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

Abstract

The paper is a report on the development and current state of libraries and information services in Uzbekistan. It was initially prepared as background for a project supported by the European Commission's TEMPUS programme that provided technical assistance for developments in Armenia, Georgia and Uzbekistan. The paper is based on a review of the published literature and data gathered during the implementation of the project, and addresses a wide range of issues that were encountered. It provides some background information on the country, the state of publishing and bookselling, and the dissemination of research results; briefly describes the development of libraries and information services, and professional education; 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. It notes that, while the activities of international governmental and non-governmental agencies to offset the catastrophic effects of the disintegration of the centralised Soviet system may have lacked coordination, the national government of Uzbekistan appears to be taking a more strategic approach to the development of its library and information services.

Introduction

The collapse of the Soviet Union was catastrophic for the library and information services of the newly independent countries. The highly centralised system had created a substantial infrastructure (Serov 1980), but the collaborative efforts that had underpinned it were no longer sustained (Sochocky 1994; Richards 1999). This paper was prepared as a background study for a Joint European Project, NMPLIS (*New Master's Programmes in Librarianship and Information Science*),¹ which was supported between 2009 and 2012 by the European Commission's TEMPUS programme (*Trans European Mobility Programme for University Studies*)² to develop the human resources underpinning the modernisation of library services in Armenia, Georgia and Uzbekistan. It is based on a review of the published literature, and other data gathered before and during the implementation of the project. The paper outlines the factors that have influenced the national development of library and information services in Uzbekistan, including educational reform, publishing and bookselling, and the dissemination of research outputs; outlines international development assistance

¹ NMPLIS website URL - <http://www.flib.sci.am/eng/Tempus/>

² TEMPUS website URL - http://eacea.ec.europa.eu/tempus/index_en.php

that they are reported to have received; describes their current situation; and outlines the contribution of NMPLIS to developing the human resources required. Finally the paper indicates some of the remaining problems and future needs.

The fragmented literature about librarianship and information work in Uzbekistan is not fully captured in the major indexes to the literature of librarianship. External agencies' inability to form a full appreciation of the situation, or simply a lack of adequate preliminary research on their part, seems to have resulted in general in much of the assistance that the post-Soviet Republics have received being uncoordinated and sometimes inappropriate or unsustainable (Johnson forthcoming). This paper notes that, while the activities of international governmental and non-governmental agencies to offset the effects of the disintegration of the Soviet Union in Uzbekistan have lacked coordination, the national government appears to be taking a more strategic approach to the development of library and information services and much external assistance has responded to this. In providing a comprehensive overview of the situation in Uzbekistan, it is expected to be of value to future projects intended to assist the development of that country's libraries and information services.

Uzbekistan: History, Population, Governance, and Economy

In the first millennium BC, nomads established settlements wherever water was to be found in the arid lands of central Asia, thus creating staging posts along the east-west trade routes that came to be known as the 'Silk Road.' Evidence of earlier cultures seems to have been largely destroyed when the region came under Arab and Muslim influence in the eighth century A.D. For many centuries, the region was ruled as part of Arab and Persian empires, whose wealthy elite followed the Muslim tradition of establishing libraries in mosques and *madrasas* (Muslim educational centres), open to the public. Today about 88% of the population is Muslim, and Uzbeks are proud of their Islamic heritage as well as their country's place on the traditional 'Silk Road' between Europe and China. The early libraries were noted as well endowed and well used, but there - as elsewhere - they were destroyed by the Mongols (Harris 1995). Timur (a.k.a. Tamerlane the Great, 1336-1405) subsequently defeated the Mongols and made Samarkand his capital in 1370. He is said to have collected books from libraries in the cities in the Middle East, the Caucasus, and India that his Turkic army looted, and took them to Samarkand where he established a new, large library in the last decades of the fourteenth century.

In the sixteenth century, nomadic Uzbeks seized control and moved their capital to Bukhara. In the second half of the nineteenth century, Russia invaded Central Asia, incorporating it into the Russian Empire, and, in 1886, Samarkand became the capital of the newly formed Samarkand Oblast of Russian Turkestan. The Russians seized the substantial libraries that had been collected by local rulers, sending much of their contents to St. Petersburg (Rakhmatullaev and Khabibullaev 2012). The Uzbeks are fiercely independent, and rebelled against Russian control in 1916. The local Soviet's hostility towards the Muslim religion was evident after the 1917 Revolution in Russia, and stimulated resistance to Soviet control, but in 1920/21, the Red Army crushed the resistance. In 1924, Russian Turkestan became a constituent Republic of the Soviet Union but, in 1925, the former Russian colony was divided into several Republics, with boundaries approximately reflecting the distribution of the major Central Asian

ethnic groups, and the Uzbekistan Soviet Socialist Republic was created with its capital in Samarkand. Tashkent became the capital in 1930 (Carlisle 1973). The Republic has been independent since December 1991.

The economy is based largely on agriculture and mineral production. Cotton growing, introduced by the Russians, and cereal production are major elements in Uzbekistan's economy, but the relocation of industry within the USSR during World War II hastened the growth of light industry and machine manufacturing in the country. After the death and denunciation of Stalin, traditional cultural and religious values were given more recognition. Tourism was encouraged, as part of the Soviet's attempted rapprochement with the Arab world, but suffered a setback after a major earthquake in Tashkent in 1966 (Carlisle 1973). Along with many of the former Soviet Republics that formed the Commonwealth of Independent States, Uzbekistan's economy declined during the first years of transition, and then recovered after 1995 as the cumulative effect of policy reforms began to be felt. The Uzbek government has chosen to manage a more gradual transition to a market economy than many of the former Soviet Republics (Education 1998).

The Republic of Uzbekistan is a landlocked country in Central Asia, lying south-east from the Aral Sea to the border of Afghanistan. In population terms, Uzbekistan was one of the largest of the Soviet Republics (Carlisle 1973). It has a current population of about 27.7 million, some 80% being ethnic Uzbeks. In recent years, the Turkic nationalities such as the Uzbeks have had a faster rate of population growth than the ethnic Russians in their Republics. About one third of the population is under 14. Its land area of 447,400 sq. km. (172,700 sq. miles) is comparable in size to Sweden or California. However, the estimated GDP per capita in 2010 was \$3,022, compared with \$37,775 in Sweden and \$47,123 in the USA.

Education and Research

Education had followed the standard Soviet model of mandatory education, free for all, with complete state control (from Moscow) of curricula and teaching methods, and close integration of education activities with other aspects of society. In the post-Soviet era, funding has not been sufficient to educate the expanding younger cohorts of the population effectively. Moreover, between 1992 and 2004, government spending on education dropped as a proportion of the total budget.

Local authorities are involved in the administration and financial management of primary and secondary schools (Education 1998). Uzbekistan has achieved a 99% literacy rate among adults older than 15, but Soviet educational methods did not encourage students to engage in active synthesis, independent, creative thinking, or evaluation and to question why things are not done differently and better (Turturica 2006). However, during the 1990s, new national programmes have been worked out at primary and secondary levels, introducing more progressive teaching methods and quality monitoring (Education 1998).

Higher education is a government responsibility, and the Ministry of Higher and Specialized Secondary Education is responsible for the higher education system. There were 158 Higher Education Institutions (HEIs), but mergers and

restructuring has reduced them to about 67 HEIs, including 2 academies, 16 universities, and 44 institutes. Universities and institutes are both research and teaching institutions, responsible not only for graduates entering all branches of society but also for the preparation of future academics, school teachers, and researchers. Institutes are responsible for the preparation of various specialists.

The Uzbekistan Academy of Sciences is the leading institution in all types of research, as it was in the Soviet system. The highest level of graduate studies, Candidate of Science and Doctor of Science, could only be conducted within the Academy. As of today, there are more than 20 disciplines in which it is possible to defend a thesis at these levels. However, a western style PhD qualification is to be introduced in 2013.

