

Kyrgyzstan: digital data, resilience and digital development policy assessment (executive summary)

Connect2Recover

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EXECUTIVE SUMMARY

This report was prepared for the Government of the Kyrgyz (hereinafter - the Government) within the framework of the Connect2Recover initiative of the International Telecommunication Union (hereinafter - ITU). The initiative aims at supporting countries in identifying gaps and shortcomings, that impede use of broadband and digital technologies for emergency preparedness and mitigation, based on the experience gained during the COVID-19 pandemic.

The report follows the Connect2Recover methodology¹ and provides for an assessment of data on fixed and mobile broadband in Kyrgyzstan, ICT adoption and use by households and individuals, digital resilience, and broadband development strategies and plans. This report contains an analysis of the collected data, its comparability at the international level, existing data gaps and recommendations for improving data collection practices, resiliency of infrastructure, ISPs and markets, as well as for strengthening digital development policies and regulations. The Government can use this report to review approaches to ICT data collection, to address gaps and shortcomings to improve digital resiliency, and to update and effectively implement digital development policies. This report was made possible with extensive support of the Ministry of Digital Development of the Kyrgyz Republic (hereinafter – the Ministry) and the Service for the Regulation and Supervision of the Communications Sector under the Ministry.

Fixed and mobile connectivity data

High quality data is key to obtaining an accurate picture of fixed and mobile broadband availability, adoption and use, and is the basis for data-driven policymaking. Following the analysis of the collected data on fixed and mobile broadband connection, the following observations can be made regarding data availability and data collection practices in Kyrgyzstan.

Data on telecommunications/ICT indicators (administrative data provided by telecom operators) in Kyrgyzstan is available and relevant. However, there are some inaccuracies in assessing the population coverage by communication networks. For example, population coverage is calculated on the basis of the percentage of the settlement's area covered by communication networks. This may cause distortion of data if the population is unevenly distributed (e.g. in case of presence of so-called residential areas and industrial zones within the city). At the same time, due to topography and economic specifics the population of Kyrgyzstan is distributed extremely unevenly across the territory. Overlaying the network coverage map on actual population density map or taking a smaller geographical unit (district, postal code, statistical code) as a unit of measurement will allow obtaining the more correct data.

Also, currently a positive decision on the availability of services provided by a telecom operator in populated areas is accepted if the coverage by its signal of the land area reaches a certain threshold. It's obvious that the sufficiency of this threshold value largely depends on the size and geometric shape of the settlement. Thus, it seems rational to revise the threshold value upward by setting a floating threshold for a settlement coverage depending on its size.

Information regarding the coverage of Kyrgyzstan's territory by cellular networks, broken down by settlements is not publicly available. Moreover, operators do not transfer information about mobile network coverage to international organizations. As a result, thematic analytical reports provide distorted information and often underestimated figures. This causes high risk scores of investing in the state's economy and impedes the influx of investment. For example, the coverage maps published on the GSMA website are significantly out of date. Consequently, GSMA reports provide the significantly distorted representation of the real situation in Kyrgyzstan. It is recommended to provide updated information to the specialized international organizations and publish information on territory coverage by the cellular network, broken down by settlements, in order to prevent the spread of distorted information in international, regional and national studies, including the ones influencing the influx of investment into the country.

An interactive map of fixed and mobile broadband coverage is not available in Kyrgyzstan. The map might contain information about coverage of population and the territory (including railways and highways), available telecommunications technologies broken down by operators, broadband infrastructure being under construction and planned, as well as about quality control checks of communication services. In addition, there is no national service for checking the availability of broadband Internet access in the country. This limits the opportunities to check the availability of broadband communications in a particular settlement, as well as the capabilities of the telecommunications authority to analyze the development of the broadband Internet access, to attract the targeted investments and to develop the PPP projects.

