RURAL-URBAN DISPARITIES AND THEIR BRIDGING THROUGH INNOVATIVE VILLAGE DEVELOPMENT

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Abstract

Our research aims to examine the existing rural-urban disparities by analyzing living conditions in rural and urban areas for high income, upper middle income countries, lower middle income countries, and low income countries. The results show that significant differences remain between the levels of development of urban and rural areas, which is due to the lack of jobs in rural areas, the level of infrastructure development, the level of access to health, education and other services, which ultimately affects life satisfaction in rural areas and the level of urbanization. In low income countries, the proportion of the population in rural areas is higher compared to high income and upper middle income countries. The differences in living conditions between rural and urban areas are less marked in high income countries. Also, we propose a set of quantitative indicators for assessing the standard of living in rural areas that may influence individuals' decisions to reside in the villages. We suggest bridging the gap between rural and urban areas through innovative village development that requires a comprehensive, multi-dimensional Smart Village strategy implementation.

Key words: access to services, disparities, rural development, rural-urban living conditions, urban development

JEL Code: O11, O18, Q18

Introduction

Rural-urban disparities represent a persistent and complex challenge for policymakers, researchers, and development practitioners worldwide. Despite sustained economic growth in some regions, significant inequalities remain in access to essential services, infrastructure, employment opportunities, and overall quality of life between rural and urban populations. These disparities are not merely the result of geographic differences but are shaped by historical patterns of uneven investment, institutional capacity, governance structures, and socio-economic policies that have favored urban centers. As a consequence, rural communities often experience higher rates of poverty, limited access to quality education and

healthcare, inadequate infrastructure, and reduced economic diversification, which together constrain opportunities for development and social mobility.

The persistence of rural-urban disparities has far-reaching implications for sustainable development and social cohesion. Addressing these inequalities is central to achieving the United Nations Sustainable Development Goals, particularly those targeting poverty reduction, reduced inequalities, decent work, and sustainable communities. However, efforts to reduce these gaps have often been fragmented or narrowly focused, overlooking the complex, multidimensional nature of disparities and the need for coordinated, place-based strategies. Traditional development approaches have frequently prioritized urban-led growth, assuming that benefits would trickle down to rural areas, yet evidence suggests that such approaches have often exacerbated inequalities and led to uneven territorial development.

The differences in the development of rural and urban areas are the subject of research by many scientists, including Arps & Peralta (2021), Biegańska et al. (2018), Bulderberga, Z. (2011), Cyrek & Cyrek (2025), Fang (2022), Ma & Chen (2020), Qi et al. (2008), Wang et al. (2022), Zavratnik et al. (2020), etc. Our research aims to provide a comprehensive analysis of rural and urban disparities by examining their underlying drivers, manifestations, and consequences across different contexts. Drawing on empirical data, comparative case studies, and theoretical frameworks, we seek to identify critical determinants of these disparities and evaluate the effectiveness of policy interventions designed to address them.

1 Methodology and Data

To identify disproportions in the development of rural and urban areas and the living conditions of their residents, the study proposes an analysis of such indicators for the period 2000-2022: RP – rural population; RPP – rural population (% of total population); RPG – rural population growth (annual %); BSR – people using at least basic sanitation services, rural (% of rural population); BSU – people using at least basic sanitation services, urban (% of urban population); SSR – people using safely managed sanitation services, rural (% of rural population); SSU – people using safely managed sanitation services, urban (% of urban population); BDR – people using at least basic drinking water services, rural (% of rural population); BDU – people using at least basic drinking water services, urban (% of urban population); SDR – people using safely managed drinking water services, rural (% of rural population); SDU – people using safely managed drinking water services, urban (% of urban population); ODR – people practicing open defecation, rural (% of rural population); ODU –

people practicing open defecation, urban (% of urban population); CFR – access to clean fuels and technologies for cooking, rural (% of rural population); CFU – access to clean fuels and technologies for cooking, urban (% of urban population); AER – access to electricity, rural (% of rural population); AEU – access to electricity, urban (% of urban population).