The state higher education system is not unified. HEIs operate under the aegis of several Ministries:

- The Ministry of Higher Education administers 32 universities and institutes to offer students a variety of programmes including economics, engineering, finance, languages, oriental studies, architecture, chemistry, and technology.
- The Ministry of Public Education administers 6 institutes for the training of teachers in elementary, secondary, and higher education.
- The Ministry of Health administers 7 institutes for medical and pharmaceutical training.
- The Ministry of Agriculture administers 4 institutes for training students in agriculture, agricultural mechanization, irrigation, and agricultural economics.
- The Ministry of Culture administers 3 institutes for the study of art, music, theatre, and cinema, all of which are in Tashkent.
- The Ministry of Justice administers 1 law institute in Tashkent.
- In Samarkand, Uzbekbirlashov, the cooperative company, administers the Cooperative Institute.

Finally, there are the Uzbek State Institute for Physical Training, the Tashkent Institute of Railway Engineers, and the University of World Economics and Diplomacy. The latter operates directly under the auspices of the President, and prepares students majoring in journalism, world diplomacy, and economics.

In 1999/2000, the higher education system provided education to about 166,000 students. While this might seem large, it is only about half the number there were in 1992, because of emigration and a lessening of interest because of limited economic opportunities. This has enabled a comparatively low student-teacher ratio, about 9:1, to be maintained (Education 1998). Because higher education in the Soviet system was free and the government provided assistance in the form of stipends, the demand for admission to university was always very high. The stipends covered only some of life's expenses. Many students had to have their parents' support, or themselves work at night to sustain. Nonetheless, thousands competed for the limited places each year (sometimes over 10 candidates per place). This system allowed universities and institutes to select the best individuals by giving entrance exams. Unfortunately, nepotism and corruption was rife and the results of these examinations and selections were too often influenced by high-ranking officials, but, since 1993, admission to HEIs has been based on merit.

Despite legislative provisions allowing for private educational institutions, the state continued to keep a *de facto* monopoly over the higher education sector. As a result, the private education sector did not develop rapidly (Turturica 2006). All universities and institutes are public. Private institutions of higher education were not available until the Management Development Institute of Singapore established a campus in Tashkent in 2008.

Teaching styles and techniques at the higher education level vary greatly from, for example, a pure lecture style to absolute improvisation. Technology such as TVs and VCRs is in use, but computers and LCD projectors have been quite rare because of the high cost, inferior maintenance structure, and high probability of theft. A gap between the level of adoption of modern information technologies in the HEIs in Uzbekistan and that in similar universities in the developed countries became a serious obstacle for the development of the whole educational process at the beginning of the 1990s. Lack of opportunities for communication with the rest of the world, even in the simple formats of e-mail and file exchange, inhibited collaboration between researchers of the country and their peers in the more developed countries (Garnov, Karimkhodjaev and Norboev 2002a; 2002b; 2003). The Internet has since become an essential part of every HEI, to the extent that there has been a problem with the speed of the Internet in some universities. Even though the network infrastructure of the education system is a priority state policy, the number of users is rising faster than enhancement in the broadband capacity of their networks. Annual testing of teachers by the Government's Test Centre obliges university teachers to use modern teaching technologies such as PCs, LCD projectors, network technologies, Internet, etc.

The Soviet-style higher education system differed from the western model in offering a five-year education that reached the equivalent of the Master's Degree level. To simplify understanding of the international equivalence of qualifications, the educational authorities decided to adopt the western system and reduce undergraduate programmes to four years. According to some sources, the transition to the international system with Bachelor's (four years) and Master's Degrees (two years) has been completed. Uzbekistan has not, however, committed itself to the Bologna principles that are promoted by the European Commission. Instead, in 2002, it joined with the Commonwealth of Independent States' (CIS) Council for Cooperation in the Area of Education in agreeing the methodological approaches that CIS countries should adopt when licensing, accrediting and periodically evaluating educational institutions.

During the transition period, when curricula were being changed to support nation-building and promote the national languages, there was a shortage of relevant new textbooks and other teaching materials (Education 1998), exacerbated by a shortage of paper, much of which had previously had to be imported from other Republics (Sanyal, Kitaev and Tun Lwin 1994). The modernisation of higher education was also hindered by a shortage of laboratories, libraries, computers, data banks, and publishing facilities to disseminate research findings. However, some progress can now be seen.

The process of development has been accompanied by structural changes in demand for knowledge and skills. There was a mismatch between supply and demand for graduate skills in Uzbekistan, and a lack of appropriately trained staff

in the Higher Education Institutions. New strategies were required for matching education and training with the need for human resources, and for qualitative assessment of the outcomes of education. This entails regular re-assessment of the number of people required with different levels of education, and factors that impinge on their employment such as attitudes to relocation (Sanyal, Kitaev and Tun Lwin 1994).

Nearly 34,000 people work in the scientific sphere, including 2,800 Doctors of Science and approximately 16,100 Candidates of Science (Must 2007). For the period from 2003 to 2005, the Uzbek government allocated €3,665 million for research support to HEIs (Must 2007). Distribution of the sum among the Ministries was as follows:

- Ministry of Higher and Secondary Special Education: €2,823 million
- Ministry of Health: €289,000
- Ministry of Agricultural and Water Industry: €256,000
- Ministry of Public Education: €61,000
- other Ministries: €199,000 (R&D in CA 2007).

Language Issues, Publishing, Bookselling, and Bibliographical Control

Traditional Uzbek moral and educational values survived Soviet rule, with institutions such as the *mahalla* (local neighbourhood community) and family and ethnic traditions remaining very strong, even though modern values are taking hold in the cities (Gygi and Spyridakis 2007). As late as the third decade of the twentieth century, recitations of epic tales by semi-professional bards, called *bakhshis*, were a popular form of entertainment in the Uzbek countryside. Samarkand had been famous as a centre for paper-making as early as the eighth century, but no written version of an oral epic exists prior to the nineteenth century when several manuscripts were collected and lithographs printed (Feldman 1980).

During the Soviet era, Russian was the language of higher education and official correspondence (Bruchis 1984). It became the language of the elite, although Uzbek remained a widely spoken language. A 1989 language law made Uzbek the official state language, while giving Russian the status of the 'official language of inter-ethnic communication' (Wei and Kolko 2005). Russian is now still widely spoken, but Uzbek is the most common language, while other ethnic languages are spoken in various regions in this geographically large country (Wei 2004). A revision of the law in 1995 revoked the special status given to Russian (Wei and Kolko 2005). Today most school children have little or no proficiency in the language.

The Uzbeks had used Arabic script until 1917, and then adopted Cyrillic, but new laws in 1993 and 1997 signalled a further shift, to the Roman alphabet (Myhill 1997; Wei and Kolko 2005).

While cultural diversity may have interfered with efficient government, the Soviet government nonetheless developed a native language press in the Republics (Walker 1978; Beynen 1986). In Soviet Uzbekistan there were about 8 publishing houses, producing about 2,000 books each year, 80 periodicals and 256 newspapers. Training for the staff was provided in the State Institute of Culture (Nemirovsky 1981). In 1970, there were almost as many books

published in Uzbek (898) in the country as in Russian (951) (Carlisle 1973). Although the output of the book publishing industry in the USSR levelled off generally in the 1970s as the economy came under stress and funds for printing were redirected to other areas (U.S. Information Agency n.d.), book production in the Turkic-language Republics remained steady. The number of new publications increased from the middle of the decade, especially in the Uzbek SSR. This growth probably indicates the presence of powerful groups which aimed at preserving Turkic languages and culture. Nonetheless, no more than 700 titles in Uzbek were published each year at the peak output in the 1980s (Beynen 1986).

