Library Development in Armenia:
Problems and Progress since the Dissolution of the USSR

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Abstract

The paper provides a situation report on the state of libraries and information services, publishing and bookselling in Armenia. It briefly describes their development, outlines the international development assistance that they have received during the last twenty years, describes their current situation, and indicates some of their future needs.

Introduction

The collapse of the Soviet Union was catastrophic for the library and information services of the newly independent countries for whom there was little legacy from the formerly highly centralised system. A study of the assistance that the post-Soviet Republics have received suggests that, for lack of adequate preliminary research into the background, much of the assistance has hitherto been uncoordinated, sometimes inappropriate, and frequently unsustained or unsustainable (Johnson forthcoming). This paper was prepared as a background study for a TEMPUS Joint European Project, NMPLIS (New Master's Programmes in Librarianship and Information Science),[1] which was supported by the European Commission to facilitate the modernisation of professional education and the underpinning library services in Armenia, Georgia and Uzbekistan between 2009 and 2012. It is based on a review of the published literature, and data gathered during the implementation of the project. The literature is fragmented, and not fully captured in the major indexes to the literature of the field. Following a thorough search, this synthesis outlines the factors that have influenced the national development of library and information services in Armenia, outlines international development assistance that they are reported to have received, describes their current situation, and indicates their future needs, including the human resource requirements to sustain development. In providing a comprehensive overview of the situation in Armenia, it is expected to be of value to future projects intended to assist the development of that country's libraries and information services.

Armenia: history, population, governance, and economy

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[1] NMPLIS website URL - http://www.flib.sci.am/eng/Tempus/

The Republic of Armenia is a landlocked, mountainous country in the Caucasus, with a population of about 3.2 million. There is evidence of settlement in Armenia as early as the third millennium B.C. It developed into a significant empire, extending to the shores of the Mediterranean, but eventually came under Roman and then Byzantine control. Through most of its recent history, Armenia has been subject to its neighbours for longer periods than it has enjoyed independence. In the sixteenth century Greater Armenia was divided between the Ottoman Turks and the Persians; the latter, eastern part being seized and annexed by Russia in 1828. This marked the end of all political autonomy until almost the end of the twentieth century.

The country was the scene of conflict between Russia and Turkey before, during, and after World War I. In the aftermath of the Russian Revolution, it became the independent Democratic Republic of Armenia in 1918. However, it was eventually seized by the Bolsheviks and incorporated into the Soviet Union in 1922 (Matossian 1973) as part of the TransCaucasian Soviet Federated Socialist Republic, which also included present day Azerbaijan and Georgia. That federation was dissolved in 1936, and its constituent parts became 3 separate Soviet Socialist Republics.

In 1991, Armenia seceded from the USSR and declared its independence. The establishment of parliamentary democracy enabled Armenia to become a member of the Council of Europe, and it has been predicted that it will make an official bid for membership of the European Union in a few years. However, this aspiration is complicated by the status of Nagorno-Karabakh, an enclave surrounded entirely by Azerbaijan but with a majority of its population of Armenian origin. The region had been a source of conflict between Armenia and Azerbaijan for centuries. In the immediate post-Soviet period, a military conflict commenced between the newly independent Republics but, although a ceasefire was negotiated in 1994 and Nagorno-Karabakh has declared its (unrecognised) independence of both Republics, no permanent diplomatic solution has since been achieved.

Armenia had developed a major industrial economy during the Soviet period, based on mineral extraction, chemical production, manufacturing machinery and electronics, as well as maintaining its reputation for fruit-growing and wine-making (Matossian 1973). The Republic's industrial sector supplied manufactured goods to neighbouring countries in exchange for raw materials and energy.

Despite major disruption caused by a major earthquake in 1988 when, for example, 80% of the city of Gyumri was destroyed, steady economic progress has earned Armenia increasing support from international institutions since independence. Nonetheless, although the economy has shown strong and sustained growth, half of the people remain impoverished. Armenia's land area is comparable in size to Belgium or Maryland. However, the estimated GDP per capita in 2010 was $5,178, compared with $36,274 in Belgium and $47,123 in the USA. The substantial difference between the GDP data for these countries seems unlikely to be explained by any differences that may have occurred in the way in which it is calculated for each country.

Education and research

In the communist era, Armenian education followed the standard Soviet model of complete state control (from Moscow) of curricula and teaching methods, and close integration of education activities with other aspects of society. In its first years of independence, while health and welfare services attempted to maintain the basic state-planned structure of the Soviet era, the country's education systems changed rapidly.

A literacy rate of 100% was reported as early as 1960. As in the Soviet period, primary and secondary education in Armenia remains free, and completion of secondary school is compulsory. There are some 1,500 general education schools, including some 300 middle and higher secondary schools (Education 2010).

In 1989 some 14% of the population had had a higher education. Since then, Armenia has made substantial changes to the centralized and regimented Soviet system. Because at least 98% of students in higher education are Armenian, curricula began to emphasize Armenian history and culture. Armenian became the dominant language of instruction. Russian was still widely taught, but as a second language.

Armenia's largest institution of higher learning, Yerevan State University, was founded in 1919, and currently has 20 academic departments and around 11,000 undergraduate and postgraduate students. There are 9 other state-funded post-secondary education institutions, with some 58,000 students in total. In addition, the private American University of Armenia was founded in 1991 by the combined efforts of the Government of Armenia, the Armenian General Benevolent Union, U.S. Agency for International Development (USAid), and the University of California.

In the Soviet system, the national Academies of Science coordinated the top-level research and educational institutions, and were the leading institutions in all types of research. The Armenian Academy of Sciences had been established in 1835, and became independent of the USSR Academy in Moscow in 1943 (Matossian 1973).