ICT infrastructure connectivity map available at ITU provides outdated information on ICT infrastructure in Kyrgyzstan and cannot be used to measure the actual population coverage by broadband Internet access. Backbone network schemes of some telecom operators are publicly available but cannot be used for geospatial analysis of broadband infrastructure. It is recommended to collect the actual maps of national backbone, middle-mile (backhaul) and last-mile fibre optic lines from the telecom operators and to send those to ITU in order to update the ICT infrastructure connectivity map. It would be even better if such maps were available in both interactive and GIS formats for further processing in geographic information systems, equipped with the binding anchors and kept constantly updated. To attract investments and to allow the international community to adequately assess Kyrgyzstan's efforts in digital infrastructure development, it would be beneficial to ensure publication of information on the national middle-mile (backhaul) and the last mile network development, preferably on international web resources. If available, such maps can be used to identify gaps, as well as for planning and disseminating information among the stakeholders.

It would also be extremely beneficial to create a unified broadband access infrastructure map in GIS format containing detailed geospatial information as well as technical characteristics of nodes and communication lines of fibre optic, radio relay and cellular communication networks on the territory of the country. It is recommended to consider a possibility of providing the authorized individuals and international organizations with the online access to this map in accordance with the national security requirements.

The national operator OJSC Kyrgyztelekom, being a natural monopolist in the telecommunications market, provides Internet access services in the majority of connected schools. The operator provided a list of connected schools with the information about the nominal connection speed. At the same time, the open data on the status of connectivity in general educational institutions published by the Ministry of Education and Science seems to be very outdated comparing to Kyrgyztelekom's data. The data on actual speed of Internet connection at schools is collected neither by Kyrgyztelecom OJSC nor by the Ministry of Education and Science. Thus, regular updates of the relevant open data and collection of information about the actual speed of Internet connection in schools to supplement the open data is highly recommended.

Information about the connectivity status of healthcare institutions is not collected on a regular basis and available neither on the Open Data Portal, nor among open data on the website of the Ministry of Health of the Kyrgyz Republic. Data on nominal and actual Internet connection speeds in medical institutions is not collected as well. It is recommended to ensure the regular collection of both types of data and to publish it in a format convenient for further analysis.

Data on ICT access and use by households and individuals is either not collected, or in some cases does not allow an international comparison. For instance, data on Internet users (by age, gender, and location) is collected irregularly, mainly as part of various household surveys financed by international organizations (not always based on a single methodology). Some indicators on access to ICT devices (ownership of radio, television, multi-channel television, telephone), as well as the indicator on ICT expenditures are included in the Integrated household and labor force survey and thus collected on a regular basis. Data on Internet device ownership is also collected irregularly and only within the framework of various surveys by international organizations. It is highly recommended to ensure regular collection of data on ICT access and use by households and individuals by gender, age and location, and providing a breakdown of data by device category (simple mobile phones, smartphones, desktop computers, laptops and tablets). If publicly available, this data would allow to compare regions of Kyrgyzstan, find patterns and anomalies, which would contribute to the subsequent development of ICT in the country and to the informed decision-making on the supply-side interventions and demand-stimulating measures.

Kyrgyzstan does not collect data on the digital literacy of the population. Partially available data has been collected in 2020 and 2022 surveys by various international organizations. Even though both surveys used ITU indicators, the very limited in-scope population (individuals aged 15–49 years old) makes survey results incomparable at the international level. Except for the studies mentioned, relevant data is neither collected on a regular basis, nor represented on global platforms for ICT statistics (such as ITU DataHub). Thus, data comparison with past years and tracking progress is difficult, if not impossible, be it at the national, regional, or international level. It is highly recommended to ensure regular assessment of digital literacy of population, by gender, age and location, taking into account advanced international standards and methodologies for data collection in this area, and publication of survey results.

The lack of data on ICT indicators for people with disabilities does not allow to estimate the adoption and use of ICT among this target group, their digital literacy level and potential contribution to the country's economy. However, case studies conducted in other countries demonstrate that this sub-group of population has the largest proportion of Internet users with advanced ICT skills (e.g. capable of writing a computer code). Accordingly, it is advisable to consider a possibility of collecting data in the field of ICT (use of computer, Internet, digital literacy) among people with disabilities.