Uzbekistan typified the old centralized Soviet system of publishing, which was essentially monopolistic. Publishing was the sole responsibility of the state. The present ownership status of many of the former state publishers is not always easy to determine. Uzbek publishers still tend to specialize, as they did in Soviet times when one publisher served the needs of one Ministry. This was true not only for education and educational materials, but in the fields of medicine, agriculture, law, etc. Although nominally independent of the state, a publishing company may still rely on it for practically all of its orders, particularly as traditional bookshops are few.

The active retail sector is mostly to be found on the streets. Journals and magazines predominate, with many titles aimed at the teenage market. Second-hand school textbooks are also easy to find on the dealers' stalls. The logistics of distribution outside Tashkent are complicated. Books are generally transported by truck, like most other commodities, with the conditions of many roads depending on seasonal weather because the road infrastructure is deteriorating, particularly outside Tashkent (McCall 2002).

New publishing houses have sprung up since 1990, none of them very large so far, but about 1,200 new titles are published each year (Dzhigo & Teplitskaya 2006). The main challenges facing an emergent commercial publishing industry in a country such as Uzbekistan are not technical. With the arrival of a demand-led book market, Uzbek publishers needed to hone their marketing skills. Western practices in author/publisher relations were also new to Uzbek publishers. Those authors who wrote for the state publishing houses tended to be either teachers, lecturers, or professors with a specific skill or specialization. They were paid very low rates, based on an elaborate system of word counts. There is still a lack of professional writing expertise, but publishers are now experimenting with royalty-based payments that reflect the value of the author's contribution. The shortage of authors is compounded by a shortage of editors - at least that kind of editor who is sensitive to market opportunities. Editors *per se* exist in publishing houses, but work in effect as project managers, and the risk-based skills of commissioning in the Western sense have been hard to find. Perhaps ten or a dozen publishing houses seemed to have the capacity to expand and contest market share. In 2002, the British Council organised a seminar on publishing management for editors and managers from Uzbekistan publishing companies at the request of the Uzbek Ministry of Public Education (McCall 2002). More recently, a campaign to support the revision and implementation of copyright law has been funded by eIFL,³ a foundation that supports the

³ eIFL web site URL - <http://www.eifl.net/>

development of national consortia of academic libraries for purchasing electronic journals and promotes open access online publishing through the development of institutional repositories, but it is not clear whether a new law has yet been passed.

To date, scholarly and scientific writing by Uzbeks seems to have made little impression outside the country, according to a study during the PHOENIX project, which was funded within the European Commission's Sixth Framework Programme in 2006 and 2007. Some bibliometric indicators that were extracted from the *Web of Science* for 1996-2006, which records articles published in peer-reviewed mainly English-language scientific and scholarly journals, suggest that the country's intellectual skills are not yet reaching a wide audience.

<Insert Table 1 here>

Country	GDP (\$000 million)	POPulation	Published Articles	PA/GDP	PA/POP
Kazakhstan	77.2	15.3	209	2.7	13.6
Kyrgyzstan	2.7	5.2	37	13.8	7.2
Tajikistan	2.8	6.7	34	12.3	5.1
Turkmenistan	10.5	4.9	8	0.8	1.7
Uzbekistan	17.2	26.5	322	18.7	12.2

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

They revealed that, among the Turkic countries in the region, Uzbekistan had published more articles per million inhabitants (PA/POP) than most of its neighbours, and significantly more in the context of its GDP (PA/GDP) (Moed 2007). The small absolute number of papers reflected the fact that, in the USSR, it was considered that there was no need to be published in foreign journals in order to establish a scientific reputation. Learning English was also not encouraged, and use of English-language scientific literature remains limited for this reason (Gibradze 2004). However, Russian is increasingly losing ground as a language for scientific communication, and being replaced by English, particularly among younger researchers. A French project has facilitated online publication of Uzbek medical research (Review 2008), demonstrating what might be possible in other disciplines. The citation record may, therefore, change in time.

It must, however, be a significant concern that the data reveals that a high proportion of citations of papers by Uzbek scientists are self-citations by the authors, suggesting that their work has made little impact on their peers within the country. They also appear to have enjoyed little external collaboration in their research. Moreover, the study reveals that Uzbek scholars in the social sciences and humanities, although they published very little in English language journals between 1996 and 2007, were more likely to have external collaborators than the country's scientists, possibly reflecting interest in the country's history and culture, but suggesting weaknesses in the country's science base (Must 2007).

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). The Soviet Union's commitment to the development of library services in Uzbekistan is perhaps best reflected by the report that at the time of the country's incorporation in the USSR, there were said to be 14 libraries, while that number had risen to 12,000 by the early 1970s (Muchamedov 1972). By the beginning of the Millennium, there were more than 15,000 libraries in Uzbekistan, about 7,000 of them being public libraries (Rakhmatullaev 2002). Most seem to have survived the transition. There are currently said to be around 14,000 libraries and information services. However, during the economic crisis in the 1990s, many smaller libraries were prevented by financial constraints from acquiring new books (EurasiaNet 2003).

A Presidential Decree (No.381, 20 June 2006): 'About the organisation of information and library provision for the population of Republic' placed librarianship and the implementation of new information technologies among the top priorities in the country. The Resolution led to the significant changes in the organizational structure of libraries in Uzbekistan, and also addressed the establishment and creation of cooperative library systems as a key issue. In addition, an Interdepartmental Council coordinating the activity of the information-library system of the Republic was also created in 2006. The Council is a collegiate body that coordinates and directs the activities of the libraries and information centres of the Republic. The main tasks of the Interdepartmental Council are:

- implementing strategic priorities for the development and operation of the national information-library system and national information-library resources of the Republic;
- managing and coordinating the work of the information-library centres and information resource centres;
- making recommendations on optimal functioning of the IRCs and ILCs in the light of scientific-information activities in the country and abroad.

Uzbekistan still maintains some elements of the former centrally planned economy. In 2011, approval was given to the new state programme of support for libraries from 2011 to 2015.

National Library

The origins of the National Library lay in the establishment of the Tashkent Public Library in 1870, the first publicly-accessible library in Uzbekistan. It became the State Republican Library during the Soviet era, and in 1948 was renamed in honour of Alisher Navoi, a fifteenth century politician and poet who is regarded as the national poet of Uzbekistan and considered by many throughout the Turkic-speaking world to be the founder of early Turkic literature. Legal deposit of Soviet publications had swelled the collection to 1.5 million items by 1945 (Usmanov 1946). In 1991 it was further renamed as 'Alisher Navoi Uzbekistan

Turkic Library,' but without any significant change in its role. By then a collection of 5 million items had accumulated, 90% in the Russian language and Cyrillic script, many being the result of automatic distribution by publishing houses throughout the Soviet Union and possibly of little local interest, but also including materials from and about the other Turkic countries. In the mid-1990s, there were 279 staff in the library, 159 of whom had a librarianship qualification (Sernikli 1995). Since independence, Uzbekistan's libraries have also been able to acquire many volumes on subjects that during the Soviet era had been considered taboo, such as political science, management, and sociology, although most such acquisitions are confined to the National Library (EurasiaNet 2003).

Throughout the Soviet era, national Book Chambers also enjoyed legal deposit rights and were responsible for bibliographical services. The Uzbek National Book Chamber was established in 1926 (Dzhigo & Teplitskaya 2006), and a national bibliography 'Book Annals' began to be issued in 1928. The Book Chambers also prepared indexes to local newspapers and journals, and a combined index to newspapers and journal articles has been produced in Uzbekistan since 1931 (Whitby and Lorkovic 1979; Beynen 1986). After the collapse of the Soviet Union, "the centralized funding that Moscow had routinely sent to the Book Chambers ceased... A host of challenges loomed before the Book Chambers, and each Republic took a different path to meet them" (Harris 2010).