Language issues, publishing, bookselling, and bibliographical control

At least 93% of the population are of Armenian ethnicity, speaking Armenian and reading and writing in the unique Armenian alphabet, which was devised in the fifth century A.D. In 1970, only about 23% of the population claimed to be fluent in Russian (Matossian 1973). One third of Armenian-speakers in the USSR lived in other Soviet Republics, but their use of the language was said to be in decline. In the early 1970s, it was estimated that there were also around 1.7 million people in the Armenian diaspora, the largest proportion residing in the U.S.A.

In 1970, 96 newspapers were being published in the country, 81 of them in Armenian. In addition, there were 87 magazines and periodicals (Matossian 1973). By 1977, there were about 6 publishing houses in Armenia, producing

about 1,100 books each year, 91 periodicals and 81 newspapers (Nemirovsky 1981).

One of the first decrees of the new People's Commissariat of Armenia in 1922 had been to set up a Book Chamber on the model initiated by the Russian Soviet in 1917 to coordinate bibliographical affairs (Aslyanyan 1986). The National Book Chamber of Armenia is the country's centre for national bibliography, bibliographic information and statistics, centralized cataloguing, archival collections of Armenian publications, and preservation of them. The Book Chamber acquires materials published in Armenia by legal deposit and also receives contributions from the Diaspora. It has thus acquired a collection of 1.5 million items, including not only books, newspapers, and magazines, but also printed music, decorative literature, maps, conference materials, programs of theatrical and cultural events, invitation cards, etc. (Armenian 2002).

A national bibliography "Book Annals" began to be issued in 1925, divided into three sections 'Books,' 'Notes and Graphics,' and 'Periodicals.' The Book Chamber issued separate indexes to local newspapers from 1934, and to journal articles from 1938 (Richter 1971; Whitby and Lorkovic 1979; Beynen 1986). The Armenian Bibliography of Periodical Articles lists articles in Armenian and Russian published in Armenian periodicals. Each section is arranged according to the 5th edition of the Soviet Central Library's classification scheme (Richter 1973; 1977). During the Soviet era, books and catalogue cards were supplied to libraries through the Book Chambers but, in the 1990s, the automatic supply of books and catalogue records from the Book Chambers to libraries ceased (Zargaryan and Kirk 1998).

Publishing had been a centrally controlled state industry within the USSR (Walker 1978), but was quickly and almost completely privatised in Armenia after independence, but the 1990's was a difficult period. From 1991 to 1995, Armenia suffered from harsh economic conditions and severe power shortages. State budget allocations for the entire educational system were curtailed; the academic publishing system was in financial straits (Zargaryan and Hopkinson 2009). The number of publications fell significantly. The publishers' output rose from 429 titles in 1997 to 964 in 2002, but the total number of copies printed fell by more than 50% (Schmidt-Braul 2004). The National Book Chamber of Armenia continued to operate in the traditions of Soviet bibliography, but the 1959 law on legal deposit stopped being effective, publishers failing to comply with its requirements. It is estimated that the Book Chamber received only 70%-75% of all printed matter between the years 1990 and 2005.

A national Copyright Agency was established in 1993, and a new Copyright Law was passed in 1996 (Pilch 2005). In October 2005, Armenia's Ministry of Culture issued a new decree, requiring that all registered publishers should deposit one free copy of each publication with the Book Chamber and another copy with the National Library, commencing in 2007 (Hakobyan 2010). There are now about 60 serious publishers in Armenia, and perhaps 160 others. Current statistics suggest steady growth in output, with over 1,700 books now being published each year, including almost 1,400 in Armenian (Education 2010).

Although the National Book Chamber and the National Library remained separate, it was the latter that became the ISBN Agency in 1998 (Schmidt-Braul 2004) and the national ISSN centre in 2004 (Schmidt-Braul 2005).

In the Soviet era, there were 248 bookshops and bookstalls (Nemirovsky 1981). Many bookstores have closed; only 15 bookshops have survived, and only 10 of them could be described as significant booksellers. Arrangements for book distribution are poor, and efforts are being made to create a 'Books in print' service to underpin bookselling (Schmidt-Braul 2004).

Armenian scientists' contribution to the development of science and to the scientific literature appears quite considerable. During the Great Patriotic War (1941-1945), more than 300 new titles were published in Armenia. Although the publishing companies were expected to concentrated mainly on production of books for the army, and there was a severe shortage of paper, the State publishing companies published 180 titles dealing with natural sciences and technology (Muradyan 1985).

Armenia has an abundance of scientists educated to high levels during the Soviet regime, and the outputs of their research could become a profitable commodity (French 2003). However, their work is little known outside Armenia. Some bibliometric indicators extracted from the *Web of Science* for 1996-2006, which records articles published in peer-reviewed mainly English language scientific and scholarly journals, reveal that, among the 3 countries participating in the TEMPUS NMPLIS project, Armenia had the largest number of published articles per million inhabitants (PA/POP), and the highest number of published articles per year divided by GDP (PA/GDP) (Moed 2007).

Country	GDP	POP	PA	PA/GDP	PA/POP
Armenia	6.4	3.0	352	55.0	117.4
Georgia	7.6	4.4	269	35.4	61.1
Uzbekistan	17.2	26.5	322	18.7	12.2

Table 1: Bibliometric indicators for the NMPLIS Partner Countries, 1996-2006. (Source: Moed 2007)

The National Academy of Sciences and its 30 research institutions are leading producers of scientific publications in Armenia, publishing 13 peer-reviewed academic journals. Several of the journals are multi-lingual; some are distributed by major international publishers; and some are available on open access online. Yerevan State University also publishes two peer-reviewed journals. Most academics still write their scholarly and scientific papers in Russian, although they now write textbooks in Armenian. Textbooks are subject to review, and are supposed, if necessary, to be revised every 5 years (Schmidt-Braul 2004). Despite this, some university textbooks were 40-50 years old (Schmidt-Braul 2005).