Country-level resilience

Country-level resilience is analyzed and assessed through the following three components: critical infrastructure resilience, market resilience, and network/ISP resilience.

Kyrgyzstan's fixed and mobile broadband network infrastructure is resilient and well protected. However, the issue of power outages in winter months shall be resolved. Kyrgyzstan is also encouraged to consider participating in the World Energy Trilemma Index, which will help identify the country's weaknesses in energy sustainability. To improve critical infrastructure resilience, Kyrgyzstan is recommended to start commercial deployment of 5G networks, continue its efforts on diversification of traffic transit, clarify the number of Internet exchange points, make efforts on domain names cost reduction, and to accelerate availability of services and applications in the Kyrgyz language.

As for the network/ISP resilience, Kyrgyzstan's fixed and mobile broadband Internet access is developing rapidly. The average speed of fixed and mobile broadband Internet access is sufficient for comfortable use of almost all services provided. To improve sustainability of domain name servers, Kyrgyzstan needs to increase the number of DNS servers that can validate DNS records in the signed zones. Building capacity on cybersecurity is another topical issue. A national cybersecurity strategy should foresee improvements in the legal, technical and organizational aspects of cybersecurity. Furthermore, it is recommended to increase the number of secure Internet servers.

Strengthening of competition in the mobile and fixed connectivity markets is pertinent for market resiliency and should be further explored by Kyrgyzstan. Mobile connectivity market is quite diverse, but some remote rural areas still lack or have a limited choice of mobile network operators. For example, following the Armenian experience, a coverage of several remote settlements as a condition for the allocation of new radio frequency bands is one of the possible solutions to be considered. To measure market concentration and OP2/OP3 coverage by fixed network operators, information on fixed operators' presence by population settlement is required. Such information will allow the Ministry fine tuning regulatory measures on fixed broadband development, while seeking to increase fixed market competition. In terms of affordability, measures should be taken to further reduce the cost of fixed broadband Internet access. It is recommended to consider increasing the number of exit points to diversify transit traffic, promoting infrastructure sharing, including cross-sectoral, and implementing reduced connectivity and services tariffs, especially for fixed broadband, for the poorest and vulnerable cohort of population.

Additionally, publicly available information on the number of subscribers by operator, or the market share by telecom operators, is either fragmented or lacking. Thus, in-depth analysis of the level of competition impossible. It is recommended to consider publishing this information, for instance, in quarterly or annual reports of operators, which will allow the Ministry and research institutions to analyze telecom market and the subscriber base development, and the services offered.

Policy and regulation

Altogether, the current policy and regulatory frameworks on digital development contain some key elements of successful national broadband plans, but there are significant gaps in areas such as clear goals setting, monitoring and evaluation. Significant progress can be made primarily by ensuring a regular and open data collection processes, as well as by establishing benchmarks and targets to monitor implementation progress of key digital policies.

In terms of good governance Kyrgyzstan demonstrates high level of interagency coordination, regulatory measures are coordinated with various ministries and departments. For instance, a multi-stakeholder panel discussion of the digital transformation concept was organized at the development phase thereof. Strategic documents are published for public discussion and collection of comments and suggestions. However, it is important to further promote such mechanisms to increase public engagement, which would help to form a better document.

The successful approbation of the ‘regulatory sandboxes’ in banking may trigger the introduction of similar mechanisms in the telecommunication sector in accordance with the National Development Program of the Kyrgyz Republic until 2026.

However, the absence of a methodology for and practice of the regular data collection on ICT access and use by households and individuals prevents informed decision-making on digital transformation. This also impedes monitoring the effectiveness of applied measures and establishing quantitative benchmarks on ICT access and use at the national level and within the country. Accordingly, with due account of the international recommendations for ICT data collection, analysis and dissemination, the Ministry jointly with the National Statistical Office can identify the most relevant ICT indicators, their classificatory variables and survey periodicity. A positive example that could be considered is data collection practices of Kazakhstan, which collects information on the most core ICT indicators and publishes countrywide and per-regions results, and results by vulnerable groups of the population.

