



PROMOTION OF INFORMATION AND COMMUNICATION TECHNOLOGY IN TURKMENISTAN

FINAL REPORT

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Grantee: Counterpart International

Contact: Ellen Garrett, at egarrett@counterpart.org

**2345 Crystal Drive
Arlington, VA 22202**

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1. EXECUTIVE SUMMARY

This final report includes all activities implemented by the Promotion of Information and Communication Technology in Turkmenistan (PICTT) program, staff and counterparts between September 30, 2009 and January 30, 2014.

The PICTT program was a 4.25 year, \$1.03 million USAID funded education development project implemented by Counterpart International and IREX, comprised of four main objectives:

1. The adoption of ICT in higher education through advocacy, policy support and research.
2. Equip higher education administrators and faculty with skills to meet their professional needs and contribute to organizational effectiveness through ICT.
3. Develop a virtual network that links higher education faculty, administrators, and students with other institutions in Turkmenistan and with regional and international partners and resources.
4. Foster technological advances that promote educational development and access to free information among higher education students, faculty, and administrators that promote educational development.

The core of program activities centered on providing ICT trainings to students, faculty and staff or higher education institutions (HEIs) throughout Turkmenistan. Over the course the project, 2,742 beneficiaries received formal instruction on computers, internet, and software technologies, 5,109 graduate students received individual technical consultations, and 12,073 individuals were able to access free internet. The project was able to reach beneficiaries from over 80% of HEIs in Turkmenistan, and conduct program activities in all five regions of the country.

The National Academy of Sciences of Turkmenistan (AoS), located in the capital Ashgabat, was the main local partner for this project, who provided the facilities to host two training sites on its premises. The Internet Center for Interactive and Multimedia Learning (ICIML) was used primarily for formal ICT classes on a variety of subjects, while the Training Support Room (TSR) provided a space for participants to receive one-on-one consultations and other technical support from staff experts.

In the regional areas, PICTT worked through local partner organizations including Hemayat, The Business School of the Union of Industrialists and Entrepreneurs of Turkmenistan (UIET) and Bilgirje, who provided training services to target audiences on behalf of the program.

In order to expand access to technology and information, PICTT developed an extensive array of classes, training materials, software manuals, distance learning courses, and software localizations all in both Turkmen and Russian languages.

Over the course of the project, PICTT maintained a visible public profile, by hosting and participating in a number of public events and conferences, and developing partnerships with local educational institutions and other international organizations. The program received numerous mentions in the local media, which is rare for such activities.

2. ANALYSIS

PICTT in the National Context

The higher education sector in Turkmenistan began undergoing reforms in 2007 when the current government came into power. A newly issued law on education re-established postgraduate studies and professional schools, and the government took positive steps toward the introduction of ICT in higher education. The new President of Turkmenistan, Gurbanguly Berdymuhamedov, repeatedly made clear his commitment to innovations and advancements in technology and education. Since the very start of the program in 2009, PICTT pursued emerging ICT assistance opportunities for higher education and science institutions in the country. PICTT activities in the country have been in line with this Turkmen educational policy on modernization and adoption of ICT in systems higher and secondary education.

PICTT faced a number of challenges from the very beginning in 2009 – 2010, despite seemingly favorable conditions at the start of the program. The political context in Turkmenistan has been volatile, with considerable implications for program activities of foreign donors. Heads of government organizations and ministries changed frequently, making it difficult to obtain the necessary approvals and commitments required to expand the program. PICTT had to carefully assess the environment and unpredictable changes in the local government and partners' attitudes towards international projects, in order to carefully implement activities outlined in the program workplans. The first year of the program saw many rejections of program activity proposals submitted to the Ministry of Foreign Affairs (MFA). Still, PICTT managed to overcome these major obstacles in conducting its first trainings and technical consultations. PICTT had a great advantage; building on the successes of the IREX administered **Internet Access and Training Program (IATP)** in Turkmenistan (2001-2009), which left PICTT with an existing training center in Ashgabat. Working with university faculty members, PICTT staff began developing a number of electronic teaching materials in Turkmen language, which helped to draw interest from other faculty of HEIs, and increase the number of visitors to the ICIML center. This work continued, with staff expanding the depth of the courses offered and opening an additional training center, the Technical Support Room (TSR), which provided more in-depth technical consultations and follow-up activity for target audiences. The extra time spent with HEI instructors developing electronic teaching materials exposed them to more members of the PICTT staff, who spent two days each week working directly with the instructors. From then on, the majority of postgraduate students trained at the ICIML also visited the TSR, demonstrating the high demand for internet-based materials. Within the first year, a delegation of US Government representatives attended a presentation from PICTT participants on these newly developed resources. Until this time, interaction between US Government officials and Turkmen educators and representatives of the AoS was not previously welcomed, and these developments made a statement about the Turkmen government's views of the program.

The period 2011 - 2012 was notable for the lack of political setbacks. Despite some legitimate concerns, the presidential elections in early 2012 did not negatively affect PICTT's work in the existing ICIML and TSR centers. Educational policy and Internet penetration was also continuing to evolve allowing for more access to the citizens of Turkmenistan. The government had increasingly shown interest in supporting international and cross-sectoral conversations on

education and technology innovations. During the second year, PICTT set up a functioning model of ICT trainings and consultations for the program beneficiaries. As a further sign of acceptance, additional HEIs began collaborating with PICTT sending more teachers and students for training than ever before. PICTT also targeted eight new institutions for partnerships while bringing on new staff which has helped to increase the number of ICT consultations given to HEI representatives and the quantity of teaching materials developed. Other activities included the development of video manuals in the Turkmen language. In light of new partnerships and increasing interest, PICTT faced high demand for training and resources which became so pronounced, that PICTT intentionally stopped making outreach visits to new HEIs that had not yet sent representatives to training, because the program would not be able to accommodate the additional demand.

However, tensions between the MFA and the US Mission remained, and prevented several new initiatives from moving forward. This caused work with the AoS to progress slowly as they now insisted on receiving official MFA approval for any program updates. In July 2011, the local USAID office sent a diplomatic note to the MFA regarding the opening of a new center at the National Conservatory; however no response was forthcoming, and the center was never opened. PICTT also made attempts to open a new Education Resource Internet Center at a higher education institute outside Ashgabat, and to expand the current ICIML/TSR facilities. These requests were rejected without explanation, and it soon became evident that officials would not allow such expansions. Other planned activities involving virtual communication and distance learning with foreign universities were unsuccessful, but not surprising given the local context, and the similar challenges faced by other programs funded by international donors

Another challenge was overcoming scheduling conflicts with program participants. Many graduate students and teachers had difficulty attending PICTT trainings in addition to their regular classes, often missing many sessions and delaying the completion of program trainings, and making it difficult to schedule future courses for new groups. PICTT raised this issue with the AoS leadership, who then made sure rectors provided ample time for participants to attend trainings.

In its third year, PICTT continued to streamline and improve the services offered, reaching beneficiaries in the regional areas of Turkmenistan for the first time. Generally, foreign funded development projects face considerable difficulties operating outside of Ashgabat. In these areas, local officials are extremely hesitant to work with foreign organizations, and all activities are viewed with suspicion and closely monitored. In order to get around this, IREX began working with locally based training organizations to provide training services on behalf of the program. Ultimately, two main partners were selected, Hemayat and the Business School of The Union of Entrepreneurs and Industrialists of Turkmenistan (UIET), organizations which both had demonstrated training experience and locations in all target regions. The MFA approved this request quickly, and IREX began organizing TOTs for partner's instructors and administrators, as well as providing computers and other equipment to those centers in need.

In 2012 many new HEIs and professional schools opened in Turkmenistan, providing additional opportunities for secondary school graduates to continue their education. The majority of these schools received state-of-the-art equipment, high-tech ICT laboratories, video classrooms,

interactive whiteboards and other technology, however many schools lacked the technical ability to make use of these tools. That year, the President of Turkmenistan harshly criticized the national education system for the low level of ICT literacy among secondary school educators. He underlined that new generations of teachers should not lag behind the modern infrastructure of HEIs and schools and that teachers and institutions should develop interactive multimedia lessons to gain the interest of students. PICTT responded to the increased demand for interactive multimedia content by creating Turkmen language localizations of many popular open source educational tools available on the internet.

Over years four and five, PICTT established a workflow that achieved the highest number of beneficiaries in Ashgabat and regions during the program period. The development of ICT, particularly in education and science, continued to be among the priorities of the government of Turkmenistan. In 2013, a new law on education established the provisions for adopting the Bologna Process of internationally accepted standards of higher education (bachelor and master's degrees). The government also introduced investments to improve its own operations, such as e-governance initiatives, and requirements for all government managers to receive IT training. Some areas, such as the health sector were among the first required to meet deadlines for new electronic document management initiatives. PICTT was able to assist a number of medical staff (many of whom were also researchers) and provide the ICT instruction necessary to perform new job requirements and secure their employment. PICTT also continued to prepare educators with trainings on advanced E-learning techniques, and developing Turkmen language software localizations of popular learning tools such as CourseLab and Moodle. At the end of 2013, PICTT secured the necessary permissions and held an E-learning conference and seminar for representatives from various HEI's in Ashgabat. Participants learned about new education technologies in use around the world, and strategies for introducing them to their host institutions.