Armenia has, however, been producing an electronic patent database (www.aipa.am) since about 1993, with an English interface on the search page

(Milushev 2009). In 2008, the Academy's Fundamental Scientific Library was awarded a grant from the Open Society Institute to introduce the Open Access publishing concept to the Armenian academic community (Zargaryan and Hopkinson 2009). Plans for developing open access publishing have finally come to fruition. As part of a TEMPUS project, the technical infrastructure for creating a Digital Repository has been provided for the Republic's Scientific and Technical Library at the National Academy of Sciences, and 4 open access journals are now being published by the Academy.

Library and information services

Library development in the Union Republics in the USSR followed a uniform pattern, with a 'State Republican Library' in each Republic receiving copies of the USSR's published output through a legal deposit system; widespread provision of academic, public and school libraries; and specialist library networks serving the scientific and technical communities, e.g. agriculture, medicine, etc. (Serov 1980). Almost the entire population of Armenia were said to be members of a library, some of more than one.

The dynamic socio-economic changes following the collapse of the Soviet Union had a significant impact (Richards 1999) on libraries; in Armenia none were able to acquire any foreign literature for some time after 1992. Foreign standards and regulatory documentation were particularly difficult to secure. Subscriptions to periodicals were handled mainly through the country's Ministry of Economics which distributed journals to the country's 5 major libraries. The economic crisis reduced library acquisitions by 70% (Hayrapetyan 1999). Xeroxing of books imported into the country by government institutions became a frequently used method of stock acquisition (Matveeva and Osip'yan 1996).

The Ministry of Culture, Youth Affairs and Sports now administers the National Book Chamber, the National Library of Armenia, the Children's National Library of Armenia, the Musicological (Music Research) Library, and one library in each of Armenia's ten local government administrative divisions.

National Libraries

The National Library of Armenia's collection comprises some 6.2 million items. It employed 433 staff, including 250 librarians (Armenian 2002). Recently, the National Library has received more than 75 computers, 4 servers, and lot of telecommunication equipment, which is a major step on the way to building a digital library.

The Armenian Musicological Library, which is used by everyone interested in music, has 33 staff. The library receives legal deposit material via the National Library, but the acquisitions budget is minimal. The condition of the building was recently said to be so appalling that a grant for new equipment was withdrawn (Hellen 2008).

Public libraries

There is a long tradition of public library provision. A public library is known to have been established in Yerevan by the mid-nineteenth century (Nazmutdinov

1986). In 1941, the Central Board of the Council of Political and Cultural Officers of Armenia decided that, as part of the war effort, the State Public Library, the Library of the Museum of Revolution, and the Institute of Historical Manuscripts should carry out a programme of active promotion of literature in industrial establishments and hospitals, and the number of mobile libraries was increased.

In 1976, there were 3,180 libraries, including 1,331 public libraries. In many towns, public libraries occupy the first floor of new apartment buildings. During 1974-75, however, the central municipal libraries in Kirovakan and Dilizhan were constructed as models of public library centralisation (Agakhanyan 1977). Rationalisation of the administrative control of public libraries between 1975 and 1980 had created 42 public library systems in the country (Manoogian 2010).

There are now three basic levels of government in Armenia: state, *Marz* (region), and local. As part of administrative and territorial reforms in autumn 1996, responsibility for all public libraries was handed over to the regional level of government. This was simply intended to relieve pressure on the central government budget (Schmidt-Braul 2005). There is no current national law for public libraries in Armenia, but the 10 *Marz* provincial libraries remain under the authority of the Ministry of Culture, Youth Affairs and Sports. *Marz* libraries provide the professional input to local libraries.

Public libraries have had to face numerous problems. The *Marz* regional libraries are receiving some books (c.4,000-5,000 each) from the Ministry of Culture each year, but many of the local authorities have not been providing funds for their public libraries to make acquisitions (Schmidt-Braul 2004). Budget shortages were such that, during 2001, more than 700 rural libraries did not acquire any new titles (Hayrapetyan 2002). Library buildings are poorly maintained, unheated, and generally inadequate. A number of public libraries have closed each year recently. Relatively few libraries in Armenia closed after independence, but current funding levels made a decrease in the number of libraries inevitable (Schmidt-Braul 2004). There are now only 986 public libraries (Education 2010). The poverty of many public library services suggests that further alternatives may need to be considered, e.g. mobile libraries, and/or joint-use school and public libraries.

Some of the public libraries have received generous external support. Six regional public libraries were selected by the Eurasia Foundation to host Information Resource Centres for local Non-Government Organisations, and develop public access documentation centres for local authority publications (Hayrapetyan 2002). The Civilitas Foundation has been refurbishing ten libraries outside of Yerevan with funds from the U.S. Embassy to support and strengthen public libraries in a number of rural and urban communities in order to transform them into centres of community life. Depending on what each library needs, refurbishing can include building renovations, heating, electricity, book donations, computers, and a cataloguing system and often it is all of these (Katrandjian 2010). The Southeast Florida Library Information Network (SEFLIN), together with Florida Atlantic University Libraries, has undertaken a number of projects in Armenia, with support from the U.S. Embassy (SEFLIN 2006). For example, the SEFLIN Gift Book Program has presented materials to several Marz libraries, including a donation of children's books to the Gegharkunik *Marz* Regional Library (Sloan 2006).

<u>School and children's libraries</u>

The importance of education and children's reading in nation building was sufficiently understood to lead to the development of new textbooks which began to appear in 1997. However, "school libraries have too much of nothing" (Schmidt-Braul 2004). They have degenerated into little more than delivery outlets for textbooks. There are 1,349 school libraries, whose collections total 18.4 million items, but 10 million items are textbooks (Manoogian 2010). Their potential support for literacy and learning has been ignored in two major educational reforms.