For comparison, the study included high income countries according to the World Bank classification (Germany, Luxembourg, Ireland), upper middle income countries (Georgia, Turkey, Ukraine), lower middle income countries (Cameroon, Ghana, Kenya), and low income countries (Burundi, Liberia, Niger). Additionally, data were examined at both the European Union level and the global level. Countries representing the extreme values – both the most favorable and the most unfavorable – of the selected indicators were identified from across all countries of the world. The methodological approach comprised descriptive and comparative analyses. The data were obtained from the World Bank database.

2   Results

Analysis of data for high and low income countries shows significant differences in development levels and living standards between urban and rural areas. Indicators for analyzing the disparities in the rural-urban development and the living conditions of their residents for high income countries are presented in Table 1.

Tab. 1: Indicators for analyzing the disparities in the rural-urban development and the living conditions of their residents in high income countries

Country	Characteristic	RP	RPP	RPG	BSR	BSU	BDR	BDU
Germany	Minimum	18334806	22.35	-2.70	98.99	99.29	100.00	100.00
	Maximum	20581651	25.04	0.82	98.99	99.29	100.00	100.00
	Average	19172447	23.33	-0.44	98.99	99.29	100.00	100.00
Ireland	Minimum	1554223	35.82	-0.10	93.00	86.84	97.04	95.41
	Maximum	1867081	40.85	2.38	93.59	88.85	97.44	97.05
	Average	1727149	38.29	0.83	93.35	87.67	97.20	96.09
Luxemburg	Minimum	53025	8.12	-3.41	98.75	97.48	98.60	100.00
	Maximum	68866	15.78	-0.41	98.84	97.50	100.00	100.00
	Average	58849.09	11.39	-1.28	98.78	97.49	99.52	100.00

Source: own processing

Indicators for analyzing the disparities in the rural-urban development and the living conditions of their residents for low income countries are presented in Table 2.

Tab. 2: Indicators for analyzing the disparities in the rural-urban development and the living conditions of their residents in low income countries

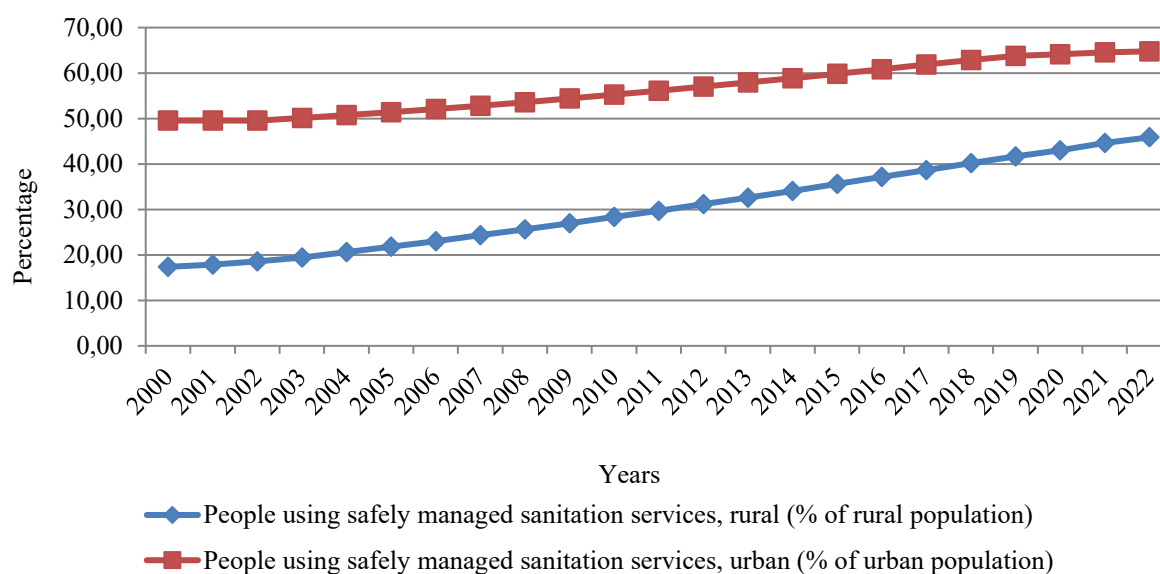| Country	Characteristic	RP	RPP	RPG	BSR	BSU	BDR	BDU
Burundi	Minimum	5936662	85.58	1.37	45.63	40.56	47.84	82.05
	Maximum	11400594	91.75	4.78	46.44	42.78	57.69	90.67
	Average	8566140	88.93	2.92	46.27	42.06	53.36	86.93
Liberia	Minimum	1630053	46.94	0.17	3.30	23.05	49.19	78.34
	Maximum	2521956	55.67	4.95	9.21	34.30	65.47	84.58
	Average	2117223	51.61	2.03	5.63	28.47	58.17	81.98
Niger	Minimum	9646681	83.11	3.08	1.91	24.18	27.11	88.16
	Maximum	21035768	83.81	3.78	9.01	52.82	40.89	91.24
	Average	14764001	83.67	3.54	5.71	37.56	34.70	89.66

