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Article

Best Practices from Advanced Countries in Developing Social Infrastructure Services to Improve the Living Standards of Rural Populations

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Abstract: This article examines the territorial coverage, quality, continuity, affordability and accessibility of social infrastructure services as a multidimensional factor in improving the living standards of the rural population. A comparative analysis of the OECD's regionally adapted policy concept, projects of international financial institutions and current regulatory and legal acts of Uzbekistan is carried out. Based on official data, it is shown that as of April 2025, 18.4814 million rural residents lived in the country, and the rural infrastructure program completed in 2026 covered more than 900 small projects in 306 neighborhoods. A system of indicators, a multi-criteria prioritization matrix and a result-oriented financing mechanism are proposed to assess the quality of services not only by the number of facilities, but also by the real use of the population and social results. The study is based on the analysis of secondary sources; the methodological indices presented are not empirically calculated national rankings.

Keywords: rural areas, living standards, social infrastructure, access to services, territorial inequality, neighborhood, OECD, results-based budgeting, territorial policy.

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1. Introduction

Increasing the well-being of the rural population, along with the pace of economic growth, also depends on the availability and quality of services that meet daily needs. In particular, the distance to a secondary school and primary health care facility, the stability of drinking water supply, the seasonal passability of the road and transport network, internet connectivity and ease of access to social protection services determine the real quality of life. Therefore, limiting rural policy to agricultural production alone is scientifically and practically insufficient [1].

The OECD Rural Well-being approach assesses rural development as a combination of economic, social and environmental outcomes. It emphasizes that the proximity, intermediate and remote location of a village cannot be managed with the same policy instruments[2]. For example, while transport integration is relevant for suburban villages, mobile services, telemedicine and common service centers may be more important for remote areas.

The official report of the National Statistics Committee of Uzbekistan as of April 1, 2025, recorded the permanent population as 37,697.8 thousand people, including 18,481.4 thousand people (49.0 percent) in rural areas [3]. This share indicates that the quality of rural services is directly related to the results of human capital, labor productivity and poverty reduction in the country.

The benefits of an infrastructure facility do not automatically arise once it is built. For example, if a medical facility is available, but there is a shortage of specialists or medicines, real utilization will remain low. Similarly, if service interruptions continue in households connected to the water network, the gap between nominal coverage and real well-being will remain. Therefore, this study focuses on the service availability–use–quality–outcome chain [4].

The purpose of the article is to systematize the experience of advanced foreign countries, to present the main problems of rural social infrastructure in Uzbekistan based on official sources, and to develop measurable management solutions for the development of services at the makhalla level.

The international scientific and practical literature distinguishes two approaches to measuring rural well-being: the first is an economic approach based on income, employment and production indicators; the second is a multidimensional approach covering health, education, safe water, mobility, digital inclusion and social participation. In this article, the second approach is taken as a priority, but income indicators are not excluded from it [5].

The OECD Rural Well-being Report 2020 describes cross-sectoral coordination, cooperation between different levels of government, rural-urban functional relations and local stakeholder participation as key institutions [6]. The Rural Innovation Pathways 2025 analysis shows the importance of distance education, digital medicine and new organizational forms of services due to distance, difficulty in attracting qualified personnel and limited specialized services [7].

The issue of institutional compatibility is crucial in transferring international experience to Uzbekistan. Due to the differences in population density, fiscal capacity, transport geography, local government powers, and digital literacy, an effective model in one country may not produce the same results in another region. Therefore, it is advisable to choose proven management principles from international experience, rather than ready-made schemes.

2. Materials and Methods

The research design combines comparative institutional analysis, description of official statistical indicators, desk review of project results, and development of a multi-criteria evaluation system. No primary survey or experiment was conducted; causal effects cannot be interpreted as econometrically proven.

The database consists of: Demographic reports of the National Statistics Committee for 2025, World Bank project reports for 2025–2026, OECD publications on regional policy and innovation, and the "Uzbekistan — 2030" strategy approved by Decree No. PF–21 of February 16, 2026. The date and geographical coverage of statistical issues are indicated separately.

The index of the quality of services offered:

$$I_h = 0.20 \times Coverage_h + 0.25 \times Quality_h + 0.20 \times Accessibility_h + 0.15 \times Affordability_h + 0.20 \times Equity_h.$$

All structural indicators are normalized from 0 to 100. The weights are theoretical proposals and are not considered a confirmed normative indicator until they are verified by local experts and a population survey.