A Presidential decree (No.VII-3029, February 20, 2002: 'On the Improvement of the Organization of Scientific Research Activity') finally set out plans to develop and improve library services in the light of changes since independence. The 'Alisher Navoi Uzbekistan Turkic Library' was merged with the Republican Library of Science and Technology, and designated as the 'Alisher Navoi National Library of Uzbekistan.' In July 2002, responsibility for the National Book Chamber was transferred from the State Committee on the Press to the National Library (Dzhigo & Teplitskaya 2006). The Book Chamber had a collection of 3.5 million items (Umarov 2003a), covering all forms of printed matter, including e.g. postcards, but its main remaining function now appears to be as an archive. Many of the other services previously provided by the Book Chamber are now the responsibility of the National Library. The Book Chamber's staff in early 2009 was 14.5 employees, compared with 48 in 1990 (Spencer 2010). To house the combined libraries with more than 10 million items, a new building commenced construction in 2003 (EurasiaNet 2003), and opened in 2011.

The different peoples living in Central Asia possessed great culture. However, their struggle for independence continued for centuries. Thus, libraries which might have functioned as *de facto* national libraries, collecting the national published heritage, have repeatedly been ruined. The 70 years of communist control also limited the publication and collection of works reflecting the language, religion, traditions, history, and culture of the region (Sernikli 1995). Nonetheless, the National Library's combined collection includes many rare and antique editions and manuscripts. To preserve the collection, a project 'Uzbekistan Memory Program' has been put in hand, notably facilitating digitization of *Turkestanskij sbornik*, an important collection of sources on Russian imperial Central Asia. Beginning in 1998 the Library also started automating its processes using IRBIS, the automated library information programme developed by the Russian State Scientific and Technical Library on

the basis of UNESCO's CDS/ISIS. Researchers and programmers from the National Library, Tashkent University of Information Technology, and Tashkent State Institute of Culture developed a new automated library system KARMAT to support a union electronic catalogue and electronic library services. With support from the Soros Foundation's Open Society Institute (OSI), a consortium was formed to create a union catalogue of antique and rare editions in the National Library and other libraries in the Republic (Umarov 2003a; 2003b; 2004). KARMAT meets all international standards and is available in different versions for schools, colleges, universities and scientific-technical information centres (Rakhmatullaev and Khabibullaev 2012). It is used in a cooperative library network whose database now contains more than one million records and around 20,000 full text electronic books, including digitised ancient documents and academic dissertations.

One of the National Library's important achievements has been securing a new legal basis for a programme for the strategic development of librarianship in the Republic. The Library acts as the centre for this activity, hosting the Interdepartmental Library Council as a consultative body that coordinates the library interests of the different boards and departments. The National Library has also become the coordinating centre of interlibrary loans in the Republic. To support its activities, the Library is undertaking research work on several themes: history of the libraries, automation of library processes, marketing research, and the sociology and psychology of reading (Umarov 2003a; 2004).

Public Libraries

Public libraries began to be established in Uzbekistan in the nineteenth century (Nazmutdinov 1986). The Tashkent Public Library was established in 1870, only 5 years after the Russian army seized the city. It opened with a collection of 2,200 books, which had grown to about 80,000 by 1917 (Sernikli 1995). The libraries of the system of the Ministry of Culture totalled 6,202, with an aggregate book stock of 73 million volumes (Rakhmatullaev 2000). These included 5,700 public libraries, with 11,300 branches (Seidelin and Hamilton 2005).

In 2001, a project was begun to develop an information and library infrastructure in the Surkhan-Darya region of Uzbekistan adjoining Afghanistan, using the network of public libraries to provide information reflecting the various points of view on the Central Asian situation caused by events in Afghanistan. The Surkhan-Darya region is one of the 13 regions of Uzbekistan and has a population of about 1.8 million. There are more than 420 rural public libraries in the region. The first stage of the project involved:

- Installing computers in 21 rural public libraries participating in the project and connecting them to the Internet. Local prefectures help libraries for Internet connectivity and have paid all the expenses for it. There will be an educational centre for carrying out educational seminars and training courses for rural librarians.
- Technical training to support the 21 rural public libraries of the Surkhan-Darya region for work as information and training centres, through a series of seminars and training courses for about 120 librarians in the region in computer-aided teaching, Internet navigation, learning databases and working with the automated library system, information

service to the representatives of small and mid-sized businesses, marketing and management skills for librarians and others involved in these activities.

Experts from the International Library Information and Analytical Center (a non-profit US-based corporation set up to contribute to cooperation between the USA, Russia and the CIS), the Russia Culture Institute, Uzbekistan Library Association (ULA), and the Fundamental Library of Uzbekistan Academy of Science were expected to participate in these seminars and round tables. The Library Association of the Surkhan-Darya region, with methodical support and monitoring by the ULA and OSI, the main project sponsors, were also expected to monitor the project, holding quarterly meetings of the libraries' coordinators to review the project execution (Rakhmatullaev 2002). However, it was not possible to implement this programme of seminars and monitoring activities.

In 2006, all public libraries that were under control of the Ministry of Sports and Cultural Affairs were transferred by Presidential Decree (No.381, 20 June) into the jurisdiction of other Ministries. The 14 regional public libraries were renamed *Information and Library Centres* (ILC), and the administrative control over them was transferred to the Communications and Information Agency of Uzbekistan (CIAU), which established the Republican Information-Library Centre to coordinate their work. During the last two or three years, the ILCs have received funding from the Agency for rehabilitation and were equipped with new computers connected to the Internet.

School Libraries

The Presidential Degree in 2006 gave University, college and school libraries a new name – *Information Resource Centres* (IRC), and administration of a few college libraries was also transferred to the CIAU.

At the present time, school libraries provide students with little more than textbooks, although there is a perceived need for additional literature, reference books, and electronic media. According to a report by a Moscow-based news Agency, books by Soviet authors began to be banned in schools in 1999-2000. Official textbooks are now written only by Uzbek authors, in both Uzbek and Russian, and were alleged to be of poor quality. The same report alleges that new textbooks are in short supply in Uzbekistan. Regular revision of the curriculum means that books issued in 2003 are considered as outdated, but the bulk of books in current use were published in 2007 and earlier. School libraries receive few textbooks from the government, and could not provide them to every student. According to teachers in Tashkent, there were only 5-6 books per 35-40 schoolchildren. It is said that, at the end of August each year, the book stores of Tashkent see lots of buyers, all are looking for books listed by the teachers. Considering local salary levels, the books are expensive for parents to buy. On the other hand, they are not free in the schools: students have to rent them each year. For instance, the necessary 3rd grade books, rented from the school library, will cost UZS 6,000 (€2.80), while in secondary school they cost about UZS 15,000 (€7). In the remote parts of the Republic, there are no book stores and children have no option but to share books. Moreover, the Russian correspondent claimed to have been informed that additional literature is also in high demand because children were not allowed in the school without 'donations'

to the school library (Ferghana.Ru 2009), but the claim has not been substantiated.

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). With the exception of a few schools specialized in ICT training, ICT spending constituted an insignificant part of total budget of schools at both the secondary and tertiary level (Zita and Skorynina 2001). Secondary schools are now being outfitted as public access points and as incubators for skilled knowledge workers. Their teachers and students are being trained as champions for new technologies. Also, educational reforms intended to promote active and student-centred learning instead of rote learning are being instituted and supported by technology (Gygi, Wei & Kolko 2005). However, in 2008, there were 52 pupils per PC in schools (Review 2008).

The U.S. Department of State's Youth Programmes Division, which initiated the 'Global Connections and Exchange Programme' for secondary school Internet connectivity and curriculum development, hired site monitors at a number of Uzbek schools, and trained them in basic Web design. These advisors helped form and advise Web clubs at the schools. A review of the Web sites for the 60 schools showed that, in some regions, all the schools were linking to each other, working together on projects such as curriculum development. External links on the school sites were limited primarily to the project's local portal and sponsor sites. Interestingly, the site statistics report indicated that the majority of visitors to the portal site were from the United States and the European Union (Gygi and Spyridakis 2007).

