating broad access with room for improvement.

The analysis of government-provided electricity facilities across provinces indicates generally high coverage with notable rural-urban differences, all statistically significant χ^2, ρ= 0.000). Overall, 38.7% of households reported "Good" electricity, 50.6% "Fair", 3.0% "Bad", and 7.6% could not assess (N/A). Urban areas consistently reported higher proportions of "Good" electricity, particularly in Kathmandu and other urban centers of Bagmati, Madhesh, and Gandaki (43-52%), while rural areas in Karnali and Sudurpaschim lagged significantly, with "Good" coverage as low as 14.1-17.2% and high N/A values (32.7-57.9%). Lumbini province showed the highest reliance on "Fair" electricity (67-68%) in both rural and urban settings. Overall, government electricity access is widespread but with quality variations: urban households generally enjoy better electricity quality, whereas remote and less developed rural areas face lower "Good" coverage and higher uncertainty regarding the service.

Overall, the data suggest that while government electricity infrastructure reaches a majority of households across Nepal, quality and reliability vary regionally. Provinces like Bagmati, Madhesh, and Gandaki appear better served, whereas Karnali and Sudurpaschim may require focused efforts to enhance both access and service quality.

The Chi-Square test results reveal a highly significant association between the province and the quality of government electricity facilities (Pearson Chi-Square 1,413,931.12, df=18, ρ<0.001). This strong statistical evidence confirms that variations in electricity facility quality are meaningfully linked to the geographic location of respondents.

The Likelihood Ratio test supports this conclusion with a value of 1,056,801.35 (df=18, ρ<0.001), further confirming the robustness of the relationship. The Linear-by-Linear Association test, which assesses the trend across ordered categories, also shows a significant pattern (303,414.72, df=1, ρ<0.001).

With over seven million valid cases analyzed, the large sample size ensures the reliability of these findings. Additionally, no cells have expected counts below five, meeting the assumptions necessary for valid Chi-Square application.

In summary, these results statistically validate the observed provincial disparities in government electricity service quality, underscoring the need for targeted policies to address gaps, particularly in provinces like Karnali and Sudurpaschim where access and quality are comparatively lower. This kind of differences is found even in private electricity across rural-urban residence and provinces of Nepal (Table-4).

Table-4: Rural-Urban Disparities in access to Private/Non-government Electricity Facility across Provinces of Nepal

Province	Rural-Urban	Test values	Electricity Facility (Private/Non-Government) (In percentage)				
			Good	Fair	Bad	N/A	Total
Koshi	Other urban	χ^2=16139.64	1.4	8.2	1.0	89.4	100.0
	Rural	df=3	4.0	11.6	2.2	82.2	100.0
	Total	***p*=0.000**	**2.3**	**9.4**	**1.4**	**87.0**	**100.0**
Madhesh	Other urban	χ^2=1389.71	0.1	4.0	0.6	95.4	100.0
	Rural	df=3	0.4	4.1	0.6	94.9	100.0
	Total	**ρ=0.000**	**0.2**	**4.0**	**0.6**	**95.3**	**100.0**
Bagmati	Kath-mandu	χ2=21177.20	3.9	13.2	0.2	82.7	100.0
	Other urban	df=3	5.4	16.1	0.3	78.2	100.0
	Rural		3.6	16.1	2.3	78.0	100.0
	Total	***p*=0.000**	**4.3**	**14.6**	**0.6**	**80.5**	**100.0**
Gandaki	Other urban	χ^2 =27819.03	2.0	9.2	0.2	88.6	100.0
	Rural	df=3	6.1	17.2	2.4	74.3	100.0
	Total	***p***=0.000	**3.3**	**11.7**	**0.9**	**84.1**	**100.0**
Lumbini	Other urban	χ^2=34274.17	4.1	12.6	0.2	83.1	100.0
	Rural	df=3	1.5	4.9	0.9	92.7	100.0
	Total	***p*=0.000**	**3.1**	**9.5**	**0.5**	**86.9**	**100.0**
Karnali	Other urban	χ^2=2238.16	4.7	4.0	2.1	89.3	100.0
	Rural	df=3	7.3	5.8	2.8	84.1	100.0
	Total	***p*=0.000**	**5.8**	**4.8**	**2.4**	**87.0**	**100.0**

