

Armenia: Digital Data, Resilience and Policy Assessment (executive summary)

Connect2Recover

By Paul Garnett, David Johnson,
and Irina Divakova



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I. Executive Summary

This is a phase two and three report prepared for the Government of the Republic of Armenia (Government or GoRA) under the International Telecommunication Union (ITU) Connect2Recover initiative, which supports countries in their efforts to identify gaps and bottlenecks at the country level that hamper the utilization of broadband networks and digital technologies to respond to and mitigate the consequences of the COVID-19 pandemic. Phase one of the Connect2Recover initiative comprised a report with several key findings and recommendations on data sources, resilience, and policy and regulations, that will enable countries to recover from the COVID-19 pandemic, be ready for the new normal, and be better prepared to future pandemics.

Leveraging the Connect2Recover phase one framework, this report is an assessment of Armenia's fixed and mobile broadband connectivity data, network resiliency, and digital strategies and plans. Based on the phase two landscape assessment, this report also makes Connect2Recover phase three data, resiliency, and policy recommendations that can be used by the GoRA in support of its Digitalisation Strategy and development and implementation of its proposed National Strategy for Broadband Communication.¹ The GoRA can use this report to develop, update, and effectively implement comprehensive information and communications technology (ICT) strategies to ensure that digital infrastructure and ecosystems adequately support recovery efforts as well as the new normal, in line with global best practices and other policy tools developed by the ITU and other relevant organizations. This report was made possible with extensive cooperation and collaboration of the Ministry of High-Tech Industry of the Republic of Armenia (MHTI or Ministry), the Public Service Regulatory Commission (PSRC) of the Republic of Armenia, and the Union of Operators of Armenia.

A. Fixed and Mobile Connectivity Data

High-quality data is key to having an accurate picture of fixed and mobile broadband availability, adoption, and usage, and is the basis for data-driven policymaking. Based on a review of available data, the following observations can be made about available fixed and mobile broadband data in Armenia: (1) Available data on fixed broadband availability is too old to be relied upon; (2) There is no reliable public information on international gateways; (3) Available data on adoption and usage of fixed and mobile broadband and devices is available only at the country-level, undermining efforts to target programmes where needed; (4) Coverage reports from operators lack a consistent format and do not differentiate between technologies and speed tiers; and (5) Fixed and mobile broadband availability maps are available only at the settlement level and do not provide information on where service is available within the settlement. The GoRA might like to consider implementing annual data collections from network operators focusing on the availability and adoption of fixed and mobile broadband at a sufficient level of granularity, revealing speed tiers, by technology and by location (*i.e.*, the smallest census level).

In Armenia, 4G mobile coverage has now reached most of the population of the country. Likewise, fixed broadband appears to also be available across the country. However, it is not clear what mobile and fixed broadband speed tiers are actually available to customers in Armenia. In addition, it is not clear whether fixed and/or mobile broadband is available to all consumers within a rural/urban settlement marked by the operator as covered (by indicating 'yes' or a '+' mark). In Armenia, broadband adoption rates are lower for consumers in lower income brackets and those located in rural areas. Armenia has low adoption rates for faster broadband, such as that exceeding 100 Mbps. Entry level mobile broadband is affordable for the average Armenian, but fixed

¹ Digitalisation Strategy of Armenia 2021-2025, Annex No 1 to Decision of the Government of the Republic of Armenia, No 183-L of 11 February 2021 (available at <https://www.arlis.am/>).

broadband is still unaffordable for the average Armenian. Neither mobile nor fixed broadband is affordable for the bottom 20% of Armenian wage earners.

B. Country-Level Resilience

The Connect2Recover phase one report described three aspects of country-level resilience: (1) Critical infrastructure reliance, (2) Market resilience, and (3) Network/ISP resilience. Fixed and mobile broadband networks have proven resilient where they exist, but there have been problems in some markets, such as those lacking the basic infrastructure of the Internet such as Internet exchange points, direct access to submarine cables, and international terrestrial transmission networks.

Overall, Armenia's network proved resilient during COVID-19 with only small reductions in fixed and mobile performance in Q1 and Q4 2020. Armenia scores relatively well on critical infrastructure; however, additional investment in international gateways and Internet exchange points would further strengthen Armenia's position. In addition, Armenia might like to consider allocating more spectrum for fixed and mobile services.

In terms of network and ISP resilience, Armenia's mobile network performed above its regional peers and its fixed network is improving steadily. Armenia was repeatedly targeted by cyber-attacks in 2020, often defacing Armenian government websites or obtaining citizens' private data.² Increasing the level of security of Armenian Internet infrastructure could prevent these attacks by, for example, ensuring that more of its Internet servers are secure. Armenia, however, did perform well in adopting secure DNS (DNSSEC) to prevent DNS cache poisoning.