The British Council had assisted 100 school libraries with a supply of books intended to support the teaching of English (Schmidt-Braul 2005). SEFLIN has provided English language books/media for children and young adults in ten secondary school libraries, the Khnko-Aper National Children's Library, and the "American Corners" operating in two libraries (SEFLIN 2006).

The national Children's Library Service comprises the Khnkho-Aper Central Library and 14 branch libraries (Manoogian 2010). The children's libraries start with the very young readers playing imaginative or guessing games with a work theme, gradually developing their interest as they grow through various series of books about work and the individual and work in society (Koshkakaryan 1984). A great deal of effort is put into bringing books to children. Guidance is given to teachers and parents about the importance of books to children. The Khnkho-Aper National Children's Library, which has been designated as a national depository of Armenian children's books, used to issue more than 1 million books each year (Danielyan 1985). The Library is one of the few examples of an open access library and includes separate music and listening departments. There are also facilities for IT teaching and a public internet service. Despite appearances, the funding is inadequate and new stock is desperately needed (Hellen 2008).

<u>Libraries in Higher Education institutions</u>

Armenian universities are at present attempting to reform their teaching, research, and management systems, and harmonize them in line with the European Union's Bologna principles, which were initially set out to facilitate mobility of labour within the European Union (Bologna n.d.). In pursuit of this aim, the nomenclature and duration of degree programmes, and the associated descriptive documentation, have been standardised, and a quality assurance process has been introduced throughout higher education in the European Union. Libraries, as the heart of the universities, are expected to play a crucial role in this process, providing the resources and services required to equalise and enhance learning opportunities. The European Commission's international development programmes seek to encourage partner countries to adopt the Bologna model, and the root-and-branch modernization of higher education has exposed the weaknesses of library provision in the former Soviet republics and satellite states.

With some German support, Yerevan's new university library opened in 1994, and electronic data processing was introduced in 1997. The library may become the centre for national bibliography production and cooperative cataloguing

(Schumacher 1998). The Yerevan State University library claims to have around 2 million items, including 1.6 million books. Many of these may have been the textbooks which it issued to students each year; its card catalogue listed only about 0.5 million items, 90% in Cyrillic and the remainder in Roman and Armenian scripts, using the Soviet GOST 7.1-84 standards (Zargaryan and Kirk 1998).

The Carnegie Corporation of New York has been working to improve higher education in some of the post-Soviet countries because it recognises that quality academic programmes are crucial to developing the next generation of leaders. To help improve access to information in academic libraries, the Foundation awarded a $125,000 grant to the American Library Association's (ALA) International Relations Office for a two-and-a-half year project in the South Caucasus, commencing in 2001. This project provided Yerevan State University with books, databases, computers, library systems, interlibrary loan software, U.S. library partners, workshops, and individual mentoring. OCLC donated access to its "FirstSearch" database for two years, and ALA was able to purchase deeply discounted "Ariel" inter-library loan software for the libraries from Infotrieve. With access to "FirstSearch" and "Ariel," the library was thus able to search for a wide range of information resources, and receive them with assistance from several university libraries in the USA which provided free electronic loans. The library can now also provide access to e-books and has installed wireless technology for searching databases and the library catalogues (Dowling 2005). The SEFLIN and Florida Atlantic University Libraries Program has also provided the "Ariel" document delivery system to several other university and scientific libraries (SEFLIN 2006).

Elsewhere in the higher education system, the picture is less encouraging. For example, the library of the Tchaikovsky Music School, a pre-conservatoire school providing all-round education and a high standard of specialist music provision, has no budget and must rely on donations from teachers and friends (Hellen 2008).

Specialist libraries and information centres

The structure of scientific libraries of Armenia, as well as their work, changed significantly during the Great Patriotic War, when particular attention was paid to library services provided to scientific establishments and military establishments. The scientific libraries provided special services to numerous organisations that had been evacuated to Armenia. Despite the difficult conditions, the number of scientific libraries in Armenia increased during the war (Osip'yan 1985).

Scientific information provision received further support in the late 1970s as part of attempts to modernise the Soviet Union's economy. Then, a complex of buildings was constructed in Yerevan consisting of offices and laboratories for the Academy of Science's research institutes and the Armenian Scientific Research Institute for Scientific and Technical Information. The Republic's Scientific and Technical Library now has a collection of 10 million printed items (Akopyan and Saakyan 1977). The collection includes patent bulletins and patent specifications from 46 (both socialist and capitalist) countries. (Akopyan and Dzhamalyan 1981).

The reference/information service had 3 main activities: bibliographical publications, Selective Dissemination of Information (SDI), and a request system. Requests that cannot be satisfied by the Library are passed on to other information centres in the Republic (Akopyan and Matveeva 1977). The SDI service was aimed especially at chief executives of the Republic's planning organisations, and utilised a Russian 'Minsk-22' computer provided in 1970. Subscribers were expected to report on innovations resulting from information received. This enabled the service's economic impact to be estimated at 1.2 million roubles in 1975 (Sarukhanyan, Akopyan and Petrosyan 1977).

There appears to have been clear pressure to justify the allocation of state resources to information services. Serov and Martirosyan (1986; 1987) also described the results of an analysis carried out to evaluate the services of the Armenian Research Institute of Scientific and Technical Information for the period 1976-84 with a view to improving efficiency and reducing costs. Zhamkochyan (1981) presented the results of an analysis of the organisation and of the structure of the information on natural sciences and technology in Armenia, which revealed a heavy emphasis on chemical literature and the concentration of information resources in the Yerevan region but attributed this to the different level of industrial development in the other regions. Improvements to the system were still being planned when the Soviet Union was dissolved (Chkhenkeli and Shatberashvilli 1989). Financial pressures and 'perestroika' had also led the Armenian Research Institute of Scientific and Technical Information to begin to offer fee-based information consultancies from 1985 (Sarukhanyan and Darbinyan 1990).