Sudurpa-schim	Other urban	χ^2=1168.81	1.7	5.6	4.8	87.9	100.0
	Rural	df=3	2.0	7.8	4.8	85.3	100.0
	Total	***p*=0.000**	**1.8**	**6.4**	**4.8**	**87.0**	**100.0**
	Kathmandu	χ^2=45620.73	3.9	13.2	0.2	82.7	100.0
	Other urban	df=3	2.3	8.6	1.0	88.1	100.0
	Rural	*p*=0.000	3.1	9.1	1.9	85.9	100.0
Nepal			**2.7**	**9.3**	**1.2**	**86.8**	**100.0**

Source: Computed from NLSS IV (2022/23) Data Set (The results in the table are weighted).

The availability and perceived quality of private electricity facilities across Nepal's provinces are markedly limited compared to government-provided electricity. Overall, only 2.7% of respondents rated their private electricity facility as good, 9.3% as fair, and 1.2% as bad. A significant majority of 86.8% selected "not applicable", indicating that most households either do not use or have access to private electricity sources.

Provincial patterns in availability and quality of electricity facility provided by private/non-government sectors reveal some variation. Karnali shows the highest proportion of good private electricity facilities at 5.8%, followed by Bagmati (4.3%) and Gandaki (3.3%). However, even in these provinces, the "not applicable" category remains predominant, exceeding 80%. Madhesh has the lowest reported presence of private electricity facilities, with only 0.2% rating them good and a very high 95.3% indicating non-applicability.

Sudurpaschim stands out for a comparatively higher percentage of bad private electricity ratings (4.8%), alongside a large "not applicable" share (87.0%), suggesting challenges in private electricity provision in this region.

The analysis of private or non-government electricity facilities across provinces shows very limited coverage, with strong rural-urban differences and statistically significant variation (all χ^2 tests ρ=0.000). Overall, only 2.7% of households reported "Good" electricity, 9.3% "Fair", 1.2% "Bad", and a vast majority, 86.8%, could not assess the service (N/A). Urban areas generally had slightly higher "Good" coverage than rural areas, but the differences were small, except in Gandaki and Karnali where some rural households reported moderately better access. Madhesh showed the lowest private electricity use (0.2% "Good", 95.3% N/A), while Bagmati (including Kathmandu) had the highest reported "Good" access at 3.9-5.4%, though N/A remained dominant. Across all provinces, private electricity provision appears negligible, with most households either relying on government electricity or lacking awareness of private sources.

Overall, the data indicate that private electricity is a minor component of electricity access in Nepal, with usage and availability highly uneven across provinces. The dominance of the "not applicable" category highlights the reliance on government electricity services or potentially alternative energy sources, emphasizing the limited role of private electricity infrastructure at present.

The Chi-Square test results demonstrate a statistically significant association between province and the quality of private electricity facilities (Pearson Chi-Square=275,637.26, df=18, ρ<0.001). This indicates that differences in private electricity facility quality are meaningfully related to provincial location rather than occurring by chance.

The Likelihood Ratio test corroborates this finding with a similarly significant value of 274,938.03 (df=18, ρ<0.001). The Linear-by-Linear Association test also reveals a significant trend across the ordered categories of facility quality (4,660.90, df=1, ρ< 0.001).

The analysis is based on a large dataset of over seven million cases, lending strong reliability to these results. Moreover, the absence of cells with expected counts below five confirms that the test assumptions were met.

In summary, while private electricity facilities are generally limited in coverage, their quality and availability still show significant variation across provinces. These findings highlight the geographic disparities in private electricity access and underscore the importance of considering regional contexts in energy planning and infrastructure development.

7. Findings

The analysis of drinking water and electricity facilities reveals significant regional disparities across Nepal's provinces, highlighting important patterns in access, quality, and reliance on government versus private infrastructure.