A joint project by the Ministry of Public Education and the Asian Development Bank 'Second Textbook Development Project: Component 4 – School Library Development' was initiated in Uzbekistan during 2007-2008. The main goal of the Project was to improve the quality of basic education by establishing an efficient way of providing affordable textbooks, other educational and instructional materials. The project indeed will play a significant role in training highly qualified librarians and information specialists. It includes four components:

- 1) to empower public education policy by reforming the curriculum, modernizing testing, grading systems and related research;
- 2) to create a sustainable system of providing students with affordable textbooks, and to strengthen the basis of the textbook rental scheme;
- 3) to develop textbook publishing by encouraging authors, by implementing Copyright law, and by promoting participation of the private sector in printing and publishing;
- 4) to develop school libraries by providing space, furniture, books, other instructional materials, audio visual equipment, and computers.

The second phase of the Project's component 4, 'The development of school libraries,' is aimed to solve problems of computerization, training of school librarians, and improvement of library services. In this pilot project, 1,000 schools received computers and other equipment, and 1,200 librarians attended computer literacy courses. 28 highly qualified librarians became trainers empowered to teach computer skills, including library automation systems. In

line with the Project and its components, school libraries will be modernized and developed as an instructional resource centres.

University Libraries

In the then Tashkent State University (now renamed as the National University of Uzbekistan), the faculty libraries were semi-autonomous (Myhill 1997). The modernisation of the libraries began to take place alongside the restructuring of the higher education system. As part of the German cooperative programme, a seminar on university library development was arranged by the Goethe Institute at Tashkent Institute of Culture (Vodosek 2003), one of a number of activities that the German agency has supported during the last decade.

The government has recognised the opportunity to enhance the intellectual strengths of students, teachers and researchers through access to the Internet (Zita and Skorynina 2001), and, with support from the TEMPUS programme, facilitated the creation of a national university network (UZUNINET), as well as various training programmes (Garnov, Karimkhodjaev and Norboev 2002a; 2002b; 2003). A local foundation, the Committee for the Development of Information Technology, assisted the National Library to link to the university libraries. Now, Higher Education Institutions, research centres, libraries and museums in Uzbekistan are also linked through a national intranet, Ziyonet (www.ziyonet.uz), and a scientific and cultural network, UzSciNet (<http://www.uzinfocom.uz>). Since 2006, the Agency of Information and Communication has supported Ziyonet, facilitating an increase in the provision of scientific and educational resources.

In the TEMPUS project 'MARACANDA: University Libraries towards the New Millennium,' the libraries of Universitat Politècnica de Catalunya and Trinity College Dublin supported the Samarkand State University libraries in technical renovation, improvement of services and library management, and preservation/conservation of the collection. Although a new automated catalogue was under construction, most of the books were multiple copies of student textbooks, many of which were out-of-date, and collections were not easily accessible for users; electronic resources and library services were insufficiently promoted and used; and valuable collections of rare books were in a bad state of conservation. Through 'MARACANDA,' there were improvements to the internal management and services; introduction of policies for the library stock development; and development of a program for conservation of antique bibliographical materials (Codina *et al.* 2006).

In 2008, there were 128 students per PC in the country's HEIs (Review 2008), compared with about 10 students per PC in Western Europe, but by 2010, this had improved to around 50 students per PC. IT courses in higher education were not preparing their graduates for the local working environment. Only about 10% of academics not teaching ICT-related courses were using the Internet for any purpose (Review 2008). However, a new State programme of support for HEIs during 2011-2015 aims to improve provision to 8-10 students per PC, with high speed Internet and Intranet connections using fibre-optic cables and VPN technology.

At the beginning of the Millennium, purchasing electronic databases, even with significantly discounted prices, did not allow the widespread provision by libraries of electronic information resources because of the limited number of computers and network limitations (Rakhmatullaev 2002). An indicator of more recent changes may be the enthusiastic attendance at an annual seminar on scientific, educational and technical information development and the use of networked information resources in libraries. This first took place took place in March 2009 with encouragement from the National Library, well-known publishers such as Springer, Emerald, and EBSCO, as well as eIFL. Now held in March each year, the main aim of the international conference '*Technologies of scientific and educational information development and use in the network of electronic libraries*' is introducing new technologies and databases of scientific, economic and educational information and their use in university and other libraries.

Recently, a UNESCO project supported the introduction of electronic libraries in Tashkent University of Information Technology and its branches. The aim was to develop an e-library of scientific and technical information by the end of 2011. The Agency on Telecommunication and Information helped to connect the branches of TUIT through fibre optic. Another two year project 'Tashkent Universities Corporate Information Library Network' is funded by the Cabinet of Ministers' Committee on Science and Technology Development. The project goal is the creation of a system to support the research and educational process through information exchange between the Tashkent universities. The main server will, however, be in the National Library.

Specialist Libraries and Information Services

There were 3 regional information centres of the state scientific and technical system of the USSR in Uzbekistan, providing local users with information that was sourced centrally (Arutiunov 1976). Subsequently, one of the important efforts in the development of library services in Uzbekistan has been the creation of the Republic's Network of Scientific and Technological Information (RNSTI), initiated by the State Committee for Science and Technology. This is focused on the integration of scientific databases and the implementation of international standards for describing and representing bibliographic data. Forming a nucleus of the RNSTI are those organizations which have the basic information resources. These are the State Fund of Science and Technology Information with the Republican Scientific and Technical Library, the Fundamental Library of the Academy of Science and the libraries of the Academy's institutes, the National Library, the Patent Department, the Libraries of Tashkent State Technical University and Tashkent State University, and various medical and agricultural libraries. The Information Centres of Ministries, departments, and regional centres in the districts of the Republic, were also connected to the RNSTI (Rakhmatullaev 2000). Later, state policy was changed relating to RNSTI, and it was decided to pay more attention to developing the telecommunication infrastructure, Internet, and creating e-libraries.

The Regional Agricultural Information System for Central Asia and the Caucasus (CAC-RAIS) was established in Tashkent in 2004 by the Central Asia and Caucasus Association of Agricultural Research Institutes (CACAARI - <http://www.cacaari.org/>) to increase the effectiveness of agricultural research in the region by improving and strengthening information facilities, developing

regional synergy, and increasing data capacity for end users (Khalikulov 2009). A comprehensive study of the agricultural information services in Central Asia and the Caucasus was the subject of a CACAARI initiative in 2007 and supported by the Global Fund for Agricultural Research. This found that the libraries were not able to purchase international publications, primarily because of the costs involved. However, their problems were relieved to a limited extent by access to information freely available through the Internet from FAO-AGORA, the U.S. National Agricultural Library, the AgroWEB Network, and open access sources such as BioOne (Shatberashvili and Maru 2008).

Socio-economic changes in Uzbekistan after 1991 led to a growth in the number of legal documents, and an increase in the interest of citizens in legal information. A large number of legal documents were available only in libraries that were not open to the public. Even the National Library had a very limited number. In the late 1990s, law libraries in Tashkent started collaborating with the American Bar Association. Subsequently, the Eurasia Foundation, OSI, and other international organizations also actively supported small information centres, first in Tashkent and then in the provinces, to provide general and legal information (e.g. on human rights, environmental law), or focusing on certain target groups (women, invalids, etc.). Since 2000, government bodies began to participate more actively, providing 13 Public Centres for Legal Information in regional public libraries. A project supported by the Ministry of Culture and OSI, aimed at the implementation of support for these centres, by providing online educational materials for librarians as well as access to both foreign and local legal sources. OSI helped with computers and other equipment, while BECA (Bureau of Educational and Cultural Affairs of the United States Department of State) and the IREX (International Research and Exchanges Board – a U.S. non-profit organization) Internet Access and Training Program granted funds for the development of the Open Library for Legal Information (Stalbovskaya 2002).

Some special libraries, such as the Library for the Blind, remain under the Ministry of Sports and Cultural Affairs. The medical libraries remain the responsibility of the Ministry of Health Care, and in 1992 the American International Health Alliance (AIHA) and USAid initiated the Hospital Partnership Project, through which a number of online databases were made available to partner libraries, and training for their staff was provided (Teplitskaia 1997).

