

Armenia

Access to the Internet in Armenia is largely unfettered, although evidence of second- and third-generation filtering is mounting. Armenia's political climate is volatile and largely unpredictable. In times of political unrest, the government has not hesitated to put in place restrictions on the Internet as a means to curtail public protest and discontent.



Background

Located in the heart of the Caucasus region, and situated between Turkey, Georgia, Azerbaijan, and Iran, Armenia relies on diplomacy in order to overcome political and economic isolation. Because of its unique geographical situation—and unlike most former Soviet countries—Armenia has traditionally been ethnically and religiously homogeneous. Armenia is a semipresidential republic where the president (currently, Serzh Sargsyan) holds a substantial amount of power, particularly in the areas of defense and national security. Like the other CIS republics, Armenia has experienced the hardships of switching from a centrally planned system to a market economy. The landlocked status of this country coupled with poor transportation infrastructure has not

RESULTS AT A GLANCE

Filtering	No Evidence of Filtering	Suspected Filtering	Selective Filtering	Substantial Filtering	Pervasive Filtering
Political				•	
Social			•		
Conflict and security			•		
Internet tools			•		

Other Factors	Low	Medium	High	Not Applicable
Transparency	•			
Consistency		•		

KEY INDICATORS	
GDP per capita, PPP (constant 2005 international dollars)	5,377
Life expectancy at birth (years)	72
Literacy rate (percent of people age 15+)	99
Human development index (out of 179)	83
Rule of law (out of 211)	125
Voice and accountability (out of 209)	145
Democracy index (out of 167)	113 (Hybrid regime)
Digital opportunity index (out of 181)	117
Internet users (percent of population)	5.8

Source by indicator: World Bank 2009a, World Bank 2009a, World Bank 2009a, UNDP 2008, World Bank 2009b, World Bank 2009b, Economist Intelligence Unit 2008, ITU 2007, Miniwatts Marketing Group 2009.

eased Armenia's economic transition. The Nagorno-Karabakh war with neighboring Azerbaijan and uneasy political relations with Turkey have further complicated this process. Russia remains Armenia's main strategic partner in the region, and the two countries are parties to a bilateral military agreement. Armenia is also seeking close political, economic, and strategic ties with the United States and NATO. Although the government has implemented far-reaching economic measures, including joining the World Trade Organization in 2002, poverty in Armenia remains widespread, and its economy is critically dependent on foreign support.

Internet in Armenia

The number of Internet users in Armenia increased from 161,000 in 2006 to 172,800 in 2008—the latter figure represents 5.8 percent of the population.¹ Armenia has 90,000 Internet subscribers, representing 2.97 percent of Armenia's population. Low-speed dialup access still dominates among private users (about 80–85 percent) and most companies use DSL and Wi-Fi broadband access. In addition, official sources suggest that Internet penetration is less than 4 percent.² In June 2007, the incumbent operator of the telephone network (Armentel) introduced DSL services—they represent approximately 76 percent of the capital city of Yerevan's population and 15 percent of the population of rural areas.³ Local statistics show that fixed-line penetration amounted to around 18 percent,⁴ while international sources point to 19.7 percent.⁵

Owing to the high level of urbanization in the country, the percentage of access to basic telephony appears high. While it has been officially estimated that 95 percent of households in the capital and 75 percent of households in other major cities have access to public telephone networks,⁶ in reality only 40 percent of households have individual telephone connections, and the quality of service is extremely poor.

Most users access the Internet from home and work. Internet cafés, which grew rapidly in the 2000–2005 period, currently attract fewer users. During the last two years, the number of Wi-Fi hot spots has significantly increased, covering Yerevan's center and some residential areas. There is little Internet penetration outside Yerevan, mainly because of poor infrastructure, low income, and low levels of computer literacy. The most popular languages among Internet users are Russian, English, and Armenian. In 2005, 40 percent of Web sites visited from within Armenia were located in Russia, 30 percent were in Europe and the United States, 25 percent were local resources, and 5 percent were hosted in other countries.⁷

The high cost of Internet access for some years slowed down the entry of foreign providers into the market.⁸ Over the last couple of years, the number of ISPs providing Wi-Fi and broadband connections has been increasing, resulting in price cuts. Despite the increased affordability, Internet access is still expensive in comparison to most European countries. Monthly unlimited dial-up access service costs AMD 7,500 (USD 24.50)⁹ in Yerevan and about USD 30 in rural areas. The cost of dial-up of Beeline, however, is the same for rural and urban areas. If the user prefers megabyte services, connection speeds are not dedicated and can vary from 64 Kbps to 1 Mbps, depending on the area and time of day.¹⁰

Regulatory enforcement against dominant market players has been problematic. However, in July 2008, Armenia's antitrust regulator imposed a fine on Beeline for anticompetitive behavior.¹¹ In the wake of the regulator's decision, the market has enjoyed greater competitiveness, and Internet services have expanded.