Source: own processing

This research also examined the extreme values – both the lowest and highest – of the selected indicators across all countries worldwide. For the indicator "people using at least basic sanitation services, rural (% of rural population)" in 2022, the lowest observed values were recorded in Chad (4.51%), the Central African Republic (5.74%), Ethiopia (5.55%), Niger (9.01%), Togo (9.08%), Liberia (9.21%), and Benin (9.63%).

By contrast, the maximum value of this indicator was 100%, observed in Andorra, Austria, Chile, Spain, Malta, and New Zealand. In the same set of countries where rural access was minimal, urban populations exhibited substantially higher levels of access. Specifically, the indicator "people using at least basic sanitation services, urban (% of urban population)" showed values of 39.46% in Chad, 24.55% in the Central African Republic, 22.27% in Ethiopia, 52.82% in Niger, 32.12% in Togo, 34.30% in Liberia, and 29.54% in Benin.

For the indicator "people using safely managed sanitation services, rural (% of rural population)" in 2022, the lowest recorded values were 1.23% in Korea, 1.78% in Benin, 4.22% in both Chad and Ethiopia, and 4.68% in Togo. The highest value for this indicator was 100% in Andorra, followed by Switzerland (99.57%) and Austria (99.26%). Globally, the share of rural populations using safely managed sanitation services increased from 17.38% in 2000 to 45.86% in 2022. For urban populations, this proportion rose from 49.54% in 2000 to 64.77% in 2022 (Figure 1).
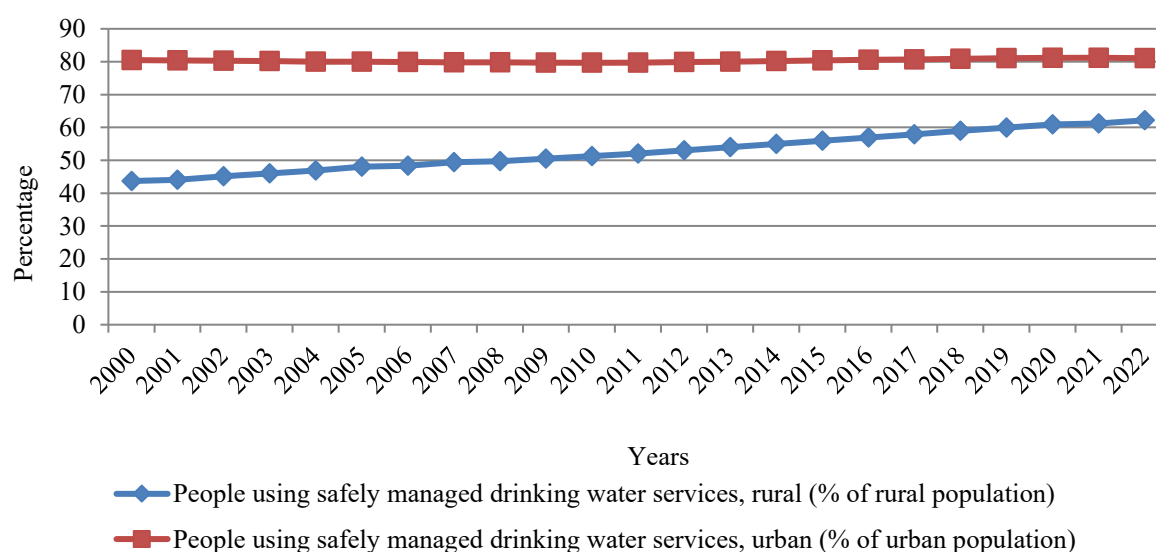
Fig. 1: People using safely managed sanitation services in the world