The situation of other special libraries has not been widely reported, but it is known that, for example, a Virtual Library was being developed in the Agency of Financial News with the support of the 'Eurasia' fund (Rakhmatullaev 2000).

Rare Books and Archives

The Soviet government had generously supported the purchase of several important collections of ancient manuscripts by the Tashkent Public Library but, sometime before 1946, the entire collection that had been built up, said to be about 70,000 items, was transferred to a new research institute that had been established by the Academy of Sciences to study them (Usmanov 1946). A few years ago, it was said that there were then more than 45,000 manuscripts in Uzbek, Arabic, Persian, and other languages in the collection of the Beruni Institute of Oriental Studies of the Academy of Sciences, the core of the collection having been formed when the Tashkent Public Library was being

established. Later it was enriched by the addition of several public and private collections gathered from throughout the country (Collection 2008). To house this collection, the Omani government agreed, in 2009, to provide funds for the construction of the Abu Alraihan Albairuni library at the Oriental Studies Institute in Tashkent (Oman 2009).

Elsewhere, rare books have been lost, and not only through theft. Many libraries in Central Asia occupy buildings that are dilapidated and vulnerable to fire and flooding (EurasiaNet 2003).

Managing the Technical Infrastructure

Development was initially handicapped by slow progress in the national adoption of ICTs. Initial attempts to enhance Internet technology in Uzbekistan began in the 1990s. In 1992, the Ministry of Communications established a scientific research centre, and the UZ Internet domain was established in 1995 (Review 2008). The programmes of NATO, OSI, IREX, EURASIA Foundation, and others have contributed to developing the information infrastructure. For example, since 1994, the NATO Science Programme has been one of the major supporters of academic networking in Central Asia, helping to create an appropriate infrastructure for the communication needs of the scientific community. Until 1996, all Uzbekistan's international telephone lines still went through Moscow (Myhill 1997), and connections were slow. A NATO infrastructure project in Uzbekistan increased access to external Internet traffic by a factor of six.

Nonetheless, in 1999 the Uzbek government unsuccessfully tried to close all independent Internet Service Providers (ISP) (Kolko 2002). In December 2000, there were 13 Internet cafés in Tashkent, 3 public access points, and 1 official ISP - the government's telecommunications company. Personal PC ownership was minimal (Kolko 2002). Internet traffic remained expensive - about €0.75 per hour in 2002, and the existing telecommunication infrastructure did not satisfy the constantly growing demands (Rakhmatullaev 2002; Kolko, Wei and Spyridakis 2003). In 2001, an estimated 95% of Internet users were in Tashkent. Overall usage of ICTs in the daily life of the people was low, with negligible usage of ICTs in government and commerce. Educational institutions at all levels had limited access to computers, telecommunications, and expertise (Zita and Skorynina 2001).

In October 2002, the government monopoly on access to the Internet was officially ended. There has been a steady improvement in international telecommunications bandwidth. While an increasing number of people have gained access to information technology in recent years, the latest research indicates that Uzbekistan still suffers from low Internet and personal computer (PC) penetration rates, and a 'digital divide' still remains. Official statistics suggested that the number of Internet users in Uzbekistan doubled between 2001 and 2002 to 275,000 (Kolko, Wei and Spyridakis 2003). The Uzbek government suggested that Internet users in 2004 were only 2%-3% of the population (Wei and Kolko 2005). As of 1 July 2007, the estimated number of Internet users was still only 1.8 million, although this was increasing. According to Internet World Stats, the estimated number of Internet users had risen to 2.4 million people by December, 2008, almost 9% of the population (Rakhmanov 2009). Official statistics do not define 'user,' and such levels have been

questioned (Kolko, Wei and Spyridakis 2003). Growth in the take-up of broadband access within the country has been slow. ISPs are charging subscribers €18-€48 per month for Internet access (Review 2008). However, there are wide opportunities for everybody to communicate through the Internet using numerous Internet cafés and Wi-Fi zones.

One of the major strategic directions in the development of a library and information network for the Republic was the creation of the National Information Science and Education Network (UzREN), designed to provide open and cheap access to technology, education, and popular information (Rakhmatullaev 2002).

The United Nations Development Programme (UNDP) initiated a major global effort to promote information and communications technologies (ICT) in support of national development, and the UNDP's Country Office in Uzbekistan identified ICTs as one of the priority areas for the country. The *Human Resource Development for Change* (HRDC) programme, co-hosted by the State Committee for Science and Technology, was agreed in March 2001, and is designed to accelerate adoptions and usage of ICTs in Uzbekistan through research and analysis, pilot interventions and policy advice (Zita and Skorynina 2001). USAid also began to take a particular interest in supporting developments in the region (MFM Group 2001).

The Government drafted a programme for the introduction of electronic technologies into governance during the period of 2003-2010, supporting a broad introduction of the electronic document circulation in governance, improvement of services provided to individuals, and openness of government decision-making. Particular attention was paid to training and retraining of civil servants on raising their awareness and developing their skills for effective use of modern information technologies, assisted by a number of grants from the European Union, NATO, USAid and private foundations.

Although delays in the application of ICTs in libraries significantly degraded the quality of their services, Uzbekistan has since made progress in some key areas in promoting the Internet as an information resource in the public sphere (Garnov, Karimkhodjaev and Norboev 2002a; 2002b; 2003). However, a number of factors hindering e-government development in Uzbekistan remain, including:

- unreadiness of existing public administration bodies to perform their duties under conditions of information openness, accessibility and transparency for citizens and private sector;
- lack of effective mechanisms promoting ICT introduction in all areas of social life;
- users differing in their knowledge and skills with respect to a specific technology and may perceive different levels of complexity in its use;
- all governmental web-sites have information in Russian language; only 19% of them present information in Uzbek (Rakhmanov 2009).

Information technology has now become a crucial component for economic and educational development. Progress has been rapid. An increase in the number of web sites in Uzbek may encourage greater use, although there appear to be not only economic problems limiting access, but also cultural aspects of information-seeking behaviour that need to be inhibiting use of electronic information and that need investigation (Spyridakis, Wei & Kolko 2003).

According to the Presidential Decree in 2006, IRCs and ILCs not only have to be equipped with computers and connected to the World Wide Web, but they also have to become centres for developing national information resources, electronic libraries and databases. The main task assigned to IRCs and ILCs was the creation of electronic libraries and databases that combine all their information resources in a union catalogue. The libraries of the higher and middle special education system are actively engaged in creating their own electronic resources, making textbooks available and providing access to other scientific-educational electronic resources. During the last ten years, the introduction of the Russian automated library system IRBIS and locally developed automated library systems such as KARMA and KADATA has resulted in a requirement to train qualified specialists in more than 40 libraries, and the National Library and the majority of ILCs now have experience of creating electronic catalogues and full text databases. Recent decrees require the provision of electronic libraries for all levels of education.

A national search engine (located at www.uz) provides quick access to all sites registered to the UZ domain. Russian and English are the languages principally used on the Internet. There has been little Uzbek content (Wei 2004). The Uzbek material that there was on the Internet was little used, possibly because there was little expectation of finding Uzbek content, but it has been suggested that government censorship had reduced trust in the Uzbek content (Wei and Kolko 2005). Despite a constitutional guarantee of freedom of thought and the right to seek, receive and disseminate information, the government has introduced filtering of Internet content, using locally developed filtering software, and places pressure on Internet service providers and Internet cafés to censor access (Pattillo 2005; Kozhamberdiyeva 2008). The self-censorship by ISPs is reinforced by pressure from the National Security Service (SNB). In addition to occasionally ordering ISPs to block specific sites, SNB monitoring also encourages them to self-censor or risk having their licences revoked. The ISPs attempt to conceal their filtering by redirecting users to innocuous sites when they try to access blocked content (Villeneuve 2007). Overall, however, censorship is said to be asserted on the Internet not as strongly as it formerly was on the press (Kozhamberdiyeva 2008).