Relevant administrative data on telecommunication/ICT indicators is provided in annual reports of the Service for the Regulation and Supervision of the Communications Sector. However, since the annual reports focus on analysis of the Service’s performance, this information is being blurred throughout the report. In addition, despite quarterly collection of data, the report contains only aggregated annual data. The publication of data on the Open Data Portal, taking into account existing national security and trade secrets requirements, would make the monitoring of ICT infrastructure development more transparent and convenient for analysis. In addition, following the best international practices, Kyrgyzstan may consider creation of publicly available national broadband coverage maps.

The Digital Kyrgyzstan Concept contains broadband development goals. However, no quantitative target indicators were set, which makes it impossible to assess the level of ambition of the goals. Indicators were defined in the following areas: digital state, digital economy and digital skills development. However, for the sub-chapter «Digital Infrastructure and Platforms», which describes the goals for the broadband development, the indicators were not defined.

The Programme for the Development of the Electrical and Postal Communications of the Kyrgyz Republic for 2022-2027 contains objectives for the broadband development and specific targets related to supply-side interventions - the number of deployed FOCL, coverage of settlements in the Kyrgyz Republic. However, these indicators are not sufficient for a qualitative assessment. Furthermore, the Programme does not establish demand stimulating indicators and indicators on sustainability improving. Intermediate indicators were established to monitor the progress towards the target indicators. However, the methodology for the selection of intermediate indicators and their values is unclear. For instance, the target indicator “The number of deployed FOCL” includes several intermediate indicators set only for 2022, 2023 and 2024; the target indicator “Coverage of settlements in the Kyrgyz Republic” includes intermediate indicators for 2024, 2025 and 2026. The same applies to the target indicators, the target year for the indicator “The number of deployed FOCL” is 2024, for the indicator “Coverage of settlements in the Kyrgyz Republic” the target year is 2027. Thus, it is highly recommended that intermediate and target indicators are consistent with the time frame for the implementation of the regulatory document. The values of the target and intermediate indicators seem to be achievable, but it is unclear whether interpolation and approximation methods were used to calculate the values of intermediate indicators.

In terms of supply-side interventions, a strong regulatory framework on competition is in place. The attribution of public telecommunications and postal services to natural monopolies is also common practice in the region. Additional efforts could be aimed at further reducing market concentration in fixed and mobile broadband to improve the availability, affordability and quality of services.

The main infrastructure investments are made at the expense of telecommunication operators, where OJSC "Kyrgyztelecom" and mobile operators play a key role. An analysis of the legislation revealed that there is no universal service fund or financing. There is no publicly available information on cases, when connectivity of rural settlements being subsidized. In most cases, rural and remote areas are connected through the international technical assistance projects implemented by the World Bank (Digital Casa project), the ITU and UNICEF (Giga Project), and ISOC.

As part of the demand stimulating activities the Government prioritizes digital skills. However, despite the large number of activities planned in this area, they mainly relate to the introduction of information systems and do not foresee strengthening of digital literacy as such. In addition, there is no practice of the regular data collection on digital skills, which makes it difficult to develop national digital competency interventions, including for specific population groups. The current level of digital skills needs to be assessed with due account of the international methodology to ensure data comparability at the international level.

Significant efforts are required to ensure adequate quality and affordability of fixed broadband Internet services. Kyrgyzstan encourages operators' initiatives on providing preferential tariffs for mobile and fixed communications, discounts on connectivity and network maintenance, but fixed broadband access remains unaffordable for the population.

Monitoring and progress evaluation of the national strategic documents could be improved significantly. There is neither an open and transparent progress assessment of the implementation of national strategic documents, nor there has been any adjustment of activities, targets and target indicators to adapt to the evolving environment. Information on evaluation and monitoring of the strategic documents' implementation is not publicly available.