The State Scientific Library also provided methodological support for more than 200 scientific and technical libraries that comprised the networks serving various industries. The main areas in which the State Scientific Library helped were: planning and revision of work, preparation of acquisition policies, analyses of stock utilisation and organisation of courses and seminars for further education of library staff (Osip'yan 1980).

One of the consequences of the major earthquake in Armenia in 1988 was external support for medical library development. The Fund for Armenian Relief, which was established by the Armenian Church of America, began a programme with the Ministry of Health in 1990 that included improving the 'Republican Scientific Medical Library.' This was one of the three largest libraries in the country, and it was planned for it to act as the centre of a national resource-sharing network. It was provided with a selection of books and journals and access to the MEDLINE database. Some staff were sent to the USA for training, and subsequent ongoing email communication has also proved invaluable. The library experienced a ten-fold increase in use between 1991 and 1995 (Braude and Shirinian 1995). In 1992, the American International Health Alliance (AIHA) and USAid initiated the Hospital Partnership Project. Through this program, a number of online databases were made available to partner libraries, and training for their staff was provided (Teplitskaia 1997). Further funding by the Eurasia Foundation, a privately managed non-profit organization supported by USAid and other public and private donors, supported collaboration between the Republican Scientific Medical Library and Cornell University's Medical School. In 2001, this enabled the Library to establish a computer training centre and provide training for staff from the 9 libraries in its network as well as from other

major non-medical libraries. It also received funding from a variety of other foundations. The Open Society Institute had paid for the translation of the National Library of Medicine's Subject headings, for the introduction of an automated library system (IRBIS) and the implementation of an OPAC, and the creation of an online index to local journals. However, it is recognised that future funding must come from the Ministry of Health (Braude, Shirinyan, and Zargaryan 2001). As part of a partnership between Boston University School of Medicine and the Emergency Hospital in Yerevan telemedicine technology was installed and used as an educational support (Screnci *et al.* 1996).

A study of the agricultural information services in Central Asia and the Caucasus was made in 2007, and it would be wasteful to repeat here the conclusions of that report (Shatberashvili and Maru 2008), which were little different from analyses of the situation in other library and information services. For example, it repeated a concern that the purchase of international publications (books, journals) was as limited in this field as in all others, primarily because of the costs involved. However, in this field, most libraries are able to access free electronic information through the Internet from FAO-AGORA, U.S. National Agricultural Library, the AgroWEB Network, and open access sources such as BioOne (Shatberashvili and Maru 2008).

Rare books and archives

Many collections of Armenian manuscripts are said to have existed, but were subject to the ravages of conquering armies that passed through the country in the Middle Ages. Most surviving manuscripts in the country are now held in the Matenadaram Museum Library, part of the Mesrop Mashtots Institute of Ancient Manuscripts (Manoogian 2010).

One of the largest collections of Armenian rare books and early Armenian periodicals is held in the Academy's Fundamental Scientific Library. All collections are very fragile, but through the British Library's "Endangered Archives Programme" the library obtained modular imaging cameras, and digitisation is in process (Zargaryan and Hopkinson 2009).

The National Archives was designated in March 2003. It employs 285 staff (Petaux). A new archives law was promulgated in 2004 (Manoogian 2010).

Interest in the manuscripts extends beyond the country's borders. An Armenian monastery founded during the eighteenth century on the Venetian island of San Lazzaro has developed a library containing 4,000 richly illuminated manuscripts from the ninth to the eighteenth centuries, the third largest collection of Armenian manuscripts in the world (Richter 1988).

Implementation of modern information technologies

In 1985, courses in computing, with an emphasis on programming, began to be taught in secondary schools, as part of an initiative across the whole USSR (Abbasov 1989).

The collapse of the Soviet Union cut short centralised efforts to computerize library systems (Dowling 2005). However, at the beginning of the 1990's,

funding for the system design and development of the first library in-house automation system named "BIBLIO" was made available by the Ministry of Economy, and the Library of Science and Technology and the Library of Science and Medicine started automation activities using the "BIBLIO" package. In the mid-1990s, a visiting librarian from France introduced UNESCO's CDS/ISIS system, and it was decided to stop the development of "BIBLIO" to concentrate efforts on popularizing CDS/ISIS in Armenia. The system was translated into Armenian. Subsequently the libraries migrated from the "BIBLIO" system to "IRBIS", which had been developed by the Russian State Public Library of Science and Technology based on CDS/ISIS. The main reason for migrating to IRBIS was that the collections of these 2 libraries were mainly in Cyrillic script (Zargaryan 2007).

Later, the Windows-based WinISIS was introduced, and is currently used by the Information Resource Centre of the Ministry of Foreign Affairs, the Library of the National Parliament, the Library of the United Nations office in Yerevan, the Goethe Institute in Yerevan, the National Archives, as well as by several municipal libraries, NGOs and international organizations. Some of them are also using Bireme's WWWISIS software for developing Web-based versions of their catalogues (Zargaryan 2007).

The Library of the American University of Armenia started to use the Q-series system of EOSi as its automation tool.

In 1995, the Swiss-based Izmirlian Foundation undertook the renovation of the Yerevan State University Library, including the automation of the library's processes. Since the collections of the library are mainly in Armenian, English and Russian, the main requirement of the automation software was to have UNICODE multilingual support. Accordingly the EOSi T-series 'Tinlib' system was selected as an automation tool. The library of the Academy of Sciences also selected the 'Tinlib' system (Zargaryan and Kirk 1998), and retrospective conversion of both libraries' catalogue records commenced. This work was seen as a foundation for a network of Armenian university libraries, and the production of the Armenian national bibliography.