People using safely managed sanitation services, rural (% of rural population)

People using safely managed sanitation services, urban (% of urban population)

Source: own processing

The proportion of the population using safely managed drinking water services varies by place of residence (rural vs. urban), as illustrated in Figure 2. Among rural populations, the share with access to safely managed drinking water services increased from 43.71% in 2000 to 62.17% in 2022. Over the same period, the corresponding percentage for urban populations rose from 80.48% to 81.11%.
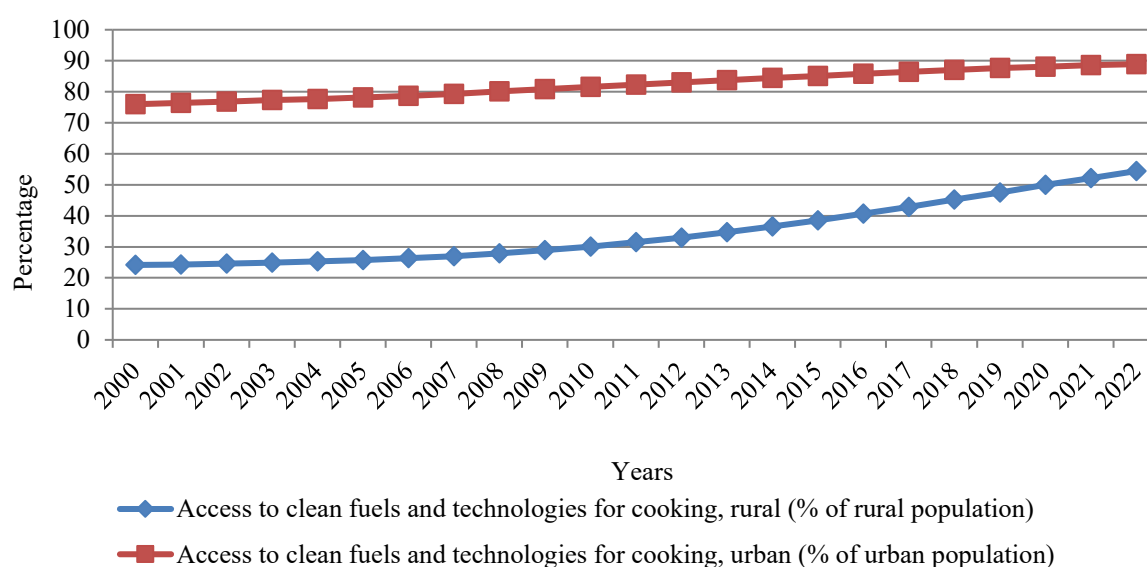
Fig. 2: People using safely managed drinking water services in the world

People using safely managed drinking water services, rural (% of rural population)

People using safely managed drinking water services, urban (% of urban population)

Source: own processing

Globally, the highest recorded values for the indicator "percentage of people practicing open defecation in rural area (% of rural population)" were observed in Chad (77.59%), Niger (76.25%), South Sudan (73.31%), Benin (65.48%), and Djibouti (64.13%). In urban areas, this indicator remained at 0 for all analyzed countries over the entire period, indicating a complete absence of open defecation. However, the highest values observed worldwide for urban populations were recorded in Sao Tome and Principe (38.56%), Benin (31.21%), Kiribati (21.69%), Namibia (20.48%), and Madagascar (16.73%). Access to clean fuels and technologies for cooking in the world for rural and urban population is presented in Figure 3.