Armenia shows both positive and negative signs of market resilience. Armenia's level of market concentration appears low for fixed line broadband but is high for mobile broadband. Armenia has a high level of spectrum concentration as well as mobile broadband coverage density. Armenia would benefit from more detailed and granular (below the settlement level) data on fixed broadband availability. Mobile broadband is affordable for all but the bottom 20% of Armenian wage earners, whereas fixed line broadband is unaffordable for the average Armenian and is especially unaffordable for the bottom 20% of wage earners. Fixed line connectivity could be made more affordable by further facilitating investment in last mile fibre access, as well as other fixed line technologies, and ensuring that more fixed and mobile last mile providers have access to affordable high-capacity wholesale fibre-based backhaul, as well as allocating more licensed and license-exempt spectrum for use by fixed wireless Internet service providers (ISPs).

C. Policy and Regulation

The Ministry and the PSRC demonstrate many of the characteristics of good governance with an independent regulatory authority, ethics rules in place, open and transparent policy and regulatory practices, and extensive intra-government collaboration. The GoRA has progressive competition policies. In response to its ITU regulatory survey, the GoRA reports that all fixed and mobile network operators are privately owned, there is no dominant provider in the market for fixed or mobile broadband services, and there are no limits on foreign investment.

² See The Cyber Battlefield is Just as Important: Armenia's Cybersecurity (available at <https://www.evnreport.com/magazine-issues/the-cyber-battlefield-is-just-as-important-armenia-s-cybersecurity>).

While a Government Digitalisation Strategy is in place, there is no National Broadband Plan or Strategy in place. The Government adopted a Digitalisation Strategy for 2021-2025 and is considering adoption of a National Strategy for Broadband Communication as a fundamental condition for implementation thereof. This Strategy could serve as the Government's blueprint for increasing digital equality, setting forth multiyear goals for fixed and mobile broadband access, adoption, and utilization and ensuring that the Government and other stakeholders are held accountable for meeting those goals. By increasing regulatory certainty and reducing risk, a National Strategy for Broadband Communication can also serve to attract additional investment in Armenia's ICT sector.

The GoRA is encouraged to develop and implement a National Strategy for Broadband Communication (hereinafter: national broadband strategy) that is aligned with the Connect2Recover framework, which can help the GoRA further goals spelled out in its Digitalisation Strategy, namely: (1) Ensuring a high quality of public service delivery; (2) Efficiency and transparency of the public administration system; (3) Development of broadband and telecommunication infrastructure; (4) Increasing the competitiveness of the private sector; (5) Decision-making necessary for economic growth; and (6) Development of digital skills for the workforce.

Within the Connect2Recover framework, the GoRA could focus policy and regulatory efforts on closing the urban-rural divide and extending high-speed fixed and mobile broadband to all of Armenia's citizens. As suggested in the ITU's Connect2Recover phase one report, fixed and mobile broadband definitions and policies should be aggressive but achievable and based on the connectivity goals the GoRA wants to achieve for all of its citizens. In addition to referencing fixed and mobile broadband definitions and policies developed by the ITU and other organizations, the GoRA could look to other upper middle income countries for guidance on broadband definitions and policies. Further, the GoRA could set affordability targets for the average Armenian income earner, as well as for the lowest 20 per cent or 40 per cent of income earners.

While fibre middle mile and last mile connectivity is available in Yerevan and other population centres, fibre middle mile and last mile connectivity is not present in many small markets and rural areas. Lack of fibre backhaul adversely impacts the ability of service providers to extend high-speed fixed broadband into underserved and unserved communities and deploy next generation 5G mobile broadband to these communities. The GoRA might consider supporting efforts to deploy middle mile and last mile fibre infrastructure to all settlements and to all premises. Further, the GoRA might consider supporting efforts to extend fibreoptic last mile infrastructure to all anchor institutions, such as schools, libraries, hospitals, police stations, and government offices. As noted in the Connect2Recover phase one report, governments can take steps to improve the commercial viability of deployments in small markets and rural areas by, for example, adopting policies that promote and protect competition in the sector, increasing the supply of spectrum used to deploy fixed and mobile wireless networks, investing in and promoting the use of shared infrastructure, promoting new technologies and business models, and subsidizing the deployment of last-mile fixed and mobile infrastructure in instances of market failure.

The GoRA might also consider efforts to stimulate demand for fixed and mobile broadband services and applications among households and small businesses, as well as by anchor institutions and vulnerable groups. The GoRA is encouraged to consider programmes ensuring that low-cost fixed and mobile broadband services and devices are affordable to low-income individuals and households. In addition to other steps the GoRA is already taking, it might consider enabling discounted fixed broadband services for anchor institutions and vulnerable groups, such as persons with disabilities. We also encourage the GoRA to implement targets and plans for both basic and advanced digital skills programming, as well as to develop locally relevant applications and content.