From 2009 - 2013 various international organizations and donors implemented a number of large scale science and education development projects in Turkmenistan, and all experienced difficulties operating in this unique environment. It seems the challenges faced by implementers stem from a contradictory desire of the Government of Turkmenistan to modernize and develop the education sector in accordance with international standards, while at the same time exhibiting a fear and suspicion of outside influences on its society.

The government's continuing policy of "The New Revival" emphasizes scientific and educational development as top priorities, and the local media frequently highlight the idea of "innovation" and international cooperation. Combined with recent large investments in schools and technology, it seemingly created ideal conditions for the expansion of PICTT activities during the life of the project. However, this was not the case; at every turn PICTT experienced roadblocks, at all local levels. This suspicion of foreign activity overrules any meaningful international cooperation at the local level, as civil servants fear that any mistake on their part will result in negative consequences. And while there are many individuals genuinely dedicated to improving the education system in Turkmenistan, very few are willing to risk their careers to do so. In 2013, new regulations were imposed on foreign assistance that further restricted education development projects in country. As a result of these challenges, some important program objectives were not achieved, such as the publication of the Internet Adoption Index.

The same is true for many of the government's objectives in developing ICT's and the education system in general. Contrary to the hopes of officials, any advanced technology and state-of-the-art equipment is not sufficient to modernize the system, so long as larger institutional problems with training, poor accessibility and endemic corruption, continue to exist. ICT alone will have little effect on, and may sometimes exacerbate problems as it can be an expensive misallocation of scarce budget funds. Without fundamental institutional reforms, such as allowing private HEIs, unrestrained student intake, free academic exchanges, transparent admission practices, and others it is unlikely that the Government's efforts will have any substantial results.

Internet access, an essential component to any ICT development project, remained an obstacle to effective program implementation and administration. While Turkmenistan has extremely low levels of internet penetration, access to these services is slowly increasing from an estimated 0.1% in 2000, to 1% in 2007, and more recently to 5% in 2012 (according to UN data). The price for internet continues to be among the most expensive in the world, with unlimited high speed connections for corporate users available for approximately \$6800 per month.¹ Though recently there are new home services available for private use, the fees vary from \$30 per 1 gigabyte to \$200 for unlimited data.

This does not take into account the ever increasing popularity of mobile communications, approximately 63% of the population use mobile phones, and about 14% have internet access through these devices.² The cost of mobile internet is dramatically cheaper than fixed land lines, though speeds are much slower.

The PICTT centers at the AoS were one of the few places in Ashgabat where users could access free internet, and these sites remained ever popular with an average of over 400 visitors per month. At partner organizations in regional areas, internet was extremely slow or nonexistent, so course curricula were adjusted accordingly. In the central IREX office, program staff used a separate internet connection which was extremely slow, unstable and expensive, causing a number of operational difficulties.

Relationships with the Academy of Sciences

Since the very beginning, PICTT maintained positive relations with the AoS, the largest and most important program partner. PICTT staff submitted regular reports to the AoS leadership, presenting all activities in a clear and transparent manner. During numerous meetings with the AoS, program staff received positive feedback, and recognition for the benefits provided to postgraduate students of the institution. PICTT performed its core activities through the ICIML and TSR, and the majority of beneficiaries were trained at these locations. Each year saw ever increasing numbers of casual visitors, and those enrolling in scheduled classes. At the start of the project, the first lessons offered were on Computer Basics and Multimedia Boards but later expanded to advanced level trainings on software, such as Adobe Photoshop, CourseLab, Autodesk Inventor, MS Movie Maker and Publisher.

¹ <http://www.online.tm/ru/tarify-dlya-korporativnyh>

² <http://www.opensocietyfoundations.org/sites/default/files/never-here-nor-there-20130116.pdf>

At the ICIML, the program held a series of four contests among the faculty and graduate students of the HEIs for the best electronic material developed in the Turkmen language using CourseLab software. These types of activities were extremely popular with participants, and most likely to receive official approval. The contest participants represented various HEIs, such as the Medical University, Institute of Culture, Institute of World Languages, Turkmen Pedagogical Institute, and others. At the award ceremonies, participants were given gifts and expressed their gratitude to PICTT, IREX, and USAID for their support. Their best e-materials became available for public use on the AoS website. After the final contest in October 2013, PICTT presented a number of software keys for the new Turkmen language localized version of the CourseLab to the participant's host institutions.

Relationships with regional partners

In 2012, PICTT began working with local partner organizations to reach beneficiaries in the regional areas outside of Ashgabat. After a series of unsuccessful attempts to open additional training centers, PICTT decided to contract locally based training organizations to conduct activities on behalf of the program. These contracted and monitored trainings represented PICTT's best opportunity to expand beyond the AoS center: the number of teachers and students that PICTT has trained in regions constituted one-third of the overall number of beneficiaries in 2012 and 2013. It also provided a layer of protection for IREX that would not arouse suspicions by authorities, and for beneficiaries who could attend courses without the fear of associating with foreigners. Since March 2012, the project supported computer literacy trainings for 710 regionally-based beneficiaries. In addition, PICTT trainers conducted a number of regional mobile trainings in advanced software hosted on the premises of partner organizations. The majority of these trainings took place in Mary and Turkmenbashi, and to a lesser extent in Dashoguz and Lebap.

Program staff closely supervised the regional trainings through monitoring trips, interviews, reporting analysis, and attendance records, to ensure compliance with PICTT standards. The first series of courses consisted of three months training in Computer and Internet Basics, Excel, Word and PowerPoint. Eventually this changed to a module system, consisting of two mandatory courses (Computer Basics and MS Word), and two selective modules (Power Point, Excel or Internet) which proved to be flexible and better suited to the needs of each group. Choosing shorter elective modules also allowed some regional centers to complete training ahead of schedule. The initial lessons from this experience were very useful in this initial experience, and were shared through later TOTs with Bilgirje, Hemayat and UIET.

Relationships with Hemayat: This important local partner completed trainings on computer literacy according to three consecutively signed contracts for beneficiaries in all four regions outside the capital, Lebap, Balkan, Dashoguz and Mary regions. Beginning with the first contract in March 2012, Hemayat delivered trainings to 210 beneficiaries in all of the four regions outside the capital. With the second agreement in September 2012, Hemayat trained sixty beneficiaries in the Balkan and Dashoguz regions. After reviewing the performance from all four regional training centers, PICTT selected the Mary branch for additional program activities. In January 2013 a third agreement was signed, and two groups of 30 trainees completed courses before the summer holidays and finally a fourth agreement in September 2013 for another two groups of 30

before the winter holiday. Of all local partners, Hemayat was the most consistent and reliable, training the majority of regional beneficiaries.

Relationships with the Business School of the Union of Industrialists and Entrepreneurs of Turkmenistan (UIET): This powerful educational organization was the second largest partner for program activities, and PICTT support was essential to start trainings at their centers. In spite of a series of delays, UIET completed all scheduled trainings for 180 beneficiaries in the Lebap, Mary, and Dashoguz regions. Completion took longer than expected due to initial licensing issues, and problems with recruiting eligible employees. After signing a no cost extension of their agreement, UIET completed all activities by May 2013.

After completing the initial contract, UIET did not show interest in further cooperation with PICTT, despite several offers and requests from program staff. This was most likely due to the change of leadership at the institution in 2013. Another reason was the creation of a new political party in Turkmenistan, the Party of Industrialists and Entrepreneurs of Turkmenistan. As the UIET Business School is a subsidiary of the larger Union, they were likely under increased scrutiny and were not comfortable working with foreign organizations such as IREX.

Relationships with Bilgirje: In contrast to the challenging relationship with the UIET, working with Bilgirje was a welcome relief for PICTT. In February 2013 this small organization based in Lebap began training two groups of 30 beneficiaries in basic computer literacy and internet use. Through monitoring trips, IREX observed the excellent capacity of Bilgirje trainers and the performance of participants. In May 2013, PICTT signed a second contract with Bilgirje to conduct trainings during the summer months, traditionally a period of low program activity. Taking into account the extremely hot weather and holiday schedules of local students, PICTT adapted the standard training modules accordingly, reducing the duration during this period to three modules: Computer Basics, MS Word, and Internet Basics. In September, PICTT signed its third contract with Bilgirje to deliver trainings for two groups during autumn 2013, completing all activities before the winter holiday.

Relationships with other partners

In 2012, PICTT submitted a dipnote through USAID to the Ministry of Foreign Affairs with the proposal to conduct a series of advanced IT trainings for the students of the Institute of International Relations. Approval was soon granted, and in February 2013, PICTT was invited to conduct trainings for faculty and students of the Institute on such programs as IWB, Photoshop, MS Publisher, CourseLab, and Adobe Premier Pro. During the first mobile training event at the Institute, PICTT trained 20 faculty and 60 students from each of the four Departments: Journalism, International Relations and Diplomacy, International Law, and International Business. The USAID/CAR Regional Outreach Specialist also attended the event in addition to local reporters who were present to report on the first two lessons. The training activities were suspended two weeks after the start due to official celebrations of the fifth anniversary of the foundation of the Institute. Unfortunately for unknown reasons, trainings were not allowed to resume afterwards.