7·1 Drinking Water Facilities

Overall, only about 19% of households report having good drinking water facilities, with approximately one-third rating them as fair, and a smaller portion (9%) describing conditions as bad. A large share of respondents (nearly 40%) selected "not applicable", suggesting limited access or differences in water source usage.

Provinces such as Gandaki and Karnali show relatively better conditions, with higher proportions of households reporting good water facilities and lower non-applicability rates. In contrast, Madhesh and some western provinces like Sudurpaschim and Koshi exhibit lower reported quality and higher "not applicable" responses, indicating potential infrastructure gaps or alternative water sourcing.

When focusing on private drinking water facilities, the overall availability is much more limited: only 8% report good conditions, while a majority (60%) marked "not applicable". Bagmati stands out as relatively better served by private water sources, whereas Karnali, Sudurpaschim, and Madhesh show very low private facility presence. This suggests that private drinking water infrastructure is not widespread and varies greatly by region.

Statistical tests confirm significant provincial differences in both overall and private drinking water facilities, underscoring that geographic location strongly influences access and quality.

7·2 Electricity Facilities

Government-provided electricity reaches a larger share of households, with nearly 39% rating the service as good and over half describing it as fair. However, provinces such as Bagmati, Madhesh, and Gandaki tend to experience better government electricity service, whereas Karnali and Sudurpaschim lag behind, with higher rates of poor quality and non-applicability-pointing to gaps in access or infrastructure reliability.

Private electricity facilities are far less common, with fewer than 3% of respondents rating them good and nearly 87% indicating "not applicable". Karnali again shows the highest presence of private electricity, yet it still remains limited overall. The predominance of the non-applicable response highlights the dominant role of government electricity supply and the nascent or localized nature of private electricity sources.

Chi-Square analyses consistently show statistically significant associations between province and facility quality across all categories-government and private, drinking water and electricity-emphasizing that these differences are not random but rooted in structural and geographic factors.

8. Discussion

Access to basic facilities such as drinking water and electricity reflects both infrastructural development and broader issues of equity in resource distribution. The findings of this study highlight that only about one-fifth of households report having good drinking water facilities, while nearly 40% of respondents marked “not applicable”, suggesting either limited access or reliance on alternative water sources. Provincial disparities are striking: Gandaki and Karnali report relatively better facilities, while Madhesh and Sudurpaschim lag behind. This supports Islam and Mitra’s (2017) assertion that unequal access to basic services perpetuates inequality and undermines intergenerational upward mobility. When disadvantaged regions lack adequate water facilities, children’s health, education, and future prospects are constrained not by their individual potential but by structural inequalities.

Private drinking water facilities are even more limited, with only 8% of households reporting good conditions and a majority indicating “not applicable”. Regional variation is again evident: Bagmati demonstrates relatively better private supply, while provinces like Madhesh and Karnali show minimal availability. This echoes Adams, Boateng, and Amoyaw’s (2016) findings in Ghana, where socio-economic and demographic factors-including region-strongly determined access to potable water. In Nepal, too, geographic disparities seem to play a decisive role in shaping household-level water access, with private supply still confined to urban or semi-urban regions, leaving rural and marginalized provinces underserved.

The literature also emphasizes that assessing water access only through infrastructural presence can be misleading. Weststrate. (2019) caution that “improved sources” may not always provide safe water, as shown in Cambodia where rope pump wells often failed to meet health standards. The Nepalese case resonates with this concern, as the significant share of “fair” or “not applicable” responses may hide issues of water quality or seasonal reliability.

This aligns with Ejechi and Ejechi's (2008) reminder that ensuring safe drinking water is not only about infrastructure but also about preventing waterborne diseases, which remain a leading global health concern. Thus, policies focusing only on infrastructure expansion without quality assurance may fail to improve actual wellbeing.