A review of development in Uzbekistan between 2006 and 2008 was undertaken within the framework of the UNDP project 'Assisting the Government of Uzbekistan in the Formation and Implementation of Information and Communication Technologies for Development Policy' (Review 2008). This identified government, political, market, economic, and geological impediments that still needed to be addressed (Skogen and Smith 2009).

Another significant period of library reform has commenced since the "Law of library activity" was passed on March, 25, 2011 by the Senate of the Uzbekistan Republic. The government has convened a working group to oversee the development programme for library infrastructure and electronic libraries. An electronic Union Catalogue Centre was established under direction of the National Library.

Professional Development

It is estimated that about 22,000 people are employed in libraries and information services in Uzbekistan. During the Soviet era, high level training for librarians was provided (at undergraduate level) in the Tashkent State Institute of Culture (TSIC) (Fang, Nauta, and Fang 1985). Although provision for training lower level staff was said to be available in each Republic in the Union (Sikorsky *et al.* 1979; Johnson 1995), the responsible centre in Uzbekistan has not been identified in the literature.

TSIC had begun to provide higher education programmes in the Department of Librarianship and Bibliography only as recently as 1974. The Soviet curriculum covered not only the expected professional subjects, including printing and publishing, but also aspects of history, philosophy and politics taught from a Marxist perspective. There were 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 begun to be given to the particular requirements of public libraries and scientific and technical information services (Johnson 1995). Information technology applications began to be referred to in Soviet courses from the mid-1960s, and Library Automation classes were reported to be taking place at Tashkent State Institute of Culture in the mid-1980s (Bryskin and Karimov 1986).

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).

At the start of the new Millennium, LIS education needed root-and-branch modernization, as the Soviet curricula were still based on 1960s practices in their form and teaching approaches. The content was heavily overloaded with Soviet library management traditions, which were outdated. One commentator in Uzbekistan noted that there had been a decline in the professional skills of library staff over the last decade of the twentieth century (EurasiaNet 2003). Since then, changes have been introduced. The Faculty at TSIC was renamed the 'Faculty of Library-Information Work' in 2001. The Faculty currently has 3 chairs: 'Informatics and Technique,' 'Bibliography and Documentary Study,' and 'Library science'. Since 2001, the Faculty has provided a 4-year (8 Semesters) Bachelor's Degree programme in 'Library science and information systems'. It now also offers a 2-year Master's Degree programme with specialties in 'Information and library science,' 'Information-library marketing,' 'Document science,' 'Archive science,' and 'Records Management.'

Among the planned outcomes of the 'MARACANDA' project was extensive training which was to be provided by Samarkand State University libraries' staff to the staff members of other higher education institutions in the Samarkand region, focused on the intensive e-learning environment. It was also planned to launch a two-year professional development/retraining programme for existing librarians in primary, secondary and higher educational organisations, as well as for new specialists, designed and conducted in collaboration with Tashkent University of Information Technology (Codina *et al.* 2006). After the Presidential Decree in 2006, Tashkent University of Information Technologies (TUIT) opened a new department 'Information and Library science' within the Faculty of Information Technologies. New subjects such as 'Automated library systems', 'Cooperative

information library systems,' 'Electronic libraries' and others were included to the curriculum. The first 50 students were awarded the Bachelor's Degree in 2010, and are said to be in demand in libraries.

Every year about 70-80 students entered the 'Management of library-information activity' Faculty at TSIC. Students who have a full average or specialized secondary education are eligible for admission to study for a Bachelor's Degree, but take entrance examinations in three disciplines - mathematics, the native language and literature, and a foreign language and literature. To graduate, students must pass the state examinations: two are written tests (a foreign language and history); the third is an oral defence of the final project (on information-library and bibliographic topics).

A similar number of students enter the Department of 'Information and librarianship' of the Information Technologies Faculty at TUIT, subject to similar requirements for admission and graduation.

The curricula include informatics and information technologies, pedagogies and psychology, Uzbek and world literature, world history, Uzbek (Russian) language, foreign languages. The balance of subjects in the two undergraduate programmes differs:

	TSIC		TUIT	
	hours	%	hours	%
Humanities and socio-economic disciplines	1,460	20	1762	26
Mathematics and natural sciences	950	13	1766	26
General occupational disciplines	3,808	52	2232	33
Special disciplines	786	11	572	8
Additional disciplines	340	5	432	6
TOTAL	7,344		6,764	

Students wishing to enter the Master's Degree programme at TSIC must have a Bachelor's Degree and pass 2 written examinations (on special and humanities and socio-economic topics, probably applications of Marxist-Leninist philosophy). Graduates of the Master's Degree programme must also pass state exams that follow the same model as the Bachelor's Degree programme with an oral defence of their dissertation.

A wide range of teaching methods are used, including a significant element of small group work, master classes, and practical and educational seminars.

	TSIC		TUIT	
	hours	%	hours	%
Bachelor's Degree				
Lectures	1712	23	1724	21
Practice	516	7	1204	15
Laboratory work	1122	15	518	6
Workshops	1002	13	1296	16

Independent learning	2992	41	3542	43
Master's Degree				
Lectures	210	28	210	28
Practice	294	39	294	39
Independent learning	252	33	252	33

Graduates are qualified to work in a variety of positions in libraries, archives, and information environments, depending on their level of attainment:

- Bachelor's Degree (work in positions as head of department, college lecturer in professional disciplines);
- Master's Degree (work in positions as head of department, director of a library, teacher in professional disciplines in higher education);

In addition to these positions, graduates may also follow a variety of specialisations (e.g. School Librarians, Digital Librarians, etc.).

Continuing professional education for the existing workforce appears to have depended mainly on participation in workshops associated with the projects mentioned above, and training courses and exchanges for librarians and other specialists organized by the Malaysian National Library as part of the Malaysian Technical Cooperation Program (Rakhmatullaev and Khabibullaev 2012)

In addition, local initiative has produced two important series of conferences organized by the National Library. One addresses the development of networked resources (Rakhmatullaev 2010; 2011). Another series of international conferences '*Library and Information Resources in Science, Education, Culture and Business*,' began in Samarkand in 1999, and has since been held every two years. The conferences have raised the international profile of the country's community, and demonstrated the competence of the library and information resources of the Republic (Umarov 2004).

The first conference, '*Library Information Resources in Science, Education, Culture and Business: Central Asia 99*', was held in October 1999, supported by OSI, to develop international cooperation for establishing library information resources, and the use of the Internet and advanced information technologies in the fields of science, education, culture and business. Participants were from Uzbekistan, the USA, Russia, Kirghizia, the UK, and Georgia. The conference was conducted in what was then an untraditional manner. The section sessions were in the first half of the day, and small groups worked in the second half of the day, where the various urgent themes concerning the development of library business and information technologies were discussed. The participants defined the basic priorities of the development of librarianship and the creation of library-information resources in Uzbekistan as including:

- training highly skilled staff, capable of applying new information technologies in library business;
- development of new educational programmes, and the opening of new educational specialties (library management, marketing of library processes) (Rakhmatullaev 2000).

The second conference 'Central Asia 2002' was held in Bukhara in August, 2002 in conjunction with the annual meeting of the Uzbekistan Library Association and attracted approximately 250 participants, including 50 foreign nationals. It was

again sponsored by OSI, together with a number of government ministries, including the Ministry of Cultural Affairs, Ministry of Higher and Secondary Specialized Education, and Ministry of Public Education. In addition to presentations on current practice by the foreign speakers, there were Round Table sessions, primarily for the Uzbek librarians, which concentrated on the theme of library co-operation (Frank 2003).