Armenia was one of the first of the former Soviet countries to privatize its telecommunications industry.¹² In August 2007, the Russian VimpelCom¹³ acquired a majority shareholding in ArmenTel, the incumbent telecommunications operator, and subsequently bought out the rest. In February 2008, VimpelCom registered the operator's license, allowing ArmenTel to use the Beeline brand on the territory of Armenia.¹⁴ Until 2007 the incumbent operator enjoyed a monopoly over international connections and other services. Consequently, the liberalization of international Internet access introduced only in 2007 radically altered the Internet access market. The cost of international connections significantly decreased, but it is still higher than in European and some CIS markets.¹⁵ The incumbent operator owns the main telecommunications infrastructure including the Trans-Armenian Optical System (the national fiber-optic backbone), satellite antennas, the entire fixed telephone infrastructure (PSTN), and most of the country's cellular infrastructure, which covers about 85 percent of Armenia.

The telecommunications regulation authority renewed ArmenTel's license, stripping it of its monopoly in some telecommunications services. However, ArmenTel has maintained its de facto monopoly of the fixed-line market. This situation may change, as two ISPs (Arminco and Cornet) announced they would start offering fixed-line

communication services by the end of June 2009.¹⁶ Nonetheless, as the networks of all operators are connected to ArmenTel's infrastructure, the incumbent will continue to dominate and benefit from interconnection fees.

Although ISPs are increasingly building their own fiber-optic networks, cable infrastructure is still underdeveloped in Armenia. Over the last three years, more than three ISPs have extended their network to cover the capital, while networks in rural areas have been developing at a much slower rate.

Satellite services are relatively well developed in Armenia; however, the demand for them is not significant because of their higher cost. Home users utilize satellite services almost exclusively for television. Downlink satellite services are widely used by ISPs in the capital city and rural areas because they provide the only means of supplying Internet services without requiring physical networks. Nonetheless, the development of two-way satellite services in Armenia has been affected not only by their high cost but also by administrative barriers to importing and using radio equipment.

The majority of the main ISPs are owned by Armenian entities. The main ISPs in the country are ArmenTel (operates under the Beeline brand),¹⁷ Arminco LLC,¹⁸ WEB LLC,¹⁹ Xalt LLC,²⁰ Netsys LLC,²¹ ADC CJSC,²² Cornet-AM CJSC,²³ Fibernet Communication LLC,²⁴ and Freenet Armenia.²⁵ There are numerous small ISPs supplying Internet services to large companies or to certain geographic areas. However, their number is decreasing as a result of strong competition, and they recently introduced high license fees and state duties (regulated by the Law on State Duties), which have led to increasing consolidation in the market. At least two foreign ISPs are expected to enter the market in 2009.

Most ISPs gain access to the international backbone by way of ArmenTel's fiber-optic cable (Trans Armenia Optical System)²⁶ with 155 Mbps capacity, which connects to the Georgian Optical Highway and then to Russian and European channels. The second national backbone, routing through Iranian territory, commenced operations in September 2008. ArmenTel bought this cable, which connects to Sovintel (VimpelCom's subsidiary).²⁷ The third international route over the TRASEKA fiber-optic cable is owned by the state and is operated by Fibernet LLC on the basis of a 25-year concession agreement.

As an alternative route, ArmenTel utilizes the Teleglobe satellite connection, limited to 2 Mbps. Major ISPs such as Arminco and WEB LLC have built their own infrastructure, mainly fiber-optic networks and wireless networks, and also use satellite connections (usually via PlanetSkye and SatGate).

There are three nonprofit fiber-optic networks constructed with the assistance of foreign and international organizations that supply Internet services to scientific and educational institutions: ARENA Foundation, National Foundation for Science and Advanced Technologies, and Academic Scientific Research Computer Network of Armenia (ASNET-AM).