PICTT staff met several times with a representative of Microsoft in Turkmenistan, to inform them of PICTT activities and to learn about Microsoft's priorities in country. One

accomplishment during this period was an analysis of the language packs for Turkmen versions of Windows 7 and Office 2010. The evaluation report outlined the ways to improve Turkmen translation in future releases and was submitted for further action to the Microsoft representative in Turkmenistan.

PICTT collaborated with *WebSoft* to finalize and release the latest version of CourseLab (2.7) software in the Turkmen language. PICTT introduced this software to the AoS and the Ministry of Education at the annual Science Exhibition in June 2013.

In 2012, PICTT established a working relationship with the Council of Young Scientists. As a result, PICTT received an invitation to participate in the conference titled “Turkmenistan Young Scientists: Present and Future Perspectives.” Program staff presented on the benefits of e-books in higher education, and demonstrated various technologies with the use of iPads and Kindles on loan from the US Embassy.

PICTT worked closely with USAID and Counterpart, the main sponsors of the programs. The program received no-cost extensions for the program’s activities until January 2014. As PICTT focuses on the higher education sector, the availability of program beneficiaries is dependent on the academic schedule. By extending the program end date, PICTT was able to provide a final round of trainings that coincided with the new academic year (September-November 2013). During program closeout, PICTT donated its inventory to USAID partners and other American organizations. Hemayat and Bilgirje, also received donated furniture and equipment to be used to strengthen the capacities of their training centers.

Important meetings

In 2010, program activities were observed by Clay Epperson, USAID/CAR Deputy Mission Director and Andrew Segars, USAID Director in Turkmenistan, Leanne MacDougall, USAID/CAR Regional Outreach Specialist and representatives of USAID Acquisition and Assistance Office. The program received positive feedback on its implementation.

In 2011, the US Ambassador to Turkmenistan, Mr. Patterson, visited PICTT’s program at the ICIML. He first heard of the program through the Minister of Foreign Affairs, Mr. Meredov, and wished to learn more about the program and witness PICTT’s work in action.

In 2012, the new USAID Turkmenistan Country Manager, Benjamin Chapman and USAID Project Specialist Vepa Berdiyev visited the ICIML and TSR to meet with PICTT staff and learn about their activities. The Country Manager observed a lesson on Interactive Whiteboard (IWB) and requested PICTT to present an overview of IWBs in Turkmenistan. Also in 2012, PICTT staff attended the close-out meeting of the Quality Learning Project (QLP), a USAID funded project focusing on secondary education development. QLP staff shared training materials they developed with the PICTT team and discussed best practices for successful project implementation. In September 2012, PICTT and USAID had an important meeting with senior members of the AoS including Mr. Mezilov, President of the AoS, Mr. Vasov, Head of the AoS International Department and a representative from the MFA. The representatives of the AoS seemed quite interested and expressed willingness for continued collaboration. Since the

beginning of the program, PICTT conducted regular meetings with administration of the Academy of Science (AoS) of Turkmenistan.

In July 2013 Marc Bonnenfant, Regional Education Team Leader, and Michelle Blau, Regional Communication Advisor from the USAID Almaty office met with PICTT staff to discuss program implementation and exchange ideas. Later in September, Brandy Witthoft, the new USAID Turkmenistan Country Office Director visited the AoS to observe program activities and introduce herself to staff. In November, US Ambassador Robert Patterson presented introductions at the PICTT E-learning conference and seminar at the Ashgabat Hotel. Later that day Khadijat Mojidi, USAID Health and Education Office Director also attended the event to observe activities and meet with participants.

3. SUMMARY OF ACTIVITIES

Objective 1: Adoption of ICT in higher education through advocacy, policy support, and research.

- ***Open internet access for university and institute educators, administration, students and researchers***

The Technical Support Room (TSR), which opened at the Academy of Sciences by PICTT at the beginning of July 2010, hosted postgraduate students and educators from HEIs. Target groups started using TSR for conducting online data research and enhancing teaching materials with information from the internet.

- ***Formulate draft Policy***

Already in the first year of program activities, on consultation with representatives of local HEIs, and after analyzing international experiences, PICTT staff have drafted a set of recommendations on introduction of ICT in higher education. Based on the analysis of local context, three strategic areas have been identified: 1) capacity building, 2) quality of education, and 3) international cooperation. PICTT team worked with graduate students/postgraduates, whose dissertation was related to the ICT sector, and collaborated with them on integrating the policy recommendations through graduate students' channels.

- ***In collaboration with AoS, develop Internet in Education Adoption Index to study progress in the ICT use at its institutes and HEIs***

In March and April of 2011, the program collected data analyzing PICTT consultation charts, internet users, registration logs, interviews and survey questionnaires of the PhD and Master's degree students from 12 various Higher Education Institutions (HEI) of Turkmenistan. PICTT analyzed information related to the internet, higher education of Turkmenistan, and developed an Internet in Education Adoption Index which provides in-depth analyses of the internet utilization in the education system. The analysis included evaluation of the level of internet penetration and indicators, policy frameworks for the ICT adoption in education, level of improvement of the operational capacity of the education system through the internet, use of the internet in the

teaching process, use of the internet in research, and use of the internet to establish collaborations between the Higher Educational Institutions. The survey-based scoring system was meant to measure improvements in the internet penetration in the educational system of Turkmenistan annually. Additional data was collected afterwards to provide a base for comparison and simple identification of changes that occurred in the realm of internet penetration. PICTT staff gathered completed questionnaires on internet adoption in HEIs. Poor internet connections did not allow conducting online surveys/questionnaires, and therefore, PICTT distributed print versions to target audiences. About thirty postgraduate students and instructors of HEIs were interviewed to find out how ICT in HEIs is appropriated. At the end of 2012, PICTT staff completed collecting questionnaires on internet adoption in HEIs. However in early 2013, USAID requested that PICTT cease this activity due to the politically sensitive nature of the information.

- ***ICT in education virtual meeting***

During April 2010, PICTT staff organized the first virtual meeting for educators from the Institute of Foreign Languages with national experts to discuss the Interactive Methodology usage at higher education through blogging. The off-line meeting was held in Russian on the following web-site <http://pedsovet.org/forum/index.php?autocom=blog&blogid=779&> where educators of the Institute communicated with Irina Muhamedova, the Chief Executive Officer of the School of Entrepreneurship UIET, a leading expert in the field of interactive methodology, to learn more about “Interactive Teaching Methods in Higher Education Institutions.” In June 2010, teachers from the Turkmen State Institute of Culture participated in an online video conference. This online event, as part of training on computer and internet basics, introduced a new way of knowledge exchange. The virtual meeting was facilitated by PICTT staff. They shared their knowledge on internet opportunities for specialists in the field of culture and cinematography. A virtual meeting was organized on Skype.

In April 2011, the PICTT staff organized a virtual meeting for six post-graduate students / instructors of different research institutes, including the Institute of Language and Literature and the Institute of International Relations through Skype. The virtual meeting, headed by Vesa Lehtonen, a computer technology instructor from Finland, was devoted to the topic: “*The use of the computer technology in the educational process of business schools of Helsinki*”. The virtual meeting was initiated with the aim of introducing new technology and discussing opportunities for the World Wide Web on live chat. During the virtual meeting — which was accompanied with audio, video, and text messages—participants and the international expert exchanged their ideas on culture, computer technology knowledge, and the education system of Finland.

At the end of 2011, PICTT stopped organizing any Skype virtual meetings between Turkmen faculty and abroad because of extremely negative reactions from the leadership of the Academy. Despite their importance for the program, such events can realistically be implemented only at the premises of the AoS institutes, but PICTT could not risk damaging relationships with its most important partner. Such virtual meetings are traditionally considered highly suspicious activities for foreign organizations in the country. Instead, PICTT decided to focus on encouraging virtual communication among faculty, students and researchers through use of email. Program staff guided visitors at TSR to efficiently communicate through email services and where to search for

useful academic contacts on the internet. The use of email for virtual communication with academic purposes started to be closely tracked to be reflected in reports.

- **Share benefits of ICT at higher education institutions**

Representatives from all Turkmen HEIs visited ICIML to benefit from one or more of PICTT services. Educators of State Medical Institute and Institute of Culture were among the most active participants. For example, in 2010 - 2011, faculty from those institutions learned how ICT was applied in higher education in other educational institutes in Central Asia, Europe and Africa. Target groups brainstormed and shared their opinions regarding the way ICT should be applied at the HEIs of Turkmenistan, environment improvements and the impact they could achieve in terms of ICT utilization. In 2011, two presentations on the following topics “distance learning opportunities for educators” and “adoption of ICT into the HEI system (international experience)” have been developed and provided for higher education faculties of Turkmen State Medical Institute and Institute of Culture.