Automated library systems of several different kinds (Datatrek, as well as CDS-ISIS, IRBIS, and Tinlib) were thus in use in Armenia, but most of these systems were not ideally suited to the needs of Armenian libraries, for example in their capacity for handling multi-lingual scripts. By the late 1990s, various libraries in Armenia were seeking funding for new automated systems Avakyan (1999), and a more coordinated approach was called for (Republic 2000).

In 2000, an Armenian academic libraries consortium was founded, and the Open Society Institute, after a series of consultations and round tables, decided to support this initiative of the library community by financing the project 'Developing of Armenian Libraries Computerized Network' (Zargaryan 2007). Subsequently, the eight major Armenian libraries and the National Book Chamber obtained financial assistance from the Open Society Institute (OSI) to develop the "Armenian National Bibliography and Union Catalog" (Hayrapetyan 2002). In 2004, following an international tendering process, the Ex Libris' ALEPH 500 library management and information system was chosen by the Armenian Libraries Automation Network (ALAN). Its installation was intended to

enable ALAN to create the planned national bibliographic database (Armenian 2002).

Since the OSI grant expired, the Ministry of Culture has continued to assist the project. It also planned to allocate money for the computerization of the regional libraries. The Armenian Libraries Union Catalogue, which is being developed in strong accordance with internationally approved standards, has become one of the fastest growing, most highly used and largest databases in the Republic (Zargarayan 2007). Library automation remains heavily dependent on grants from external agencies (Schmidt-Braul 2005). The number of PCs is insufficient, and they are generally only for staff use. Automated systems are generally not yet used for circulation control (Hellen 2008).

Access to some commercial databases is generally available only through short-term projects in specific institutions sponsored by international donors (Shatberashvili and Maru 2008). However, the Electronic Library Consortium of Armenia (ELCA) was formed in 2003 with support from OSI and eIFL to ensure and extend access to the constantly expanding international range of electronic scientific and scholarly publications as well as to optimize the subscription terms for these resources (Zargaryan 2007), and over 40 libraries and information centres are members (Harutyunyan 2004).   In July 2012, an international conference was organised in Yerevan in parallel with the eIFL General Assembly. It was attended by more than 60 librarians from more than 35 countries, and 13 publishers demonstrated their products.

Another TEMPUS project, which will have a cascading effect for all Armenian libraries, was "Building Digital Educational Services and a Content Creation Centre in the Yerevan State University Library." Beginning in September 2005, the Library, in cooperation with Middlesex University and the University of Hanover Library participated in a 2-year project to enhance curricula with new digital courseware (Zargaryan 2007). However, bandwidth has been a problem. Now, to underpin the libraries' connections to national and international networks, a number of major IT infrastructure projects, providing high-speed global links for Armenia's research institutions, are in progress with support from the European Union and NATO (Zargaryan and Hopkinson 2009).

Appreciation of the potential uses and misuses of the Internet was an early experience after the collapse of the Soviet Union. In 1990, in a period of heightened tension that preceded the Nagorno-Karabakh war, Armenia and Azerbaijan became involved in some kind of Internet 'infowar,' a consequence of their initial exposure to the misinformation on the Internet (Rogers 2000).

Professional development

There are estimated to be some 7,000 workers employed in libraries (Manoogian 2010). Some signs of an increase in recognition of their contribution to national development may be seen in an increase in librarians' salaries in 2011 that was said to be above the national average for state employees.

Since 1931, the Holy See of Ejmiatsiu Library College has provided library training at secondary education level (Manoogian 2010). During the Soviet era, higher level training for librarians was provided (at undergraduate level) in the

Armenian Kh. Abovian State Pedagogical Institute in Yerevan (Fang, Nauta, and Fang 1985), whose Faculty of Philosophy/Culture had also begun to teach library science in the 1930s. Education for librarianship was reformed in the 1950s, and after 1969 was delivered as a 4 year undergraduate course. The teaching and curricula in both schools still follow the Soviet library education system model, last benefiting from the major revision in the 1960s. Recently, between 25 and 28 graduates each year have completed the programme at the Department of Librarianship and Bibliography in Yerevan State Pedagogical University (as the Institute is now designated).

Financial support for these institutions is derived from state allocations and from tuition fees. Scholarships used to provide free tuition, textbooks, and - if needed - accommodation for all students accepted for admission. Upon finishing secondary school, university applicants must pass entrance examinations prior to their being offered a place on the course of their choice. The grades awarded in these examinations determine if the tuition fees are met by the state, or if the students must be self-financing. There are now no other financial aid mechanisms to support students. The profession is poorly viewed by secondary school graduates, and little is done at present to encourage students to take the course.

The programme still follows the Soviet higher education model with students graduating with a Diploma in Higher Education, with specialisations in bibliography or librarianship. There were initially two main specialisms: one for librarian-bibliographers for all kinds of libraries; the other for librarians for children's and school libraries. However, by the late 1970s, increasing attention had also begun to be given to the particular requirements of public libraries and scientific and technical information services.

The current course consists of 4 years' theory, combined with 2 months practical work in libraries or information environments. The curriculum covers 55 subjects, including: Organisation of the Library Work, Library Collections, Records Management, History of the Book, Bibliography, Working with Sources, Reference work, and Research Methods. Information technology applications began to be referred to in courses from the mid-1960s. The curriculum covered printing and publishing as well as the expected subjects, but also included aspects of history, philosophy and politics from a Marxist perspective. In addition to these courses, some general subjects also are being taught, such as: Russian and English languages, Art, and Archaeology. The pedagogical approaches are currently teacher-oriented. During the course, students must pass exams at the end of each semester. In order to graduate, the students must also provide an oral defence of their diploma.

The quality of LIS provision in Yerevan State Pedagogical University is currently poor, and those obtaining LIS qualifications have few job opportunities after graduation. The majority of Higher Education institutions in Armenia are harmonising their education systems with the requirements of the Bologna process. Consequently, since 2009, the State Pedagogical University has been able to award Bachelor's and Master's Degrees.