There is no Internet exchange point used by all Armenian ISPs. However, most ISPs are interconnected, and local traffic is not charged yet. The Armenian top-level domain “.am” is administrated by the Armenian Internet Society.²⁸

The provision of VoIP services has raised a number of conflicts between the incumbent operator, new market players, and regulatory authorities. At present, ISPs and other private service providers are allowed to freely use the incumbent’s fixed network for the provision of VoIP services. According to data provided by the Public Services Regulatory Commission, from May 2007 to May 2008, 108 companies were granted authorization to provide VoIP services.²⁹

There are two mobile telephony operators in Armenia: Beeline and Vivacell-MTS, both controlled by Russian companies. Vivacell-MTS entered the market in 2005 under the name K-Telecom.³⁰ Each mobile operator in Armenia serves approximately 1 million users.³¹ The cost of mobile communication services varies from USD 0.10 to 0.16 per minute. A third mobile operator (Orange France Telecom) recently obtained a license to operate in the country and is expected to enter the market by the end of 2009. Its entry might reduce mobile communication costs.

Legal and Regulatory Framework

In June 2001, the government issued a Concept Paper announcing that ICT is a priority for the country’s economic development. Pursuant to a presidential decree, the government created the ICT Development Supporting Council (ITDSC), an advisory body chaired by the prime minister. The ITDSC was established as a communication platform for stakeholders to propose and discuss issues in the area of telecommunications policy and regulation. In 2003, the government launched the “E-Armenia” initiative. However, progress toward implementing the proposal and the Concept Paper was interrupted by the parliamentary election in 2003 and presidential election in 2004, and little progress has been made on relaunching either initiative since.³²

Finally, in July 2008 the government approved the Concept Paper on Development of the ICT sector in Armenia. In contrast to the Concept Paper of 2001, the former lays out short- and long-term action plans with fixed timetables for fostering an information society and ensuring sector competitiveness.

The Law on Electronic Communications adopted in July 2005 regulates electronic communications in Armenia. The Ministry of Transport and Communications is responsible for formulating sector policy and setting universal service objectives.

In 2006, the Public Services Regulation Commission (PSRC) took on the role of the regulatory authority for telecommunications in line with the Law on Electronic Communications.³³ The Telecommunications Department of the PSRC develops and enforces a package of important regulations, including criteria for license holders and their reporting standards, standards for cost accounting and archiving, quality of

service, and cost calculation standards for the incumbent operators and service providers. Even though the government does not have direct political influence on the decisions of the regulator, the PSRC is not entirely independent, as it is financed by the state and its members are appointed by the president upon nomination of the prime minister. The regulator frequently does not consult with operators on all important questions that affect them.

In the context of other CIS countries, Internet legislation in Armenia has demonstrated liberal trends. For example, Armenia was one of the first countries that opened the 2.4-GHz frequency band for free use by ISPs and end users. Data services have been fully liberalized since December 2006 and voice services since October 2007. There are four types of licenses for providing communication services: (1) a generic “network” license; (2) a license for the provision of electronic communications services (data transmission and Internet access); (3) a license for providing VoIP services; and (4) a license for utilization of radio frequencies.

Generally, the fees for obtaining a license are low. Electronic communications and VoIP licenses are obtained after a relatively simple procedure. By contrast, network licenses are granted through a rather complicated process.

The supply of leased-line services has always been an obligation of the incumbent operator in Armenia. Although the license requires the incumbent to provide leased-line services on a transparent and nondiscriminatory basis, communications providers have complained of the selective provision of leased-line services and alleged frequent refusals by the incumbent. The tariffs for leased-line services are subject to approval by the national regulator. The legal regime for local loops unbundling and access to the network still does not meet international standards, a fact which negatively affects market competition.

With regard to media rights, the Armenian constitution guarantees freedom of expression, media, and other means of mass information (Article 27) and freedom of entrepreneurship and ownership.³⁴ Armenian media have become increasingly restricted since 2003. Most newspapers act as a mouthpiece for official political agendas, and television stations are predominantly progovernment.³⁵ In practice, censorship is widespread among journalists.

In 2005, Armenia signed and ratified the Optional Protocol of the Convention on the Rights of the Child on the Sale of Children, Child Prostitution, and Child Pornography. Armenia’s Criminal Code implemented these conventions, criminalizing, *inter alia*, the possession and distribution of child pornography on computer networks. Moreover, according to the Law on Mass Media (2003), the publication of any kind of pornographic material in mass media (including the Internet) is prohibited. Indeed, there have been at least two criminal convictions over the last three years related to the dissemination of pornographic materials on the Internet.