Fig. 3: Access to clean fuels and technologies for cooking in the world

Access to clean fuels and technologies for cooking, rural (% of rural population)
Access to clean fuels and technologies for cooking, urban (% of urban population)
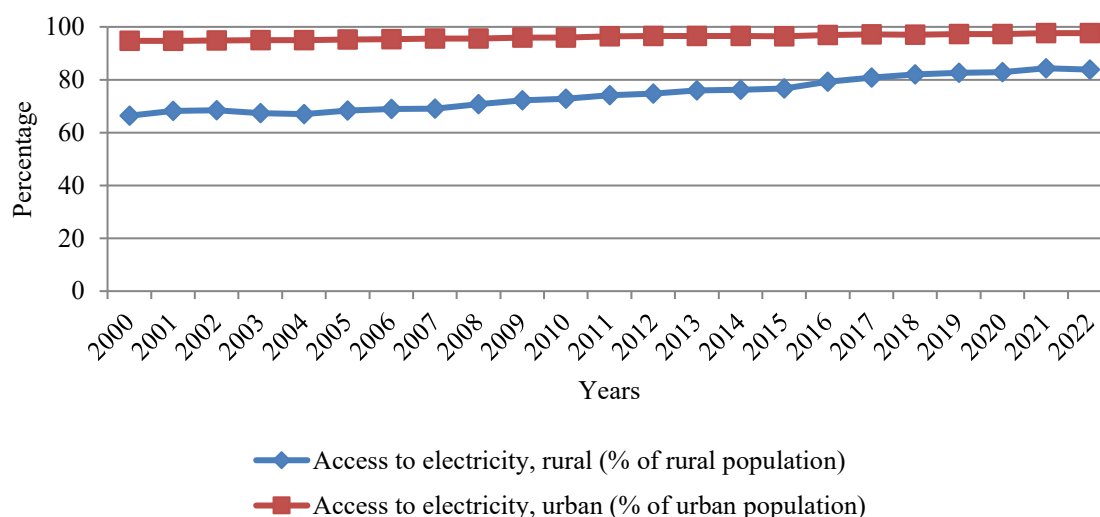
Source: own processing

Access to clean fuels and technologies for cooking among rural populations in all European Union countries remained at 100% throughout the entire period from 2000 to 2022. The lowest values recorded globally in 2022 were observed in such countries as the Central African Republic, Liberia, South Sudan, Sierra Leone, and Guinea-Bissau (0%), Burundi, Guinea, the Gambia, and Chad (0.1%), Djibouti and Mozambique (0.2%), Uganda (0.3%), Somalia (0.4%), Niger and Malawi (0.5%), and Ethiopia, Madagascar, the Marshall Islands, and Mali (0.6%). At the global level, access to clean fuels and technologies for cooking among rural populations increased from 24.16% in 2000 to 54.43% in 2022.

For urban populations, this indicator was consistently higher than for rural populations, with the disparity being particularly pronounced in low-income countries, while

relatively minor in high-income countries. The lowest levels of access among urban populations in 2022 were reported in South Sudan (0%), Burundi (0.2%), Uganda (1.2%), Liberia (1.4%), Sierra Leone (1.7%), the Central African Republic and Guinea-Bissau (1.8%), the Gambia (2.4%), and Guinea (2.6%). Data on access to electricity for rural and urban populations worldwide are presented in Figure 4.

Fig. 4: Access to electricity in the world

Source: own processing

Notably, even in the contemporary period, some rural communities lack access to electricity. In 2000, 66.38% of the world's rural population had access to electricity, which increased to 83.88% by 2022.

We propose the indicators that assess life quality in villages and influence the decision to live in a rural area (Table 3).

Tab. 3: Indicators for villages' life quality assessment

Category	Quantitative factor	Category	Quantitative factor
1. Economic factors	Average monthly household income (EUR/month)	6. Environment and natural resources	Air quality (PM2.5, PM10)
	Unemployment rate (%)		Green space per capita (m²)
	Housing cost (EUR/month)		Forest area (% of territory)
	Cost of living index		Availability of water bodies (number/area)
	Land price per hectare		Water quality (score or chemical indicators)
	Share of income spent on food (%)		Emissions per capita (tons/person)
	Direct subsidies or rural grants (EUR/person)		Number of illegal dumpsites