In April 2011, PICTT assisted the Turkmen National Conservatory with the organization of a contest entitled *Innovative Technologies in Culture and Art*, where 30 students from the Turkmen National Conservatory, the Turkmen State Institute of Culture, and the State Academy of Fine Arts took part. The main aim of the contest was to test the students’ abilities to learn advanced training technologies that are currently introduced at all levels of the national education system. PICTT / ICIML staff gave participants the technical instructions on how to use the Multimedia board and audience response system, so that students could take interactive tests during the contest. The contest was highlighted in a daily newspaper “*Нейтральный Туркменистан*” (Neutral Turkmenistan) dated 16.04.2011 and on information web-site “*Turkmenistan – the golden age*” http://www.turkmenistan.gov.tm/_en/?idr=9&id=110420a. Since the model of a contest proved to be so effective, PICTT decided to hold own annual e-contest events at ICIML annually.

In response to increasing demand from target audiences, PICTT staff took some measures in 2012 to promote CAD software at technical institutes and universities, as an alternative to current methods of manually drawing designs by hand. A new CAD lesson plan for HEIs was proposed and a new course on Autodesk Inventor was introduced at ICIML.

The PICTT team has developed eight types of 2-page brochures “cheat sheets” for further distribution among target groups, which serve as both informative pieces about how ICT resources can be used specifically by:

1. Higher education and science;
2. ICT in general;
3. Multimedia board;
4. Distance learning and Internet search;
5. Effective presentation skills;
6. CourseLab;
7. Dissertation writing rules;
8. Plagiarism.

Easy to read and richly illustrated, those ICT cheat sheets provided another method of propagating the effective use ICT. They were distributed through ICIML, exhibitions, TOTs, mobile trainings and other events.

One of PICTT's objectives was to raise awareness of plagiarism issues which became ever more urgent with widespread Internet and ICT in education system. Target groups were informed about types of plagiarism through a designated handout and post-training surveys.

- ***Building international networks for models and partnerships***

In 2010, PICTT's research team identified and promoted three opportunities for HEI audiences, most recently, the Central Asia Research and Training Initiative (CARTI), which was launched by the Open Society Institute and the Soros Foundation Network. PICTT then was seeking ways to connect its scholars (postgraduate students) with candidate dissertations and doctoral degrees related to social sciences and the humanities as well as inform and help postgraduate students on the application process. However, long suspicions of officials towards aforementioned institutions made effective further cooperation with them practically impossible.

PICTT contributed to the implementation of the event "Get On-line Week" in Turkmenistan which was initiated by the Eurasian Telecentre Network throughout Eurasia in March, 2011. As a result of this week-long event, 55 women went online for the first time and learned how to search for information using Google.

In 2011, PICTT had a joint USAID meeting with representatives of Intel Corporation to discuss the latest technology developments and possible ICT applications in education.

At the end of 2012, following a recommendation from the Head of International Department of the Ministry of Education, PICTT provided this Ministry with copies of teaching manuals, video courses and Turkmen language software.

In 2012, PICTT reached out to Microsoft on developing Turkmen versions of Windows and MS Office software. Microsoft offers a language-pack that converts Windows 7 from English to Turkmen. Staff tested the language pack and developed some recommendations on addressing issues with the translation. PICTT presented the detailed report to improve the future Turkmen language packs and adding new features, including some Turkmen Proofing tools in MS Office.

During a book fair in September, PICTT outlined a possible collaboration with the publishing house Springer. The PICTT Program Director met with Springer's Global Director of Library Sales David Elek and Licensing Manager Sitki Aktash. The group discussed the possibility of providing Turkmen academic staff with access to SpringerLink at <http://www.springerlink.com>.

Following a market research on Multimedia Boards conducted in July 2012, PICTT received an email from Marek Kaiser, the Regional Account Manager in Hitachi Solutions Europe AG, discussing possible collaboration with PICTT to create a teaching and technology center in Turkmenistan. Since the prospect of opening such center was unclear, the company postponed realization of the plans for indefinite time.

- *Co-host conferences with HEIs, use conference as means to promote ICT in education adoption*

In March 2012, PICTT collaborated in *International Scientific Conference “Medieval Cities of Turkmenistan in the System of the Eurasian Civilization”* organized by the Institute of History. PICTT provided comprehensive technical support, including E-Gallery demonstration.

In October 2012, PICTT took several steps to expand its activities with Turkmen HEIs and established a working relationship with the Council of Young Scientists. As a result, PICTT received an invitation to participate in the conference titled *“Turkmenistan Young Scientists: Present and Future Perspectives.”* Program staff presented on the benefits of e-books in higher education, and demonstrated various technologies with the use of iPads and Kindles on loan from the US Embassy. The presentation was well received by the organizers and participants.

In January 2013, PICTT hosted a conference titled *“Creation and Operation of Digital Libraries”* at the ICIML. Representatives from the U.S. Embassy delivered lectures for the academic staff of Institute of Languages and the Research Library. There were 16 participants at the event.

The seminar on E-learning in Higher Education which took place in November 2013 for twenty participants from Turkmen higher education and research institutions was the culminating point for PICTT, the largest event among ever made by the program. It was organized in partnership with the Academy of Sciences of Turkmenistan and Governance Strengthening Project (GSP). Professors and researchers had a rare opportunity to learn about open-source education technologies and receive hands-on trainings on a leading learning management system (LMS) from an international expert. The conference presenter, Prof. Harald Herrig, an international expert in the area of electronic and blended learning, was invited to conduct the seminar for representatives from the National Academy of Sciences, the National Institute of Education, the International University of Oil and Gas, and the State Institute of Culture. These institutions are currently in the front line of applying innovative approaches and international standards for teaching in the country. A presentation on the international experience on adopting blended and e-learning was followed by a live discussion on opportunities for teachers brought by computers and internet. More importantly, participants became familiar with the concept of open source software. The focus was on learning management systems (LMS) which are an analogue of e-document management in education. The renowned open-source Moodle platform was presented as a superior alternative to commercial LMS products with a great potential for integration into the education system in Turkmenistan. In addition, there was a demonstration on how to effectively combine LMS with web conferences. It was shown that free systems such as Any Meeting can serve as a viable substitute such an expensive commercial product as Adobe Connect. Finally, massive open online courses (MOOC) were introduced as a free source of quality instructional content. Numerous commercial companies flocked to Turkmen ICT market making their products recognizable for education administrators. On the other side, there is surprisingly little awareness of open source alternatives among price-conscious consumers at the level of local schools. The second day was entirely dedicated to practical sessions. Prof. Herrig and IREX staff assisted each participant in creating their own Moodle course and filling it with interactive multimedia content. Afterwards, everyone was immersed in a lecture by a German lecturer taking place in Munich with the aid of video conferencing. At the end of the seminar, the beginner Moodle users interacted by means of a forum created inside this LMS during the

training. They used the forum posts to express appreciation of open source LMS and other E-learning tools. Some seemed to be new to idea that such high-quality free resources do exist. For instance, one lecturer told, "... we have been searching for something like Moodle over the past two years, spent funds and efforts but couldn't develop anything matching the level of this open source LMS." The level of practice-oriented knowledge that participants gained during the seminar was adequate to start applying acquired skills at their host institutions. It is equally important that Turkmen "early adopters" who witnessed real-world examples of E-learning during the seminar would share experiences among colleagues and decision-makers thus playing important roles in diffusion of educational innovations. Upon completion of the conference, Prof. Herrig produced a report for PICTT with his analysis of the event and recommendations for promoting ICT in the local conditions.

- ***Participation in the International Exhibition on Technology and Education***

Already from its first year, in June 2010, PICTT participated in each of the "*Science and Innovative Technologies in the Epoch of Great Reforms*" exhibitions, which were held annually in Ashgabat and organized by the Academy of Sciences of Turkmenistan and the Chamber of Commerce and Industry of Turkmenistan. Turkmenistan research institutes, higher education institutions and international organizations working in the area of science and innovations were invited. PICTT used this opportunity to demonstrate its achievements, promote ICT in higher education and distribute educational materials developed within the program framework. PICTT's program work was highly appreciated by Academy of Science. On June 2010, during the conference within the exhibition, a presentation made by PICTT staff to higher level government officials on PICTT electronic teaching materials was reported in local media.

Education, Sport and Tourism Exhibition: Both in 2011 and 2012, PICTT participated in this annual exhibition held in November, a good opportunity to reach out to wider audiences both within Ashgabat and beyond.

US Embassy Education week: Exhibition was held in 2012 in Ashgabat, and PICTT shared a booth with other USAID implementers. As a participant of this Exhibition, PICTT demonstrated new Turkmen-language resources.

PICTT was represented at the *International Scientific and Methodological Conference on the Role of New Technologies in Implementing the Education Reform of President Gurbanguly Berdimuhamedov and Modern Teaching Methods* in 2010. The conference was organized by the Institute of Education and was attended by the representatives of Turkmenistan HEIs and expert researchers, and academics from various international universities. PICTT made a presentation about the role of ICT in higher education and shared its best practices on introducing ICT education in Turkmenistan.