The following model can be used in multi-criteria screening of investment projects:

$$P_j = (0{,}30 \cdot T_j + 0{,}25 \cdot Z_j + 0{,}20 \cdot N_j + 0{,}15 \cdot B_j + 0{,}10 \cdot M_j) / K_j.$$

Where T is the service gap, Z is the share of vulnerable groups, N is the expected social outcome, B is sustainable exploitation, M is the level of local cooperation, K is the discounted life cycle cost of the project. The indicators must be brought to the same scale and meet minimum safety requirements.

When measuring service access, it is not enough to use kilometers alone: seasonal road conditions, public transport schedules and the total time spent using the service are also taken into account. The proposed territorial unit of observation is the neighborhood or settlement; statistical comparisons should control for the demographic composition and geographical limitations of the areas.

3. Results

According to the World Bank, more than 340 roads, 220 electricity systems, 160 water supply systems, about 100 schools, 40 preschools, and 10 bridges were built or modernized in the first phase [8]. These figures indicate the multifaceted nature of the investment, but the number of facilities is not the ultimate measure of service quality.

The second phase of the program envisages maintaining the participation of local residents in project selection and monitoring, and ensuring that at least 50 percent of community development groups are women [9]. This approach increases the possibility of selecting projects not from a technical perspective, but from a perspective of everyday needs and social justice.

Table 1. Demographic and program indicators

Indicator	Value	Period / status	Interpretation / limitation
Permanent population of Uzbekistan	37,697.8 thousand	1 April 2025; observed	Resident population
Rural population	18,481.4 thousand	1 April 2025; observed	49.0% of total population
Rural Infrastructure Development Program, Phase I	More than 900 subprojects	June 2026; completed	Across 306 mahallas
Phase I population reached	Approximately 1 million	June 2026; reported outcome	Approximate program figure
Phase II funding envelope	USD 340 million	2026; approved plan	USD 150m World Bank; USD 120m AIIB; USD 70m government
Phase II intended beneficiaries	1.2 million residents	Target through 2031	Not an achieved outcome
Phase II geographic scope	296 mahallas in six regions	2026–2031; planned	Target program areas

The rural share of 49.0% indicates that access to local services is a nationwide welfare concern, rather than a marginal territorial issue. According to the World Bank, Phase I supported more than 900 subprojects in 306 mahallas, reaching approximately one million people. The second phase represents a future funding commitment and target population, not completed service delivery. Reported Phase I outputs include more than 340 roads, 220 electricity systems, 160 water-supply systems, nearly 100

schools, 40 preschools, and 10 bridges built or upgraded. These are output counts; they do not independently establish service quality or causal improvements in household welfare [10].

The planned second phase also retains community participation in project selection and oversight, including a minimum 50% representation of women in mahalla development groups. This institutional feature may improve alignment with local needs, although its impact requires independent evaluation. Separately, a World Bank feature reported support for more than 15,000 small and medium-sized businesses and the establishment of 22 business incubators. This illustrates the potential complementarity of infrastructure access and local economic opportunity.

The World Bank report of February 2026 states that the Rural Entrepreneurship Support Project has covered more than 15,000 small and medium-sized businesses, and 22 business incubators have been established. This example illustrates the interdependence of infrastructure and economic opportunities: where roads, water, and digital connectivity are available, the scope of small service businesses expands [11].

Table 2. Comparative matrix of international approaches

Model / setting	Core governance approach	Potential rural benefit	Constraint / risk	Adaptation for Uzbekistan
OECD: place-based policy	Tailored service package by territorial type	Aligns resources with actual needs	Requires multi-agency coordination	Mahalla typology and minimum service standards
Europe: intermunicipal cooperation	Pooling resources across municipalities	Reduces unit costs in small settlements	Complex allocation of powers and funding	Interdistrict service centers
Northern Europe: digital services	Remote applications and hybrid delivery	Reduces travel costs	Digital exclusion	Local digital-assistance officers
Remote areas: mobile provision	Mobile health and service teams	Extends reach to dispersed communities	Continuity of staffing and schedules	Mobile clinics and published service calendars
Uzbekistan: community participation under RIDP	Community selection and social oversight	Better alignment with local demand	Elite capture and transparency risks	Open scoring and citizen audits

The international literature favors differentiated service models rather than uniform facility construction. Near-urban villages may benefit most from integrated transport and access to nearby centers, while remote settlements may require mobile medical teams, shared facilities, or assisted digital access. Intermunicipal cooperation can pool scarce personnel and equipment, but it also creates coordination and accountability challenges. Consequently, international models should be adapted to population density, transport geography, fiscal capacity, and administrative mandates instead of being transferred mechanically.