Electricity facilities reveal a somewhat better picture, with nearly 39% rating government-provided service as good and over half as fair. Yet, sharp regional differences persist: Bagmati, Madhesh, and Gandaki experience relatively reliable electricity, while Karnali and Sudurpaschim lag, with higher proportions of poor quality and non-access. The limited role of private electricity-reported as good by fewer than 3% of households-further underlines reliance on the state. Although Karnali shows a relatively higher presence of private supply, overall coverage remains negligible. The findings echo Guillen-Royo, Velazco, and Camfield's (2013) argument that wellbeing is multidimensional: while income and wealth are important, services such as electricity access critically shape people's capabilities and opportunities. Without reliable electricity, educational achievement, health outcomes, and livelihood diversification are constrained, limiting the pursuit of what Sen (1985) describes as a "flourishing life".

Overall, the findings highlight significant provincial disparities in both drinking water and electricity facilities, corroborated by statistical evidence that geography strongly determines access and quality. These results reinforce the arguments of Islam and Mitra (2017) and Durlauf (1996), who stress the role of community and neighborhood variables in shaping future life chances. In Nepal, access to water and electricity is not simply an infrastructural issue but a structural determinant of inequality. As Adams . (2016) emphasize, socio-economic and regional factors must be integrated into policy to ensure that infrastructure development translates into equitable access. Unless provinces like Karnali, Madhesh, and Sudurpaschim receive targeted interventions, disparities in basic facilities will continue to reproduce inequality and hinder national prosperity.

9. Conclusions

The analysis of drinking water and electricity facilities across Nepal's provinces reveals significant regional disparities in both access and quality. While government-provided services cover a majority of households, their effectiveness varies notably, with provinces such as Karnali, Sudurpaschim, and Madhesh facing greater challenges in infrastructure and service delivery. Private facilities remain limited and unevenly distributed, indicating a reliance on public provision and highlighting opportunities for expanded private sector involvement.

Statistical evidence confirms that these variations are strongly linked to geographic and structural factors, emphasizing the need for targeted, province-specific interventions. To ensure equitable and sustainable development, policymakers must prioritize improving infrastructure quality and accessibility in underserved regions, fostering inclusive growth that addresses the diverse needs of Nepal's population.

The findings suggest that while government infrastructure for electricity and drinking water covers much of Nepal, the quality and reliability vary substantially by province. Private facilities, particularly for electricity and drinking water, remain limited in reach and unevenly distributed.

Across Nepal, access to essential utilities-drinking water and electricity-exhibits pronounced rural-urban and provincial disparities, with government provision far outpacing private or non-government sources. Provinces such as Bagmati, Gandaki, and Madhesh demonstrate relatively higher urban access to both water and electricity, whereas remote and less developed provinces like Karnali and Sudurpaschim face persistent deficits. Overall, the data highlight that while government infrastructure is the primary source of utilities, significant gaps remain in quality, coverage, and household awareness-particularly in rural areas-underscoring the need for targeted improvements in both service delivery and community engagement across provinces.

Targeted efforts are necessary to address disparities, especially in provinces like Karnali, Sudurpaschim, and Madhesh, where infrastructure gaps are more pronounced. Policymakers should consider regional needs to improve both access and service quality, potentially encouraging private sector participation where feasible to complement government efforts. Overall, this comprehensive provincial analysis provides a valuable basis for planning equitable and sustainable improvements in Nepal's essential utility services.

References

Adams, Ellis Adjei, Boateng, Godfred O. and Amoyaw, Jonathan A., "Socioeconomic and Demographic Predictors of Potable Water and Sanitation Access in Ghana", ***Social Indicators Research***, 126(2), March 2016, 673-687. Stable URL: https://www.jstor.org/stable/10.2307/48714627

Ejechi, E. O. and Ejechi, B. O., "Safe Drinking Water and Satisfaction with Environmental Quality of Life in Some Oil and Gas Industry Impacted Cities of Nigeria", ***Social Indicators Research***, 85(2), Jan., 2008, 211-222. Stable URL: https://www.jstor.org/stable/27734578

Gautam, Tika Ram, ***Ethnicity and Inequality: Distribution of Capability, Employment and Ownership: A Contribution to Ethnic Debates in Nepal***, A PhD Dissertation submitted to Faculty of Humanities and Social Sciences of Tribhuvan University, 2013.