Objective 2: Equip higher educational administrators and faculty with ICT skills to aid them in meeting their professional demands and contributing to increased organizational effectiveness.

- **Basic ICT skills training and improving the quality of instruction**

Faculty, teachers, students, researchers and administrators of various organizations in Ashgabat and regions were trained in subjects ranging from computer / internet basics to such advanced instructional software as MULTIMEDIA BOARD and CourseLab.

Table 1. Comprehensive list of professionals who enhanced their ICT skills through the ICIML

Institution	Area	Quantity of trained professionals
YEAR 1 (SEPTEMBER 2009 – SEPTEMBER 2010)		
I quarter		
Turkmen Geology Institute	Computer skills	8
Secondary school No. 47	Web resource development	8
Scientific – Clinical Center of Oncology	Computer basics	7
Ashgabat medical professionals	Continued IT training	7
Secondary school No. 74	Continued IT training	8
Outpatient clinic No. 7	Internet Search	7
Turkmen National Conservatory	Multimedia Board	8
II quarter		
Secondary School #47	Internet Basics	10
Secondary School #74	Internet Basics	10
Turkmen State Medical Institute	Internet Basics, Multimedia Board	4
Polyclinic #7	Internet Basics, Multimedia Board	4
Institute of Physics and Mathematics	Multimedia Board	6
Turkmen State Agricultural University	Internet Basics	20
Secondary school #69	Computer Basics	9
National Conservatory	Computer Basics, Internet Basics	10
National Martial Arts Federation “HANMUDO”	Computer and Internet Basics, Multimedia Board	7
Musical Boarding School under the National Conservatory	Multimedia Board, Internet Basics	10
III quarter		
Agricultural University	Multimedia Board	20
Mixed group of teachers	Multimedia Board	10
National Conservatory	Computer and Internet Basics	20
Institute of Foreign Languages	Internet Basics	6
Institute of Foreign Languages	Multimedia Board	6
Turkmen State Medical Institute	Computer Devices	8
Musical Boarding School under the National Conservatory	Multimedia Board	10
IV quarter		
Secondary school #69	Multimedia Board	9
Secondary school #74	Computer Basics	7
Musical Boarding school, group 1	Computer and Internet	19

	Basics	
Musical Boarding School, group 2	Computer Basics, Multimedia Board	18
Secondary School #6	Computer Basics, Multimedia Board	16
Turkmen State Medical Institute	Multimedia Board	8
Institute of Culture	Computer Basics	7
Institute of Culture	Multimedia Board	5
Total for Year 1		312
YEAR 2 (SEPTEMBER 2010 – SEPTEMBER 2011)		
I quarter		
Teachers of the Institute of Culture	Computer basics	7
Scientists of the Institute of Language and Literature	Internet basics	4
Teachers Turkmen Polytechnic Institute	Internet basics	6
Scientist of the Institute of Language and Literature	Computer basics	4
Teachers of the Turkmen Polytechnic Institute	Movie Maker	6
Teachers of the National Conservatory	Movie Maker	9
Teachers of the Institute of Culture	Movie Maker	7
Scientists of the Institute of Language and Literature	Movie Maker	9
Scientists of the Institute of Language and Literature	Multimedia Board	4
II quarter		
Teachers of the Turkmen Polytechnic Institute	Multimedia board	6
Teachers of the Turkmen Polytechnic Institute	CourseLab	3
Teachers of the National Conservatory	Internet basics	9
Teachers of the National Conservatory	Multimedia board	9
Teachers of the National Conservatory	Computer basics	9
Teachers of the National Conservatory	Graphics editing	4
Teachers of the National Conservatory	Video Editing	5
Teachers of the Institute of Culture	Computer Basics	7
Teachers of the Institute of Culture	Internet Basics	7
Scientists of the Institute of Language and Literature	Computer Basics	9
Teachers of the Institute of Culture	Multimedia board	7
Scientists of the Institute of Language and Literature	Internet Basics	8
Polyclinic #5	Computer Basics	13
Teachers of the National Conservatory	Training of Trainers	5
Teachers of the Turkmen State Polytechnic Institute	Training of Trainers	2
Doctors of the Polyclinic #5	Internet Basics	13
Scientists of the Institute of Language and Literature	Multimedia board	8
Teachers of the Secondary school # 46	Computer Basics	7
Turkmen State Medical University	Graphics editing	4
III quarter		
Scientists of the Institute of Geology	Internet Basics	13
Scientists of the Institute of Geology	Multimedia Board	13
Students of the Institute of International Relations under the MFA	Adobe Premier Pro	21
Teachers of the Secondary school # 46	Internet Basics	7
Teachers of the Secondary school # 46	Multimedia Board	7
Students of the Turkmen Polytechnic Institute	Computer Basics	8
Team group of aspirants	Computer Basics	10
Teachers of Turkmen State University	Internet Basics	8
Teachers of Turkmen State University	Interactive Board	16
Students of the Turkmen State University	Internet Basics	108

Students of the Institute of Foreign Relations	CourseLab	21
Students of the National Conservatory	Internet Basics	7
Students of the National Conservatory	Computer Basics	21
Teachers of the National Conservatory	Computer Basics	56
Teachers of the National Conservatory	Internet Basics	23
Scientists of the Institute of Geology	Computer Basics	6
Team group	Training of Trainers	4
Teachers of the National Conservatory	Interactive Board	15
Teachers of the Turkmen State University	Adobe Photo Shop	16
Scientists of the Institute of Geology	Internet Basics	6
Scientists of the Institute of Geology	Computer Basics	6
Scientists of the Institute of Manuscript	Computer Basics	8
Scientists of the Institute of Manuscript	Internet Basics	8
TOT group (teachers from the Institute of Economy and Management, Polytechnic Institute, Medical University, National Conservatory)	CourseLab	4
IV quarter		
Teachers of the Turkmen State University	CourseLab	16
Scientists of the Institute of Geology	Internet Basics	6
Scientists of the Institute of Geology	MovieMaker	6
Teachers of the Institute of Culture	Internet Basics	16
Teachers of the Institute of Culture	Multimedia Board	8
Teachers of the Institute of Culture	Computer Basics	16
Teachers of the School # 27	Computer Basics	6
Teachers of the School # 27	Internet Basics	6
Teachers of the School # 27	Multimedia Board	6
Teachers of the School # 7	Internet Basics	8
Teachers of the School # 55	Computer Basics	8
Teachers of the School # 55	Internet Basics	8
Teachers of the School # 55	Multimedia Board	8
Teachers of the School # 39	Computer Basics	7
Teachers of the School # 41	Computer Basics	14
Teachers of the School # 41	Internet Basics	14
Teachers of the School # 41	Multimedia Board	7
Teachers of the School # 39	Internet Basics	7
Teachers of the School # 39	Multimedia Board	5
Total for Year 2		775
YEAR 3 (OCTOBER 2011 – SEPTEMBER 2012)		
1st Quarter		
Faculty of the Institute of Culture	Internet Basics	8
Faculty of the Institute of Culture	Multimedia Board	8
Faculty of the Institute of Culture	Internet Basics	8
Faculty of the Institute of Culture	Computer Basics	8
Faculty of the Institute of Culture	Internet Basics	8
Teachers of School #39	Multimedia Board	5
Teachers of School #39	Movie Maker	5
Faculty of the Institute of Culture	Multimedia Board	8
Faculty of the Institute of Culture	Multimedia Board	8
Faculty of the Institute of Culture	Photoshop Basics	8
Teachers of School #44	Computer Basics	8
Teachers of School #44	Internet Basics	8
Teachers of School #44	Computer Basics	8
Teachers of School #16	Computer Basics	8

Teachers of School #16	Internet Basics	8
Graduate Students of Turkmen State University	Internet Basics	7
2nd Quarter		
Teachers of School #44	Multimedia Board	8
Teachers of School #44	Internet Basics	8
Teachers of School #44	Multimedia Board	8
Teachers of School #16	Multimedia Board	8
Faculty of the National Conservatory	CourseLab Basics	5
Faculty of the Institute of Culture	Computer Basics	7
Faculty of the Medical University	CourseLab Basics	7
Faculty of the Polytechnic Institute	Computer Basics	10
Faculty of the Institute of Culture	CourseLab Basics	8
Faculty of the Institute of Culture	Internet Basics	8
Faculty of the Institute of Culture	Multimedia Board	8
TOT for Hemayat and UIET	TOT	16
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	7
Doctors of the Institute of Health researching of Child and Mother	Internet Basics	7
3rd Quarter		
Doctors of the Institute of Health researching of Child and Mother	Excel Basics (specialized)	7
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	8
Doctors of the Institute of Health researching of Child and Mother	Internet Basics	8
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	8
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	8
Doctors of the Institute of Health researching of Child and Mother	Basics of Excel (specialized)	8
Teachers of the School # 44	Computer Basics	7
Doctors of the Institute of Health researching of Child and Mother	Internet Basics	8
Doctors of the Institute of Health researching of Child and Mother	Internet Basics	8
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	8
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	8
4th Quarter		
Doctors of the Institute of Health researching of Child and Mother	Internet Basics	8
Doctors of the Institute of Health researching of Child and Mother	Internet Basics	8
Doctors of the Institute of Health researching of Child and Mother	Excel Basics (specialized)	8
Faculty of Turkmen State Medical University	Internet Basics	7
Faculty of Turkmen State Medical University	MULTIMEDIA BOARD	7
Doctors of the Institute of Health researching of Child and Mother	Basics of Excel (specialized)	8
Doctors of the Institute of Health researching of Child and Mother	Basics of Movie Maker	8