Surveillance

In Armenia, there are no express provisions to conduct monitoring of online content. Furthermore, ISPs and companies providing Web hosting services are not obliged to monitor the content of transmitted and stored content. In addition, under Armenian law it is necessary to prove gross negligence or actual knowledge in order to impose liability upon an Internet hosting company or ISP for hosting illegal content. However, ISPs must block access to particular content on request from law enforcement agencies for the purposes of crime prevention.

Following the February 2008 elections, widespread protests led the outgoing president, Robert Kocharyan, to sign a state-of-emergency decree imposing severe restrictions upon mass media and Internet publications for a 20-day period.³⁶ Consequently, Armenia faced both media censorship and Internet blocking for the first time since its independence. This blockage targeted Armenia-based sites, as well as YouTube after a video showing clashes between protesters and police was uploaded. The blocked Web sites included news portals, opposition Web sites, foreign media, and blogging services. The blocking was not extended beyond the original 20-day term because of international pressure. The media and Internet blackout created an unprecedented opportunity for bloggers to provide alternative viewpoints on the situation in Armenia, as during this period they were one of the few information outlets available.

Internet censorship has been implemented in two ways. First, the Armenian Internet Community simply froze several subdomains in the “.am” domain (such as aravot.am, hzh.am, echannel.am, azatutyun.am, and others). Thus, the Web sites were accessible only through their IP addresses. Only one week later, the Armenian Internet Community announced that this measure was to be enforced by the National Security Service (NSS). After the order from the NSS, some ISPs blocked access to a number of Web sites on a preselected blacklist.

Second, surveillance is regulated through the Code of Criminal Procedure of Armenia. The code provides that surveillance should be carried out only pursuant to a court warrant when applied to restrict legally guaranteed rights and freedoms (Article 284). The warrant must indicate grounds for the measures, the data that are being obtained, and the venue and duration of the surveillance and accompanying data substantiating the necessity for the warrant.

There are some exceptions to the need for a warrant—for instance, when a delay in the implementation of the search could lead to a terrorist attack or threats to national security, military, or environmental interests. The court has to be notified within 48 hours of the measures being taken. If the court finds that the grounds for the implementation of the search are insufficient, surveillance shall be immediately stopped, and the materials and data obtained deemed inadmissible as evidence.

Finally, Article 50 (3) of the Law on Electronic Communications sets forth an obligation on operators and ISPs to assist law enforcement investigators in conducting surveillance measures.

ONI Testing Results

In 2007 and 2008, the ONI ran tests on the first-tier ISPs in the country: Arminco, WEB, and Netsys. During Armenia's state-of-emergency, ONI monitored the media and Internet blackout in the country and concluded that pervasive filtering was occurring. The ONI detected a large number of blocked Web sites, including regional sites providing information on ethnic and religious freedom groups, Armenian opposition sites, Russian opposition sites and youth movements, personal blogs, an Armenian Internet portal, and a political and cultural site about Nagorno-Karabakh. A number of international and regional (mainly Russian) media sites, e-mail services, and search engines were also filtered. In addition, leading Armenian online media were intentionally blocked. Few pornographic, LGBTQ, and drug-related sites were blocked.

Conclusion

Armenia has struggled through political instability, regional conflict, and widespread poverty and unemployment. The new president has pledged to carry out reforms that would decrease corruption, improve living standards, and enhance foreign confidence in the economic development of the country. The crackdown on the media and the Internet in sensitive times, however, reveals that the government is likely to resort to such measures in order to stifle public criticism.

Notes

1. Miniwatts Marketing Group, "Internet World Statistics: Armenia," 2009, <http://www.internetworldstats.com/asia/am.htm>.
2. Ministry of Transport and Communications, <http://www.mtc.am>.
3. David Sandukhchyan, "Armenia," *Political Intelligence Internews, December, 2006*, http://ec.europa.eu/information_society/activities/internationalrel/docs/pi_study_rus_ukr_arm_azerb_bel_geor_kaz_mold/4_armenia.pdf.
4. Deliverable Report No.1: Inception Report (Tasks 1 through 4), "Design of Universal Services Fund for the Telecommunication Sector in Armenia," Prepared for World Bank Project WB 230-695/07.
5. International Telecommunication Union (ITU), "Internet Indicators: Subscribers, Users, and Broadband Subscribers," 2008, http://www.itu.int/ITU-D/icteye/Reporting/ShowReportFrame.aspx?ReportName=/WTI/InformationTechnologyPublic&RP_intYear=2008&RP_intLanguageID=1.