Category	Quantitative factor	Category	Quantitative factor
2. Infrastructure factors	Distance to the nearest city (km)	7. Safety	Overall crime rate (per 1,000 people)
	Road network density (km/100 km²)		Number of serious crimes per 1,000 people
	Number of public transport trips per day		Number of police stations per 1,000 people
	Internet speed (Mbps)		Police response time (minutes)
	Mobile network coverage (%)		Number of fire stations per 1,000 people
	Share of households with centralized water supply (%)		Number of road accidents per 1,000 people
	Road quality (average score)		Share of population feeling safe (%)
3. Healthcare access	Number of hospitals per 1,000 people	8. Demographic	Average age of population (years)
	Number of doctors per 1,000 people		Share of youth (% aged 15–29)
	Travel time to the nearest hospital (minutes)		Share of elderly (% aged 65+)
	Availability of rural health posts (per 1,000 people)		Birth rate (per 1,000)
	Pharmacy availability (distance in km)		Mortality rate (per 1,000)
	Share of population with health insurance (%)		Net migration rate (per 1,000)
	Preventable mortality rate (per 1,000)		Average household size (persons)
4. Education	Number of schools per 1,000 children	9. Labor factors	Share employed in agriculture (%)
	Average distance to school (km)		Share employed in industry (%)
	Student–teacher ratio		Share employed in services (%)
	Adult education level (% with higher education)		Employment seasonality index
	Education quality		Rate of labor migration (% working abroad)
	Number of kindergartens per 1,000 children		Average weekly working hours
	Share of children attending school (%)		Informal employment rate (%)
5. Social and cultural services	Number of cultural centers/clubs per 1,000 people	10. Other factors	Historical attractiveness (number of heritage sites)
	Number of libraries per 1,000 people		Tourist flow (number of visitors per year)
	Number of sports facilities per 1,000 people		Availability of natural resources
	Number of NGOs per 1,000 people		Number of new buildings per 1,000 people
	Share participating in community events (%)		Investment per capita (EUR/person)
	Number of festivals/fairs per year		Share of land for agricultural use (%)
	Availability of elderly care services (% of needs covered)		Government support programs (EUR/person)

Source: own processing

Addressing rural-urban disparities requires context-specific strategies that promote equitable access to resources and services, enhance rural livelihoods, and ultimately

contribute to inclusive and balanced national development. Overcoming rural-urban disparities requires a comprehensive, multi-dimensional strategy that addresses the root causes of inequality and promotes balanced development. First, governments should prioritize equitable infrastructure investment to ensure rural areas have reliable transportation, electricity, water, sanitation, and digital connectivity. Expanding access to quality healthcare and education is essential to improve human capital and reduce the outmigration of skilled individuals. Economic diversification in rural areas, including support for modernized agriculture, rural industries, and services, can generate employment and income opportunities. Strengthening local governance and community participation ensures that development plans are tailored to local needs and that resources are used effectively. Policies should also focus on closing the digital divide by expanding internet access and digital literacy, enabling rural communities to participate in the modern economy. Environmental sustainability must be integrated through practices that conserve natural resources and build resilience to climate change. Additionally, targeted social protection and financial inclusion programs can reduce poverty and vulnerability. Ultimately, reducing rural-urban disparities requires sustained political will, long-term investment, and a commitment to inclusive development.

Conclusion

This study underscores the urgent need to address rural-urban disparities through targeted, innovative village development strategies. By analyzing the structural and systemic gaps between rural and urban areas, particularly in terms of infrastructure, employment, access to essential services, and quality of life, it becomes evident that conventional rural development approaches have been insufficient in closing the divide. Innovative village development offers a transformative pathway by leveraging technology, participatory planning, sustainable infrastructure, and integrated service delivery models to enhance rural resilience and attractiveness. Such approaches can not only improve rural living standards but also mitigate excessive urban migration, reduce spatial inequalities, and promote balanced regional development. Bridging the rural-urban divide is a critical step toward achieving inclusive, equitable, and sustainable growth. In further research, we plan to propose components of the Smart Village strategy and examine the barriers to the practical implementation of the Smart Village strategy.

Acknowledgment

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