Table 3. Service delivery chain and outcome indicators

Sector	Inputs	Immediate outputs	Household-level outcomes	Proposed data collection
Education	Buildings, teachers, internet	Instruction hours, enrollment	Attendance and learning outcomes	School registry and surveys
Healthcare	Clinicians, medicines, transport	Consultations and screening	Timely access to treatment	Health information systems
Drinking water	Networks, pumps, operators	Connections, supply hours	Fewer interruptions and less time spent obtaining water	Utility logs and laboratory tests
Transport	Roads, buses, stops	Service frequency	Travel time to schools and clinics	GPS and household surveys
Digital services	Connectivity, terminals, advisers	Electronic applications	Lower time and transaction costs	Platform administrative data
Social protection	Staff, registries, funding	Applications processed	More accurate targeting of assistance	Administrative records and audits

Monitoring should distinguish inputs, service outputs, and real outcomes. A newly built clinic is an input, a consultation is an output, and earlier access to necessary treatment is an outcome. Likewise, a water connection does not guarantee reliable or safe supply. The recommended monitoring framework combines administrative records with household surveys, quality testing, and measures of travel time. This approach helps prevent project evaluations from overstating welfare gains on the basis of construction statistics alone [12].

Table 4. Financing mechanisms and accountability instruments

Financing mechanism	Appropriate services	Evaluation criterion	Principal risk	Control instrument
Public budget	Basic education and healthcare	Outcome per beneficiary	Inefficient expenditure	Performance audit
Public–private partnership	Service operation and maintenance	Lifecycle cost	Tariff increases	Independent regulation
Grants and international loans	Water, roads, environmental infrastructure	Coverage and sustainability	Debt and foreign-exchange exposure	Milestone monitoring
Interdistrict cooperation	Mobile healthcare and transport	Time to access services	Weak coordination	Joint service agreements
Results-based transfers	Minimum service standards	Quality and equity KPIs	Indicator manipulation	Third-party verification

Capital expenditure alone is insufficient to evaluate infrastructure investments. Staffing, energy, maintenance, replacement, monitoring, and user costs should be

assessed over the entire project lifecycle. Results-based financing may link a portion of funding to independently verifiable service continuity, response time, and coverage of disadvantaged groups. Public–private partnerships are not universally suitable: low-income and sparsely populated areas may lack sufficient paying demand, requiring targeted subsidies or service-purchasing contracts. Any tariff policy should preserve affordability and service standards.

Table 5. Hypothetical territorial priority scores

Illustrative area	Service deficit (0–100)	Vulnerability (0–100)	Expected impact (0–100)	Sustainability (0–100)	Local participation (0–100)	Weighted score
A - remote	90	85	80	65	75	81.5
B - intermediate	70	60	85	80	70	72.0
C - peri-urban	45	50	75	90	85	63.0

Calculation: S = 0.30D + 0.25V + 0.20I + 0.15Sustainability + 0.10P, where D denotes service deficit, V vulnerability, I expected social impact, and P local participation. All components are scaled from 0 to 100. For area A: 0.30(90) + 0.25(85) + 0.20(80) + 0.15(65) + 0.10(75) = 81.5.

In this illustrative scenario, the remote area receives the highest preliminary score because its service deficit and vulnerability are greatest. However, the calculation excludes project cost. A final investment priority measure would need to account for comparable discounted lifecycle costs, technical feasibility, minimum safety requirements, and sensitivity to the chosen weights. These illustrative scores must not be presented as observed statistics or as a validated ranking of actual territories.

Funding and cost effectiveness

The social benefits of infrastructure projects are not limited to the cost of capital construction. Long-term operation, electricity, personnel, maintenance, monitoring and operating costs are an integral part of the project life cycle. Therefore, the cheapest construction option is not always the most economical solution [13].

In results-based funding, part of the allocation can be linked to clearly verifiable indicators - continuous service hours, turnaround time, transport reliability and coverage of vulnerable groups. An independent review and complaints mechanism is needed to reduce the risk of improper promotion of quality.