Mother		
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	8
Total for Year 3		384
YEAR 4 (OCTOBER 2012 – SEPTEMBER 2013)		
1st Quarter		
Doctors of the Institute of Health researching of Child and Mother	Internet Basics	8
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	8
Doctors of the Institute of Health researching of Child and Mother	Internet Basics	8
Doctors of the Institute of Health researching of Child and Mother	Photoshop Basics	8
Institute of Languages and Literature	Basics of Movie Maker	5
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	8
Turkmen State Architectural Institute	Internet Basics	8
Institute of Languages and Literature	Basics of Excel (specialized)	5
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	8
Turkmen State Architectural Institute	Internet Basics	8
2nd Quarter		
Doctors of the Institute of Health researching of Child and Mother	Basics of Movie Maker	8
Faculty/graduate students of the Academy of Sciences	Basics of Movie Maker	8
Trainers and administrators of Bilgirje	Training of Trainers (TOT)	5
Faculty/graduate students of the Academy of Sciences	Photoshop Basics	8
Faculty/graduate students of the Academy of Sciences	Computer Basics	8
Faculty/graduate students of the Academy of Sciences	MULTIMEDIA BOARD	8
Faculty/graduate students of the Academy of Sciences	MS Publisher Basics	8
Faculty/graduate students of the Academy of Sciences	Internet Basics	8
Faculty/graduate students of the Academy of Sciences	Computer Basics	9
3rd Quarter		
Faculty/graduate students of the Academy of Sciences	Excel Basics	8
Faculty/graduate students of the Academy of Sciences	Internet Basics	9
Faculty/graduate students of the Academy of Sciences	Excel Basics	9
Researchers of the Academy of Sciences	Computer Basics	8
Teachers of the Secondary School No.1	Computer Basics	6
Teachers of the Secondary School No.1	Internet Basics	6
Faculty of the Medical University	Excel Basics	7
Faculty/graduate students of the Academy of Sciences	Basics of Movie Maker	8
Faculty/graduate students of the Academy of Sciences	Basics of Movie Maker	9
Researchers of the Academy of Sciences	Internet Basics	8
Faculty of the Medical University	Computer Basics	7
Faculty of the Medical University	Basics of Movie Maker	7
Faculty/graduate students of the Academy of Sciences	Photoshop Basics	8
Faculty/graduate students of the Academy of Sciences	Photoshop Basics	9
Researchers of the Academy of Sciences	Basics of Movie Maker	8
Teachers of the Secondary School No.1	Basics of Movie Maker	6
4th Quarter		

Teachers of the Secondary School No. 1	MULTIMEDIA BOARD	6
Researchers of the Academy of Sciences	Photoshop	8
Researchers of the Academy of Sciences	Excel Basics	8
Researchers of Water Research and Development Institute	Autodesk Inventor	9
Researchers of Water Research and Development Institute	Autodesk Inventor	8
Researchers of Water Research and Development Institute	Autodesk Inventor	8
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	9
Teachers of the Secondary School No. 68	Computer Basics	8
Total for Year 4		331
YEAR 5 (OCTOBER 2013 – DECEMBER 2013)		
1st Quarter		
Doctors of the Institute of Health researching of Child and Mother	Internet Basics	9
Doctors of the Institute of Health researching of Child and Mother	Computer Basics	9
Teachers of the Institute of Economics and Management	MULTIMEDIA BOARD	8
Teachers of the Institute of Economics and Management	Excel Basics	6
Teachers of the Institute of Economics and Management	Basics of Movie Maker	8
Teachers of the Institute of Economics and Management	Computer Basics	6
Teachers of the Institute of Economics and Management	Basics of Movie Maker	6
Teachers of the Institute of Economics and Management	Computer Basics	8
Teachers of the Secondary School No. 68	MULTIMEDIA BOARD	8
Teachers of the Secondary School No. 68	Computer Basics	8
Total for Year 5		76
TOTAL		1878

**Note: this table excludes all mobile trainings outside ICIML, which are presented in Tables 2 and 4 below.*

Activities at the TSR:

PICTT staff provided regular consultations – mostly on MS Office and internet search, saving and printing files, working with PDF formats, and other consultations on computer basics. Additionally, staff responded to a number of questions regarding search of papers in English, interactive multimedia and using CourseLab to present lessons. As per requests of beneficiaries, staff at the TSR purchased some highly demanded resources such as video-lessons and dissertations. Also, PICTT recorded copies of open-source educational resources in CDs. PICTT staff delivered specialized consultations in such programs as CourseLab, Photoshop, PowerPoint and Movie Maker, as well as personalized lessons to visitors interested in other kinds of highly technical subjects. ICIML/TSR provided necessary technical support for several conferences at the AoS, providing projectors, screens, and laptops for the Institute of History and the Council of Young Scientists.

- **Provide internet access for HEI administrators, educators and students**

PICTT staff provided free internet access and consultations for the teachers of the HEIs, graduate students at the TSR and ICIML with the majority of the beneficiaries being female. Considering the increasing attendance at the TSR/ICIML center, the bundled service of technical consultations and internet-search proved to be one the most attractive services offered by PICTT.

For the reporting period, there were up to 17,182 professionals who benefited from the PICTT program:

TSR:

- Internet access – 11,174
- Number of consultations – 5,109

ICIML:

- Internet access – 899

- **Provide a broader group of HEI educators with innovative technological tools and skills through mobile training.**

PICTT also conducted many training courses outside ICIML center (the majority of them in regions) making it possible for larger audience to benefit from the program.

Table 2. Mobile trainings provided in Ashgabat and the regions by PICTT

Institution	Region	Area	Number of trainees
YEAR 3 (OCTOBER 2011 – SEPTEMBER 2012)			
1st Quarter			
Faculty from National Conservatory	Ashgabat	Computer Basics	6
Faculty from National Conservatory	Ashgabat	Computer Basics	6
Faculty from National Conservatory	Ashgabat	Computer Basics	5
Faculty from National Conservatory	Ashgabat	Computer Basics	8
Faculty from National Conservatory	Ashgabat	Computer Basics	5
2nd Quarter			
Faculty of Polytechnic Institute	Ashgabat	CourseLab Basics	10
3rd Quarter			
Faculty of the Turkmen State Institute of Transport and Communications in Turkmenbashi city	Balkan region (Hemayat)	Basic Computer Literacy and Internet	5
Teachers of School # 6 in Turkmenbashi city	Balkan region (Hemayat)	Basic Computer Literacy and Internet	15
Teachers of different Schools in Turkmenabad city	Lebap region (Hemayat)	Basic Computer Literacy and Internet	15
Teachers of different Schools in Turkmenabad city	Lebap region (Hemayat)	Basic Computer Literacy and Internet	15
Teachers of Secondary Schools in Turkmenabad city	Lebap region (Hemayat)	Basic Computer Literacy and Internet	2
Teachers of the Medical School in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	1
Teachers of the Specialized Art School in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	13

Teachers of the Secondary Schools in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	15
Teachers of the Specialized Art School in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	2
Teachers of the Medical School in Mary city	Mary region (Hemayat)	Basic Computer Literacy and Internet	12
Teachers and Administrators from Hemayat	Ashgabat	TOT	5
4th Quarter			
Teachers of the Medical School in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	2
Teachers of Secondary Schools No. 18, 13 and 24 in Mary city	Mary region (UIET)	Basic Computer Literacy and Internet	14
Teachers and Administrators from UIET	Ashgabat	TOT	8
Faculty of the branch of Transport Institute in Turkmenbashi city	Balkan region (Hemayat)	Multimedia Board	11
Teachers of Vocational School No. 1 in Turkmenbashi city	Balkan region (Hemayat)	Multimedia Board	10
Total for Year 3			185
YEAR 4 (OCTOBER 2012 – SEPTEMBER 2013)			
1st Quarter			
Teachers of the Medical School in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	1
Teachers of the School of Arts in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	15
Teachers of Vocational School No. 1 in Turkmenbashi city	Balkan region (Hemayat)	Basic Computer Literacy and Internet	2
Faculty of the branch of Transport Institute in Turkmenbashi city	Balkan region (Hemayat)	Photoshop Basics	20
Teachers of the Medical School in Dashoguz city	Dashoguz region (Hemayat)	CourseLab	11
2nd Quarter			
Teachers of Medical Professional School	Mary region (Hemayat)	Movie Maker Basics	15
Teachers of Medical Professional School	Mary region (Hemayat)	Multimedia Board	15
Teachers of secondary schools	Lebap region (Hemayat)	Multimedia Board	10
3rd Quarter			
Teachers of Musical Professional School	Mary region (UIET)	Basic Computer Literacy and Internet	2
Teachers of Medical Professional School	Dashoguz region (UIET)	Basic Computer Literacy and Internet	10
Faculty of Pedagogical Institute	Lebap region (UIET)	Basic Computer Literacy and Internet	4
Faculty of the Institute of International Relations under the MFA	Ashgabat	Photoshop Basics	15
Faculty of Pedagogical Institute	Lebap region (UIET)	Basic Computer Literacy and Internet	1
Teachers of different secondary schools in Turkmenabad	Lebap region (UIET)	Basic Computer Literacy and Internet	14