6. David Sandukhchyan, "Armenia."
7. The Center for Information Law and Policy, <http://www.gipi.am>.
8. "High Prices for Internet in Armenia Scare Investors Away," PanARMENIAN.Net, July 2005, <http://www.panarmenian.net/news/eng/?nid=14278>.
9. Arminco ISP: <http://www.arminco.com/en/dialup/>.
10. Because of the requirement to provide basic coverage to a large number of rural villages envisaged by license conditions, Beeline has deployed CDMA450 infrastructure, and today it provides CDMA Internet services predominantly for rural inhabitants.
11. The State Commission for the Protection of Economic Competition fined Beeline USD 1 million for refusing to allow smaller ISPs to use its facilities to provide competitive service.
12. In 1994, 49 percent of ownership in the state telecommunications operator, Armenia Telecommunications Company (ArmenTel), was privatized and acquired by Trans World Telecom (TWT), allegedly an American-owned corporation. Very little is publicly known about the first phase of ArmenTel's privatization. In 1997, 90 percent of ArmenTel's shares, including TWT's and most of those owned by the Armenian government, were sold to OTE, a Greek company. In June 2006, OTE decided to sell most of its shares in ArmenTel and announced an open tender for the purchase of 90 percent of them. After a six-month evaluation of the commercial offers submitted by two Russian companies and a United Arab Emirates company, the Russian company VimpelCom was announced as the winning bidder. ArmenTel and VimpelCom announced and later signed a share sale-purchase agreement. The Armenian government announced that it would sell its shares in ArmenTel should the operator agree to abolish the monopoly on main telecommunication services.
13. VimpelCom is a leading mobile phone operator in the territory of Russia and the CIS, <http://www.vimpelcom.com>.
14. *ArmeniaNow.com*, "New Buzz in Mobile Service: ArmenTel becomes Beeline," April 11, 2008, <http://www.armenianow.com/?action=viewArticle&IID=1182&CID=2894&AID=2965&lng=eng>.
15. At present, 1 Mbps international connectivity costs for ISP are from EUR 1,500 to EUR 3,000 (depending on the type of connection, e.g., fiber-optic, satellite) against EUR 12,000 in 2006 and EUR 16,000 in 2005.
16. IHS Global Insight, "Armenia: Further Positive News in Armenian Fixed-Line Sector as Arminco Prepares to Launch Services," May 10, 2009.
17. The incumbent operator provides 90 percent of International uplink connections and provides dial-up and DSL services over PSTN, CDMA, and ISDN networks owned by the company all over the country. It provides dedicated copper lines (leased local loops) and ISDN lines to ISPs and private network owners. In May 2008, Beeline installed a 3G network in Yerevan. See Armentel, <http://www.armentel.am>; Beeline, <http://www.beeline.am>.
18. The operator is co-owned by a joint Russian-Armenian company and was founded in 1992. Arminco LLC owns about 45 percent of the Internet access market. It provides dial-up, xDSL,

dedicated broadband lines, ENUM registration, VoIP, IPTV (beta test phase), wireless access in 11 cities, Wi-Fi access, and fiber-optic connection as well as international Internet roaming. Arminco introduced prepaid Wi-Fi and dial-up Internet access cards, which do not require a contract. Services are available in the capital, major towns, and rural areas, as well as in Nagorno-Karabakh. The Arminco network is peered with the Netsys, Cornet, WEB, and Xalt ISP networks, as well as with the Armenian Freenet. The current bandwidth assigned is 10 Mbps per peer. Arminco is one of the seven official registrars of the “.am” domain. In 2003, Arminco attained the status of a Microsoft and VUE testing center. Arminco LLC, <http://www.arminco.com/>.

19. WEB LLC is controlled by an Armenian entity and owns approximately 12.2 percent of the Internet access market. It provides dial-up, dedicated broadband lines, DSL, Wi-Fi access, and fiber-optic connection in the capital city and rural areas, as well as in Nagorno-Karabakh. It is one of the official registrars of the “.am” domain. See WEB LLC, <http://www.web.am/>.

20. The operator is owned by a joint Armenian-Swiss company. Xalt LLC owns approximately 15 percent of the Internet access market. It provides dial-up, dedicated broadband lines, wireless and satellite Internet access, and Wi-Fi access services in Yerevan and rural areas. It is one of the official registrars of the “.am” domain. See Xalt LLC, <http://www.xalt.am/>, Xter.net, <http://www.xternet.am/eng/>.