Advanced training was provided only in Moscow, where a 3-year course and the presentation of a thesis led to admission as a Candidate of the Academy of

Science. Thereafter, suitable individuals were provided with training for research or for higher administrative positions (Sikorsky *et al.* 1979).

Staffing levels in libraries may appear more than generous, but the lack of modern facilities (computer networks, electronic information) means that all tasks are very labour-intensive. The development of modern library services is also inhibited, partly by lack of appropriately designed, well maintained buildings, but also because staff skills are generally obsolete. Most staff need professional development to underpin the development of new services, as well as specific training as the applications of computer-based systems increase (Hellen 2008).

However, from 1989 to 1995 there was almost no continuing professional education (CPE) to assist the majority of librarians in Armenia to adjust to new realities. In 1995, CPE activities were revived thanks to an initiative of the Republic Scientific Medical Library and a grant from Eurasia Foundation. CPE courses for librarians have also been conducted at the National Library, Khnkho Aper Children's Library, Scientific Technical Library, and Yerevan State University Library (Hayrapetyan 1999). From September 2012, the National Library began organising 'Master Classes' for librarians from the public and rural libraries with funding from the Ministry of Culture.

Library Associations were forbidden during the Soviet era. Although some collaborative activity began during the period of '*perestroika*' in the mid-1980s, the Armenian Library Association was not formally established until 1995. Hayrapetyan records that by 1999 the Association still only had c.118 members from more than 20 libraries and library systems. Nonetheless, it has been energetic in seeking to address the challenges that faced the country's library and information services (Metreveli 1999; Stvilia 1999; Hayrapetyan 2003).

Although the forms and methods of library work in Armenia have been gradually modernized, the existing system of library education did not address many of the new tasks. Even now there are no regular professional development programmes available in Armenia for librarians and/or information professionals. The Armenian Library Association's main priority has, therefore, been in organising and providing continuing education opportunities (Manoogian 2010). With the support of the Armenian branch of the Open Society Institute, it has developed two projects. The first was to train 80 librarians, in 4 groups of 20 persons, for one month, with 4 hour classes held every day. The classes covered the following topics: modern forms of organization of the library management; cooperation between libraries in the Republic; collection development in current conditions; bibliography; issues of classification and cataloguing; past and current international cooperation of the Association; legislative technical documentation; computerization, the Internet, etc. Professional visits were also organized (Kazaryan 1999).

With Armenia's administrative division into regions, 10 regional libraries emerged from previously one centralized library system. There was no prior training for administrators of the regional libraries, despite the fact that, with an introduction of the new structure, there were new tasks to define and explain and new problems to solve. A three-day seminar for the administrators of regional libraries was therefore held in Yerevan in October 1998. The invitations were sent to 20 administrators in 10 regions, although only 18 of them attended.

The topics included: modern approaches to organization and coordination of library work; the registration and preservation of library collections; methods of library automation; grant writing. A discussion about the current state and roles of regional libraries revealed many problems with which the administrators of regional libraries were concerned: acquisition of literature and computers, cooperation with the local and Republic libraries, and establishment of a common information system within the region, etc. The Armenian Library Association also participated in the organization and delivery of a short training course for 30% of the library personnel of Ararat region, which was also funded by the OSI Assistance Fund. The one-week training course was conducted in 3 libraries, and arranged so that each group consisted of 20 librarians (Kazaryan 1999). To support its CPE activities, the Armenian Library Association also cooperated with the Department of Librarianship and Bibliography to establish a laboratory for computer training in the State Pedagogical University (Hayrapetyan 1999).

External professional bodies have also conducted workshops in Armenia or in the Caucasus region. American Library Association President Nancy Kranich's international initiative in taking a seven-member American delegation to Tbilisi in May 2001 for a regional workshop, designed to help strengthen library associations in the South Caucasus, was funded in part by the Carnegie Corporation grant (ALA 2001). ALA also organised a three-day workshop in Yerevan in September 2002 to encourage regional cooperation and resource sharing (Hayrapetyan 2002). The workshop, which brought together 30 participants from Armenia, Azerbaijan, and Georgia focused on "The Role of the Academic Library in Fostering Civil Society." It was a historic event in that it was the first effort in the region to bring university officials into discussions with librarians on the value of libraries in rebuilding institutions (John and Dowling 2002).

A TransCaucasian Workshop on Universal Bibliographic Control and UNIMARC was organized by the IFLA UBCIM Programme and the Library Automation Association of Georgia in September 1999 in Tbilisi, sponsored by the Open Society Institute and other organizations in response to problems in Armenia, Azerbaijan and Georgia (Plassard 2000), and a number of regional conferences have been held in the South Caucasus and in the Commonwealth of Independent States to facilitate the sharing of experience during the transition period (Hayrapetyan 1998).

In the early 1990s, several Armenian librarians visited the USA for Master's level study in the field of library and information science as Fellows of the Edmund S. Muskie Graduate Fellowship (funded by the U.S. Department of State). As a result, a cadre of librarians was established with a clear understanding of modern library and information practices, particularly library computerization.

Thus, by the end of the millennium, there was growing awareness that these short courses and conferences and the undergraduate library science course in the State Pedagogical University were not meeting national needs (Brown 2003; Darbinyan and Kanayan 2004). Another commentator noted that, in 2004, the University's School of Library Science was still following the Russian curriculum and teaching methodology (Schmidt-Braul 2004). The American University of Armenia was offering, *inter alia*, an undergraduate 'computer and information science program' but even a cursory examination of its content reveals that that

is a conventional computer hardware and software programming course. There was clearly a need for a modern library and information science programme, and a fresh start was needed.