Public-private partnerships are not a universal solution for every industry. In low-income, sparsely populated villages, there may not be enough demand for a private investor to pay. In this case, a state subsidy, a service procurement contract or a model combining several regions is appropriate. Tariff policy should be harmonized with social protection and quality standards [14].

4. Discussion

The analysis identifies three systemic problems in rural infrastructure policy. The first is the gap between the built facilities and the actual use of the population. The second is the lack of inter-sectoral coordination: for example, the construction of a hospital will not give a full result without the provision of transport and qualified personnel. The third is the need to strengthen the practice of calculating in advance the costs of long-term maintenance of services in local budgets.

The most important lesson from foreign experience is to decide on the centralization or decentralization of services not as an ideological choice, but based on the needs of the functional area. In a sparsely populated and dispersed area, it is

expensive to repeat a specialized service in each neighborhood. In this case, a combination of an inter-district center, a mobile brigade and digital consultation may be economically viable [15].

However, digitalization does not automatically ensure equality. For the elderly, people with disabilities, citizens with low digital literacy and villages with low Internet coverage, an alternative offline channel to electronic services should be maintained. It is important to measure the results of digital services not only by the number of transactions on the platform, but also by the reduction in user time and transportation costs.

Infrastructure related to water supply is also directly related to the social services system. The World Bank reported that in 2025 Uzbekistan approved a loan of 200 million USD to modernize its irrigation infrastructure. This project concerns agricultural water services and cannot be equated with drinking water coverage. At the same time, the efficient use of water resources can indirectly affect the well-being of the population through regional income and climate resilience.

The "Uzbekistan - 2030" strategy, approved by Decree No. PF-21 of February 16, 2026, sets annual target indicators for education, the social sphere, and other areas. In particular, it is planned to increase preschool education coverage to 80 percent by 2030. This is a nationwide goal and should not be cited as a separate achievement for rural areas.

The World Bank plans to cover 1.2 million people for the second phase and establish common access centers for entrepreneurs in 15 pilot neighborhoods. Such centers are close to the idea of regional clustering of services: by concentrating business advice, finance, skills, and market access in one place, costs can be reduced. However, the expected number of jobs should be indicated as a project forecast, not an actual result [16].

The results of the study should be interpreted with caution: the available data show a logical and institutional link between infrastructure and well-being, but do not specify the percentage of poverty reduction achieved by each project. This requires an empirical design that includes a control group, baseline observations, follow-up measurements, and possible external factors.

Practical proposals for Uzbekistan

1. Introduce a "social services passport" at the mahalla level, recording the number of facilities, travel times, disruptions, staffing, satisfaction with services, and coverage of vulnerable groups.
2. Divide rural areas into peri-urban, intermediate, and remote categories, and define a minimum service package and appropriate organizational form for each.
3. A "build or re-build" analysis of existing facilities' capacity, transport capacity and operating costs should be mandatory before new construction decisions.
4. Pilot performance-based contracts for water, transport, healthcare and digital services, combined with independent quality assurance and citizen complaints.
5. Ensure meaningful participation of women, youth, people with disabilities and representatives of remote communities in neighborhood development groups; decisions and costs should be publicly disclosed.
6. Plan a baseline, target indicator, interim monitoring and final evaluation for each major project. Conduct pilot surveys where available data is insufficient.
7. Scale up successful practices by comparing changes in cost, quality and coverage indicators through phased implementation in pilot neighborhoods in 2027–2030.

5. Conclusion

The results of the study substantiate the need to shift social infrastructure policy from building facilities to managing the real results of services in improving the living standards of the rural population. International experience shows the importance of regionally appropriate policies, cross-sectoral coordination, local community participation, and the integration of digital and mobile services.

The large share of the rural population in Uzbekistan and the scale of the program, which will be completed in 2026, confirm the macroeconomic importance of this issue. The proposed system of indicators and a multi-criteria assessment matrix can serve to enhance the transparency and effectiveness of investment decisions. Their practical effectiveness depends on further empirical testing.

The limitation of the study is its reliance on open secondary sources and the lack of uniform panel data across regions. It is recommended that further research calculate the service quality index at the mahalla level, conduct a household survey, and assess the impact of projects on living standards using quasi-experimental methods.

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