21. The operator is owned by a joint Armenian-U.S. company and has approximately 12 percent of the Internet access market. It provides dial-up, dedicated-lines broadband access, Committed Information Rate Internet Connection (CIR), VoIP, and WiMAX access services mainly in Yerevan, but also in some rural cities. It is one of the official registrars of the “.am” domain. See NetSys LLC, <http://www.netsys.am/>.

22. The operator is owned by the Armenian-Norwegian Armenian Datacom Company (ADC) and provides cable broadband Internet services across the entire area of Yerevan city and suburbs. See Armenian Datacom Company, <http://www.adc.am/>.

23. Recently sold to a Russian investor, a subsidiary company of COMSTAR-Obyedinenniye TeleSystems—Comstar United Telesystems—was established in the Armenian telecommunication market in 2000. It owns approximately 10 percent of the Internet access market. It provides dial-up, one-way (downstream) Internet access through satellite digital channels, roaming, dedicated-line broadband DSL and Wi-Fi, and WiMax access services mainly in Yerevan, as well as in some rural cities. It is one of the official registrars of the “.am” domain. See Coronet-AM CJSC, <http://www.cornet.am/>.

24. Provides broadband access to Internet through its own fiber-optic network, mainly to ISPs. See Fibernet Communications, <http://www.fibernet.am/>.

25. The Armenian Freenet (ArmFN) was created in the framework of the UNDP Armenia Internet Project in 1997. The project aims to support the development of Internet and information technologies in Armenia and provides free Internet services to individuals, as well as nonprofit, educational, and research organizations and government and other institutions. For local users the project provides free access to their servers through dial-up lines, as well as full access to national WWW resources, and to the computers in their two Public Access Sites. The ArmFN provides con-

nection to the server that activates the user's account using POP3, telnet, and FTP Internet protocols. See Armenian Freenet, <http://www.freenet.am>.

26. TAOS consists of a northern "ring" (Yerevan–Armavir–Gyumri–Vanadzor–Sevan–Yerevan) and a southern "tail" running from Yerevan to Meghri on the border with Iran. From Vanadzor the backbone has a northward extension to Georgia, and thence to Russia and the Black Sea submarine cable system. TAOS is the principal infrastructure providing national and international connectivity. TAOS passes through some 30 major cities in Armenia, serving approximately 60 percent of the population of Armenia. An additional component of TAOS is Beeline's metropolitan-area fiber-optic backbone network in Yerevan, comprising a logical ring and extensions that link the major telephone exchanges.

27. As to unofficial sources, Beeline is conducting negotiations with its Turkish counterparts in relation to the construction of its third alternative fiber-optic network (4 STU), which is expected to be put into operation during 2009.

28. There are seven country code domain names registrars in Armenia that are also major ISPs: Arminco LLC, <http://www.arminco.com>; ABCDomain LLC (formerly ARMINCO, Ltd.), <http://www.abcdomain.am>; WEB LLC, <http://www.web.am>; Xalt LLC (Xternet), <http://www.xter.net>; NetSys LLC, <http://www.netsys.am>; Dolphin LLC, <http://www.dolphin.am>; and Cornet-AM CJSC, <http://www.cornet.am>.

29. Public Services Regulatory Commission, Authorizations for Provision of Voice Services, <http://www.psrc.am/en/?nid=198>.

30. In 2007, a major Russian corporation, MTS, purchased 80 percent of shares in Vivacell, previously owned by K-Tel. A Lebanese company called Fatoush Group owns the remaining 20 percent of Vivacell shares.

31. These figures are not accurate because they reflect dual subscriptions (some users use services of both operators) and a significant number of inactive users. Consequently, it is considered that the actual level of penetration of mobile telephony is less than 60 percent. The cost of mobile communication services varies from USD 0.10 to 0.16 per minute for both prepaid and contract services. Both operators are owned by Russian companies.

32. David Sandukhchyan, "Armenia."

33. The PSRC is also responsible for the regulation of electricity and water supply services and the supply of energy, fuel, and other vital goods.

34. Constitution of the Republic of Armenia, July 5, 1995, amended in November 2005.

35. Economist Intelligence Unit, "Armenia Country Profile," 2008, <http://stone.eiu.com/product/50000205AM.html>.

36. OpenNet Initiative Blog, "Armenia Imposes Internet Censorship as Unrest Breaks Out Following Disputed Presidential Elections," March 11, 2008, <http://opennet.net/blog/2008/03/armenia-imposes-internet-censorship-unrest-breaks-out-following-disputed-presidential-e>.