Teachers of Musical Professional School	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	9
Teacher of Agribusiness Professional School	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	1
4th Quarter			
Teacher of Agribusiness School in Turkmenbabat city	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	1
Teachers of School of Pedagogy in Turkmenbabat city	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	9
Total for Year 4			155
YEAR 5 (OCTOBER 2013 – SEPTEMBER 2014)			
1st Quarter			
Teachers of the Medical School in Mary city	Mary region (Hemayat)	Basic Computer Literacy and Internet	1
Teachers of Musical School in Turkmenabat city	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	7
TOT for Hemayat and Bilgirje	Ashgabat(Hemayat)	TOT	11
Total for Year 5			19
TOTAL			359

**Note: this table excludes students who participated in mobile trainings - they are presented in Table 4.*

Training to representatives of education administrators to improve operational efficiency at their workplace.

The majority of administrators of various levels of higher education and research were trained in ICT skills at ICIML during the years of PICTT activities. Since many administrators were simultaneously faculty or did not want to show their managerial position, the program databases cannot provide the precise number of administrators. However the PICTT program estimates that at least 100 administrators were trained during the reporting period. Those administrators were all reached through PICTT trainings presented in Tables 1, 2 and 4. The highest number was from institutions under the Academy of Science; the National Conservatory; the Institute of Culture; and secondary schools. Vital skills acquired by the administrators mostly included Computer Use Basics, internet, MS Office and others. Many of the postgraduate students who attended ICIML had an increased potential of becoming leaders in their future careers, so PICTT made a certain contribution to building ICT capacities of future administrators.

• *TOT - training of trainers who taught their colleagues to use ICT*

PICTT organized several “Training of Trainers” (TOT) courses with the aim of raising the number of computer literate teachers at HEIs. Not only did participants learn how to teach computer basics and video editing software to their peers and students, but they also advanced their knowledge of interactive methodologies. During the TOT, teachers were provided with PICTT outreach materials, training manuals and were introduced to the electronic resources of PICTT and Academy of Sciences which allowed them to become familiar with the program goals, new electronic resources, and other useful information. Majority of those trained were from HEIs in Ashgabat and partnering NGOs in regions:

1. 2010, Teachers of the National Conservatory – 5 trainees;
2. 2010, Teachers of the Turkmen State Polytechnic Institute - 2 trainees;
3. 2011, Hemayat Trainers - 4 trainees;
4. 2011, TOT group (teachers from the Institute of Economy and Management, Polytechnic Institute, Medical University, National Conservatory) on CourseLab - 4 trainees;
5. 2012, TOT for Hemayat and UIET in Ashgabat IREX office - 16 trainees;
6. 2012, Teachers and Administrators from Hemayat (Hemayat Ashgabat office) - 5 trainees;
7. 2012, Teachers and Administrators from UIET (UIET Ashgabat office) - 8 trainees;
8. 2013, Trainers and administrators of Bilgirje Training of Trainers (TOT) - 5 trainees.
9. 2014, Trainers and Administrators of Hemayat and Bilgirje – 11 trainees.

The number of participants in TOTs is also outlined in Table 1 and table 2.

- **Conduct e-contests**

Each year since 2010, PICTT held e-contests and award ceremonies for the best electronic material development using CourseLab software. Participants began developing their materials with comprehensive assistance of Educational Initiatives Coordinator and ICIML trainers. Typically, eight finalists were selected and their lessons were added to the AoS Intranet for other teachers to access. PICTT staff and sometimes guests from AoS and USAID met with the finalists. Many finalists explained how they would use the materials for teaching and there was an exchange of opinion on the further development of digital materials with ICIML assistance. A reporter from “Neutral Turkmenistan,” the leading local newspaper in Russian language, was present during the ceremony in 2012. In total, four e-contests were organized since 2010.

- **Outreach to representatives of education faculties**

As reported earlier, international exhibitions and scientific conferences, most importantly the annual conference titled “Science and Innovative Technologies in the Epoch of Great Reforms”, were convenient events during which PICTT put an exposition of its innovations. PICTT staff distributed distance learning courses, localized tools, manuals, and brochures with the information about the program. Potential beneficiaries learnt about Internet opportunities and ICIML trainings. PICTT staff made periodic visits to current and potential beneficiaries’ workplaces for outreach and communication purposes. For instance, PICTT made contacts with directors and academic staff of newly opened vocational schools in 2012: The Railway School and Textile School. Representatives of the institutions expressed interest in mobile trainings at their premises as the busy schedule of instructors prevented them from attending the ICIML. Still, the AoS leadership refused to grant official permission to provide ICIML trainers for mobile trainings at those institutions and recommended instead approaching the Ministry of Education as the body in charge of the vocational schools. Since the Ministry wasn’t authorized to work with PICTT, it became clear that no approvals would be forthcoming to have mobile trainings directly at education institutions.

PICTT prepared and regularly updated factsheets together with a list of services and products. The brochures were mostly used for distribution among audiences to which the program still had no direct contacts. A considerable proportion of ICIML trainees reported later in post-training surveys that they learned about PICTT opportunities as exhibition visitors and participants (see Chart 2 in the section IV.MONITORING AND EVALUATION) for some types of promotional materials.

- **Continuously update lesson plan component of database**

Upon agreement from creators, most of training resources which had been created with PICTT assistance were made available for broader audience via open databases of the program. Some of the multimedia materials that were created by the participants in the recent contests formed the basis for new lessons. PICTT worked with beneficiaries interested in developing lesson plans. All new materials are distributed through the TSR room and then uploaded to the PICTT webpage and intranet within the AoS website.

- ***PICTT as an information hub for education professionals***

Since opening of TSR, PICTT staff distributed relevant information on ICT use in education with a growing list of list-serve members. On a weekly basis, the staff highlighted the best online source (such as e-library or database resources), which could be useful for postgraduate students and teachers.

Objective 3: Develop a virtual network that links higher education faculty, administrators, and students with the other institutions in Turkmenistan, as well as with regional and international partners and resources

- **Expand access to online educational materials developed by program on IREX Website & AOS website**

PICTT regularly updated the AOS website with newly developed e-materials (<http://science.gov.tm/projects/pictt/>). To expand access to those materials, PICTT also made them available on the IREX website <http://irextm.org/>

- ***Promote the use of available distance learning courses***

Considering the conditions of limited and slow Internet access, providing offline training materials in addition to their online versions proved to be an optimal way of promoting ICT among local beneficiaries. Through the ICIML and TSR, PICTT promoted distance courses through distribution of CDs and promotional hand-outs with a detailed description of each course and relevant website links. For instance, during several international exhibitions, TOTs, trainings and other events within four years, PICTT distributed more than 500 CDs with such courses as Movie Maker, CourseLab, Excel and MULTIMEDIA BOARDS.

Objective 4: Foster technological advances that promote educational development, access to free information, and promote educational development among higher education students, faculty, and administrators

- **Maintain the e-platform of the AoS for institutes of higher learning**

PICTT continued to maintain e-platform by collecting new materials to be posted on the web-page. Updated brochures and uploaded new e-lessons are available at:

<http://science.gov.tm/projects/pictt/elibrary.html>

Table 3: The list of electronic materials developed with PICTT assistance at TSR:

Institution	Field	Number of creators	Number of slides / pages	Quantity/type of materials
Turkmen State Medical institute	Medicine	7	-	18 e-lectures, 2 textbooks, 1 research paper
National Conservatory	Music	1	-	1 Research paper
Musical boarding school under the National Conservatory	History of music	2	-	1 lesson in OMS format to be taught on multimedia board, 1 textbook
School No 69	Health	1	-	1 lesson within school curricular
Institute of Languages under the Academy of Science	Literature	1	-	1 Research paper
The Institute of International Relations	Management	2	-	E-materials: "State Service",
The Institute of International Relations	Literature	2	-	E-materials: "The summary of a novel <i>War and Peace</i> "
Medical University	Health	1	-	Lesson plan: "Water supply hygiene"
Medical University	Health	1	-	Lesson plan: "Water quality improvement"
Institute of Culture	Art	1	-	Lesson plan: "The rich Turkmen table"
Institute of Culture	Art	1	-	Lesson plan: "Stallions with Wings"
Institute of Culture	Art	1	-	Lesson plan: "Medicine Herbs of Turkmenistan"
Institute of Culture	Art	1	-	Lesson plan: "Turkmenistan, the place of velvet"
Turkmen State University	Literature	1	38	Online resource: "Al-Khorezmi and his Research on Mapping"