Gautam, Tika Ram and Nakarmi, Sudeep Singh, "Rural-Urban Differences in Level of Safety, Security and Violence across Provinces in Nepal", ***Contemporary Social Sciences***, 34 (3), 2025, 26-47.

Guillen-Royo, Monica, Velazco, Jackeline and Camfield, Laura, "Basic Needs and Wealth as Independent Determinants of Happiness: An Illustration from Thailand", ***Social Indicators Research***, 110(2), 2013, 517-536. Stable URL: https://www.jstor.org/stable/24718719

Islam, T. M. Tonmoy and Mitra, Shabana, (2017). "Multidimensional Human Opportunity Index", ***Social Indicators Research***, 130(2), January 2017, 523 535. Stable URL: https://www.jstor.org/stable/10.2307/48715455

Jacob, Nitya, "Drinking Water, Sanitation and the Religion Paradox in India", Mariz Tadros, Philip Mader, Kathryn Cheeseman (eds.), ***Poverty and Prejudice Book Subtitle: Religious Inequality and the Struggle for Sustainable Development***, Bristol University Press, 2023. Stable URL: https://www.jstor.org/stable/jj.6305460.22

Khan, Atta Ullah, Saboor, Abdul and Shah, Aadil Hameed, (2021). "Dynamics of Multidimensional Inequality Across Different Occupations in Pakistan", ***Social Indicators Research***, 153(1), January 2021, 93-109. Stable URL: https://www.jstor.org/stable/10.2307/27292275

Maliti, Emmanuel, "Inequality in Education and Wealth in Tanzania", ***Social Indicators Research***, 145(3), Special Issue: Horizontal Inequality in the Global South (On Invitation), October 2019, 901-921, 963. Stable URL: https://www.jstor.org/stable/10.2307/48704835

Mishra, Chaitanya, "Eco-Politics of Marriage", Rajendra Maharjan (ed.), ***Badalindo Nepali Samaaj (Changing Nepali Society)***, Chapter 2, Fineprint Books, 2010, 45-50.

Mishra, Chaitanya, "Nepali Samaajko Vyapak Punargathan (General Reorganization of Nepali Society)", Rajendra Maharjan (ed.), ***Badalindo Nepali Samaaj (Changing Nepali Society)***, Chapter 1.2, pp. Phoenix Books, 2070 VS, 7-12.

Mishra, Chaitanya, "Parivartanko Dharma Pariwar (Household in changing way)", Rajendra Maharjan (ed.), ***Badalindo Nepali Samaaj (Changing Nepali Society)***, Chapter 1.3, Phoenix Books, 2070 VS, 12-20.

Nakarmi, Sudeep Singh, ***Newar Jativitra Sahavagitako Avastha: Asamanata ra Karan (Participation in within Newar Community: Inequality and Causes)***, A PhD Dissertation submitted to Faculty of Humanities and Social Sciences of Tribhuvan University, 2021.

National Statistics Office [NSO], ***Nepal Living Standards Survey IV 2022/23: Statistical Report***, National Statistics Office, 2024.

Nepal Living Standard Survey [NLSS], ***Nepal Living Standards Survey IV 2022/23***, National Statistics Office, 2024.

Obuaku-Igwe, Chinwe C., "Health Inequality in South Africa: A Systematic Review", ***African Sociological Review/Revue Africaine de Sociologie***, 19(2), 2015, 96-131. Stable URL: https://www.jstor.org/stable/10.2307/afrisocirevi.19.2.96

Pandey, Tulsi Ram, "Class as a Missing Component in the Debases on inclusive Development in Nepal", ***Anthropology and Sociology in Nepal***, Central Department of Sociology and Anthropology, Tribhuvan University, 2010.

Weststrate, Johanna, Dijkstra, Geske, Eshuis, Jasper, Gianoli, Alberto and Rusca, Maria, "The Sustainable Development Goal on Water and Sanitation", ***Social Indicators Research***, 143(2), June 2019, 795-810. Stable URL: https://www.jstor.org/stable/10.2307/48704694 ★

Article Received on October 27, 2025; Accepted on November 15, 2025