Starting from January 2009, the International Scientific-Educational Centre (ISEC) of the National Academy of Sciences became one of the participants in a three-year multi-national TEMPUS project to develop a new Master's Degree programme in Library and Information Science (NMPLIS). The International Scientific-Educational Centre (ISEC) was established in 1997 to support the PhD studies operating in the National Academy of Sciences. The LIS curriculum to be developed by ISEC will, it is anticipated, meet the requirements of the Bologna and related agreements. A lifelong learning component will also be introduced. NMPLIS encouraged the development of sustainable programmes in Armenia, Georgia and Uzbekistan that responded to national needs rather than simply following western models. The result has been different programmes in each country. ISEC's Master's Degree programmes aim at accelerating the passage from academic education to scientific activity, and it is in this context that the NMPLIS project has evolved in Armenia. The new Master's Degree programme in Library and Information Science commenced in 2010 with 6 students enrolling, with a further 8 in 2011 (Hopkinson and Zargaryan 2009a, 2009b; Corradini forthcoming; Johnson forthcoming).

Future challenges

The United States was the first country to establish a mission in independent Armenia, in 1992 (French 2003), and its government's assistance for library redevelopment has been generous. American support has also come from the Eurasia Foundation, the Carnegie Foundation, and a university library and a local library cooperative in south Florida, SEFLIN (Free 2008). Between 2003 and 2005, ALA also collected over $450,000 worth of new scientific and library science books donated by publishers and sent them to libraries in the 3 Caucasus Republics. Organisations in other countries that have provided support include the (Soros) Open Society Institute, the Izmirlian Foundation, and the British Council. The Gulbenkian Foundation is also reported to have supported some activities in some research institutions within the National Academy of Science and in Yerevan State University (Schmidt-Braul 2004). Donations from all sources have mainly been books, computers, and training (Schmidt-Braul 2004). However, it is beginning to be recognised that there can be no assurance that such assistance will continue indefinitely. Book aid is notorious for providing materials that are inappropriate for local needs and whose cataloguing further absorbs scarce professional time. The regular replacement of computers represents a new and particular challenge for budgets that are already stretched.

The local professional community has clearly recognised the importance of raising awareness of the role of libraries to secure the financial allocations necessitated by such replacements and to underpin further developments. Armenia successfully celebrated its first ever National Library Week in April 2002. This new advocacy initiative was encouraged by the American Library Association and supported by grants from the Carnegie Corporation of New York. National Library Week included a variety of activities, some of them involving the Chair of the National Assembly, the Speaker of the Parliament, and the Vice President of the National Academy of Sciences. The goal was that it would become an annual

event (Hayrapetyan and Shatirishvili 2002). All-Armenian National Library Week is celebrated each year, under the aegis of the Armenian Library Association (Hayrapetyan 2002). Whilst this may have some support from the government, it seems that a high-level forum needs to be created in which a regular dialogue can be maintained to enable the development of library and information services and the associated education and training activities to be integrated with government policies and priorities in all sectors of the economy and society, and to ensure that they are allocated sufficient resources to enable them to fulfil their agreed role.

Conventional wisdom suggests that a large number of graduates need to be produced from a new degree programme for it to make an impact on the quality of services and public perceptions of them. In Armenia, the number of graduates from the new Master's Degree programme who secure directly relevant employment may be limited by the number of jobs available in libraries and information services (although their organisational and technical skills may present a wider range of opportunities). However, the course team could make a further significant impact on professional development in the country by offering courses during the vacation periods, particularly to make full use of the computer laboratory that has been provided by the TEMPUS project.

Currently there is almost no specialized professional literature published in Armenian (Kazaryan 1999; Plassard 2000). A further contribution to professional development would be made if teaching materials prepared by the course team could be made openly available online for the benefit of the library community in the country. To underpin this, access to an adequate range of up-to-date foreign material will be essential for the teachers to maintain the currency of the new Master's Degree programme as well as to ensure that the programme's graduates continue to modernise professional practice in the country.

The undergraduate programme in the State Pedagogical University should not be seen as competition for the Master's Degree course, but as a potential collaborator. Its continuing existence will provide larger number of recruits into the professional workforce. Collaboration in modernising the undergraduate programme will minimise the risk of the rejection of progressive ideas and practices, and facilitate the assimilation of the Master's Degree graduates into the workforce.

Some students who have completed the undergraduate library science course may wish to progress to the new LIS programme in ISEC to take a Master's Degree. Experience elsewhere indicates that their familiarity with some course content that is common to both programmes will create tensions, notwithstanding the different levels of learning outcomes that are required, and a separate programme may be required. It seems unlikely that there will be sufficient applicants for Master's level education in the field to justify the resources required for the development of independent programmes in two institutions.

Concluding remarks

The professional community in Armenia had a proven record of successful initiatives before the collapse of the USSR and its centralised system of library

and information services. These experiences helped to secure the generous external assistance that has sustained development through the last twenty years, albeit to different extents in the various sectors of library and information work. The NMPLIS project could, however, be seen as part of a sequence of related developments, as the need for modernising the professional manpower emerged from earlier investments in new systems. Although it is disappointing that the government appears to have been slow to take action on the recommendations for a more strategic approach to development that were made by the expert advisers provided by Council of Europe's STAGE project (Cultural 2001; Haavisto 2005; Johnson Forthcoming), it is encouraging that a law on Libraries and Library work was adopted by the National Assembly of Armenia on 21 March, 2012, the first ever national legislation in this field.

Note

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Professor Ian Johnson held senior managerial positions at the Robert Gordon University from 1989 to 2007, and served as Chairman of several British and international bodies concerned with education for Librarianship and Information Studies, and as Chairman of the IFLA Professional Board. He has led or participated in several projects concerned with the development of libraries and Schools of Librarianship in Eastern Europe and the former Soviet Union that were sponsored by UNESCO, the European Commission, and other agencies. He is currently Joint Editor of *Libri: international journal of libraries and information services*; and a member of the editorial boards of *Education for Information*, and *Information Development*.

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