The sixth and most recent 'Central Asia' conference, in 2010, discussed the present and future of digital libraries and the influence of information resources on the development of the society. It was marked by the presentation by the Intergovernmental Foundation for Educational, Scientific and Cultural Cooperation (IFESCCO) of Virtual Reading Rooms in Tashkent and Urgench, linked to the Digital Dissertation Library of the Russian State Library. The software 'Antiplagiat' was also made available for testing texts for plagiarism against those collections (Participation 2010).

The Uzbekistan Library Association lists as its purpose "assistance in democratic transformations in Uzbekistan, by means of library development, providing of free access to their information resources, and wide recognition of the importance of library and information services excellence in the state and public sectors." (Reed and Garcia 2005). Little information has been published about its activities.

Starting from January 2009, the two universities that taught library and information science in Uzbekistan, Tashkent Institute of Culture and Tashkent University of Information Technology, joined with institutions from Armenia and Georgia in a partnership with universities from Britain, Italy, Latvia, and Spain in a four-year multi-national collaborative project 'Developing New Masters Programme in Library and Information Science,' funded by the European Union's 'TEMPUS-TACIS' (*Technical Assistance for the Commonwealth of Independent States*) programme (Hopkinson and Zargaryan 2009a, 2009b; Corradini forthcoming; Johnson forthcoming). Nine teachers from the two Uzbek universities took advanced English courses at the British Council, leading to the IELTS exams, and several participated with colleagues from Armenia and Georgia in two six-week programmes at the Robert Gordon University in Aberdeen, where they were introduced not only to modern curricular content, but also to new methods of teaching, course development, and quality assurance. This was further supported online, and by summer schools in Armenia and Georgia, and training visits to Italy, the U.K., and Latvia. In addition, computer training centres were equipped in Tashkent, and the Moodle system for distance education was installed.

The new curricula were devised by the Uzbek teachers to meet local circumstances and requirements. TSIC enrolled about 30 students when they commenced teaching the new programme in 2010, while TUIT commenced in 2011 with an enrolment of about 20. The results of the project have been well received by senior officials of both universities, the Ministry of Higher Education, and the state working group which is responsible for library reform, and have been presented at an international conference in Russia. Subsequently, the new programmes may be offered through the universities' regional branches.

To consolidate these efforts, the Library faculty of TSIC was closed and students and staff were transferred to TUIT. It is expected that the merger and consequent staff development will take some time. The introduction of some new LIS disciplines which were identified during the NMPLIS project, particularly archives studies, had to be postponed to 2013 because the teachers had not developed sufficiently. The availability in Uzbek of suitable teaching materials remains a challenge.

Degrees awarded in Uzbekistan are recognized in countries within the former Soviet Union, but may not be recognised outside this context. Uzbekistan is not currently a signatory of the Bologna Declaration. However, it is intended that the new programmes developed as a result of this project will meet both the requirements of the Bologna Process and the different levels of official, organizational, and educational requirements in Uzbekistan, as will the Doctoral programme in LIS that is expected to commence in 2013/2014.

The new knowledge acquired by the course teams has already been recognised within the country. In June 2012, the Ministry supported an initiative by TUIT to organize training courses for 140 librarians of 70 academic libraries to prepare them to work with automated library systems in the new cooperative library network. In August 2012, the Ministry created a new training centre within the Institute of Professional Development to train trainers to teach some 3,000 librarians of 1,500 colleges by 2015.

Future Challenges

Although the published evidence for developments is incomplete, Uzbekistan's library and information services appear, in some respects, to have developed steadily since independence. The development of a library and information infrastructure for Uzbekistan is recognised by the government as important not only for raising the cultural level, education and economy, but also for protection of the population from the influence of alien ideologies (Rakhmatullaev 2002). Only libraries can provide open access to objective information, and only the state can mobilise the initial development of web content in what is, in global terms, a minority language.

The modernisation of education and libraries has received financial and technical support from such organizations as the World Bank, Asian Development Bank, European Bank for Reconstruction and Development (Gardner 2008), European Union, OECF (the Overseas Economic Cooperation Fund), GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit, i.e. German Society for Technical Cooperation), and USAid (The United States Agency for International Development), as well as private Foundations. These agencies and various NGOs and their initiatives seem to exist in an information vacuum; access to the information on their activities is limited and fragmented. While most of their efforts do seem to have contributed towards the achievement of the Republic's main goals, the absence of a formal mechanism for aligning their support with the overall strategy for the country's information and education infrastructure may be a limiting factor in a country which has retained a strong emphasis on central planning. Even though such external assistance cannot be guaranteed in future, the Interdepartmental Library Council might usefully be encouraged to

seek to extend its role in coordinating the efforts of external bodies or at least ensuring that they address the priorities perceived by the government.

Although some of those who underwent the NMPLIS development programme have much of their working life ahead of them, a specific challenge for external agencies will be to help to further develop both them and the next generation of teachers. The country will need a body of academics trained to the highest levels, knowledgeable in a wide range of specialisms in the library, information and archives field, and with experience of the differing education systems of a number of nations to enrich a diverse and continually evolving curriculum. The planned Doctoral programme in Tashkent can only partially fulfil that spectrum of need.

On a broader front, the key to success and stability in the region depends on creating an environment in which development of the area's resources proceeds relatively unhindered, and where the profits of that development can be re-invested into the development of the region as a whole. One of the major resources is the country's people, and the development of education, science and culture in Uzbekistan, and the furtherance of its social and economic progress, demands improved access to external scientific and technological information through the systems of libraries and information centres (Rakhmatullaev 2000). However, it is equally important to raise international awareness of the research outputs published in the country. It would not be appropriate for this paper to consider the wider implications for science policy of the bibliometric study mentioned earlier in this paper, but it is clear that the Internet offers a critical part of the solution to the country's current problems. As Zita and Skorynina (2001) recommended some years ago, the country's specialist library services could and should do more to initiate the development on online repositories for local research outputs, and provide indexes and abstracts of their contents in major international languages. Uzbekistan also seems to have lagged behind other former Soviet Republics, which have been developing online patent databases (Milushev 2009). These developments would help to establish stronger research partnerships and networking between Uzbekistan and the rest of the world, but may initially require further external assistance.

It is important to acknowledge that Uzbekistan should not solely be seen as a beneficiary of assistance; it also has something to give. The relative strength of Uzbekistan's library and information services could give it a leadership role in regional developments. There is already, in the Library Assembly of Eurasia, a basis for cooperation with other former Soviet Central Asian Republics. While a Fulbright scholar hosted by Northeastern University Libraries in the United States in 2007, Dr. Marat Rakhmatullaev developed the concept for CALINET (Central Asia Library and Information Network) to address major issues facing libraries in the region (Northeastern 2008), particularly those using the Turkic languages. The purpose of CALINET would be the development of the Central Asian Republics' information infrastructure. The project, if it progresses, could enhance library cooperation in several directions, encompassing for example a Library Training Centre, an Electronic Union Library Catalogue, and a multilingual (Kazakh, Kyrgyz, Uzbek, Russian, and English) Web Portal for the region's libraries (CALINET 2007; Lorkovic 2007). There is some evidence that collaboration would be welcome in the region (Dzhigo & Teplitzkaya 2007).

Concluding Remarks

Embedding the use of ICTs in education, the economy, government, and social development does not rely solely on the supply of technical expertise. It is clear that Uzbekistan has been fortunate to have a cadre with not only the expertise to understand how it could be used but also the ability to explain that to decision makers in government and institutions in a convincing manner. The focus on information technology in the new Master's Degree at this critical juncture in the nation's development should facilitate the development of personnel with management and professional skills that are distinctly different from the technical training offered to computer scientists, and make them better equipped to train others to make effective use of networked information. This will minimise the digital divide that emerged during the later years of the Soviet Union, but ultimately some greater recognition will need to be given to the reality that the technology is only a new tool for delivering information. The outstanding need now seems to be to develop the managerial and political attributes in the next generation of people needed to enable them to continue to advocate the future strategic development of the nation's library and information services successfully, but with a broader perspective.

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