National Conservatory	Musical Instruments	1	28	Online resource: "Art of Musicians"
National Conservatory	Folk Music	1	11	Electronic and multimedia teaching material: "Sonata Form"
State Medical University	Geography	1	10	Electronic and multimedia teaching material: "Lithosphere"
Polytechnic Institute	Education	1	14	Electronic and multimedia teaching material: "Entering Graduate Studies in Turkmenistan"
Institute of History	History	3	234	Electronic and multimedia teaching material: "Horezm and Gurganj – New Discoveries"
Pedagogical Institute	Biology	1	22	Electronic and multimedia teaching material: "Preserves of Turkmenistan"
National Conservatory	Art	1	38	E-Lecture: "Epic Creation in Central Asian People"
State Medical University	Health	1	5	Electronic tests: "E-testing on internal organs"
National Conservatory	Art	1	27	Electronic and multimedia teaching material: "Nury Halmammedow"
Institute of History	History	1	6	Electronic and multimedia teaching material: "Akgoyunli State"
State Medical University	Health	1	50	Electronic promotional resource on health: "Health School on Heart Functioning"
State Institute of Economy	Economics	1	19	Electronic and multimedia teaching material: "About the State Retirement Insurance"
Medical University	Health	1	10	Electronic and multimedia teaching material: "Alimentary track"
Institute of Culture	Art	1	9	Electronic and multimedia teaching material: "National Theater: The Art of Being an Actress"
Institute of Culture	Art	1	22	Electronic and multimedia teaching material: "The Louvre Museum"
Institute of History	ICT	1	15	Electronic and multimedia teaching material: "Internet – the Global Information Network"
Institute of Culture	Art	1	122	Electronic textbook: "History of Music of Oriental People"
Institute of Culture	Art	1	160	Electronic book: "Folk Music Creativity of Turkmen People"
Institute of Languages	Foreign language	1	105	Electronic book: "English Language for College Students"

- Equip HEIs' students with ICT skills

PICTT trained students mostly in regions.

Table 4. PICTT trainings for students

Institution	Region	Area	Number of Trainees
YEAR 3 (OCTOBER 2011 – SEPTEMBER 2012)			
2nd Quarter			
Students from National Conservatory	Ashgabat	Computer Basics	6
Students from National Conservatory	Ashgabat	Computer Basics	6
Students from National Conservatory	Ashgabat	Computer Basics	5
Students of Polytechnic Institute	Ashgabat	Multimedia Board	7
3rd Quarter			
Students of the Institute of Transportation and Connection in Turkmenbashi city	Balkan region (Hemayat)	Basic Computer Literacy and Internet	10
Students of the Pedagogical Institute Turkmenabad city	Lebap region (Hemayat)	Basic Computer Literacy and Internet	15
Students of the Pedagogical Institute Turkmenabad city	Lebap region (Hemayat)	Basic Computer Literacy and Internet	13
Students of the Medical School in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	14
Students of the Specialized Art School in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	2
Students of the Specialized Art School in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	13
Students of the Medical School named after S. Niyazov in Mary city	Mary region (Hemayat)	Basic Computer Literacy and Internet	3
4th Quarter			
Students of the Medical School in Dashoguz city	Dashoguz region (UIET)	Basic Computer Literacy and Internet	15
Students of the Medical School in Dashoguz city	Dashoguz region (UIET)	Basic Computer Literacy and Internet	13
Students of Vocational School of Oil and Gas in Mary city	Mary region (UIET)	Basic Computer Literacy and Internet	5
Students of Musical School in Mary city	Mary region (UIET)	Basic Computer Literacy and Internet	2
Students of Vocational School No. 8 in Mary city	Mary region (UIET)	Basic Computer Literacy and Internet	5
Students of Vocational School No. 2 in Mary city	Mary region (UIET)	Basic Computer Literacy and Internet	4
Total for Year 3			138
YEAR 4 (OCTOBER 2012 – SEPTEMBER 2013)			

1st Quarter			
Students of the Medical School in Dashoguz city	Dashoguz region (Hemayat)	Basic Computer Literacy and Internet	14
Students of Pedagogic School in Mary city	Mary region (Hemayat)	Basic Computer Literacy and Internet	15
Students of the branch of Transport Institute in Turkmenbashi city	Balkan region (Hemayat)	Basic Computer Literacy and Internet	28
2nd Quarter			
Students of the Institute of Culture	Ashgabat	Computer Basics	6
Students of the Institute of Culture	Ashgabat	Internet Basics	6
Students of the Pedagogical School in Mary city	Mary region (Hemayat)	Movie Maker Basics	18
Students of the Pedagogical School in Mary city	Mary region (Hemayat)	Multimedia Board	18
Students of the River School in Turkmenabat city	Lebap region (UIET)	Basic Computer Literacy and Internet	15
3rd Quarter			
Students of the Institute of International Relations under the MFA	Ashgabat	Photoshop Basics	14
Students of the Institute of International Relations under the MFA	Ashgabat	Photoshop Basics	19
Students of the Institute of International Relations under the MFA	Ashgabat	Photoshop Basics	19
Students of Musical Professional School	Mary region (UIET)	Basic Computer Literacy and Internet	7
Students of Oil and Gas Professional School	Mary region (UIET)	Basic Computer Literacy and Internet	6
Students of Medical Professional School	Mary region (UIET)	Basic Computer Literacy and Internet	10
Students of Musical Professional School	Mary region (UIET)	Basic Computer Literacy and Internet	3
Student of Oil and Gas Professional School	Mary region (UIET)	Basic Computer Literacy and Internet	1
Student of Agribusiness Professional School	Mary region (UIET)	Basic Computer Literacy and Internet	1
Students of Medical Professional School	Dashoguz region (UIET)	Basic Computer Literacy and Internet	5
Students of Medical Professional School	Dashoguz region (UIET)	Basic Computer Literacy and Internet	15
Students of Pedagogical Institute	Lebap region (UIET)	Basic Computer Literacy and Internet	8
Student of Professional School of Chemistry	Lebap region (UIET)	Basic Computer Literacy and Internet	1
Students of Professional River School	Lebap region (UIET)	Basic Computer Literacy and Internet	2
Students of Pedagogical Institute	Lebap region (UIET)	Basic Computer Literacy and Internet	15
Students of Agribusiness Professional School	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	3
Students of Musical Professional School	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	3

Students of Agribusiness School	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	14
4th Quarter			
Students of Agribusiness School in Turkmenabat city	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	18
Students of Musical School in Turkmenabat city	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	2
Students of Medical School in Mary city	Mary region (Hemayat)	Basic Computer Literacy and Internet	15
Students of School of Pedagogy in Mary city	Mary region (Hemayat)	Basic Computer Literacy and Internet	15
Total for Year 4			316
YEAR 5 (OCTOBER 2013 – DECEMBER 2013)			
1st Quarter			
Students of the Institute of Energy in Mary city	Mary region (Hemayat)	Basic Computer Literacy and Internet	5
Students of the Institute of Energy in Mary city	Mary region (Hemayat)	Basic Computer Literacy and Internet	14
Students of the Medical School in Mary city	Mary region (Hemayat)	Basic Computer Literacy and Internet	9
Students of Agribusiness School in Turkmenabat city	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	15
Students of Musical School in Turkmenabat city	Lebap region (Bilgirje)	Basic Computer Literacy and Internet	8
Total for Year 5			51
TOTAL			505

- **Provide postgraduates/aspirants with up-to-date information through online education, research materials, and books**

PICTT was one of the most beneficial international projects for postgraduate students in Turkmenistan, as ICIML specially tailored its offers to meet needs of visitors of the adjacent postgraduate training centers. The program staff provided post-graduate students with regular technical consultations on various topics, including email use, downloading dissertations, translation, creating tables and using equations on MS Excel, advanced MS Word use, academic search using internet, file formats, navigating educational videos, etc.

- **Create at least 2 training reference manuals for HEIs**

Twelve manuals and corresponding training courses in Russian and Turkmen languages were created for trainees: Computer Basics, MS Word, MS Excel, MS Publisher, MS Movie Maker, Multimedia Board, Internet Search and Email, Excel Advanced, Adobe Photoshop, Adobe Premiere, CourseLab, Autodesk Inventor.

Develop localized software tools that encourage use of ICT in education

Pressure has been increasing on local educators to use electronic materials for teaching after MULTIMEDIA BOARDS were installed in many institutions in 2011. Already in 2010, short 2-minute video tutorials were developed and made available for download which answered the most frequently asked questions on ICT.

Since then, the program released Turkmen versions of IrYdium Virtual Chemistry Lab, PhET Sims, WalterFendt Applets, CourseLab 2.7 software and comprehensive User’s Manual, GoldenDict dictionary lookup program with integrated English – Turkmen ICT Dictionary, and a Moodle Language Pack. The recent localizations were also reported in the local newspaper “Neutral Turkmenistan.”

4. MONITORING AND EVALUATION

During the reporting period staff regularly monitored project activities, in accordance with the project Monitoring and Evaluation Plan. The progress towards set goals and monitoring indicators is shown below.

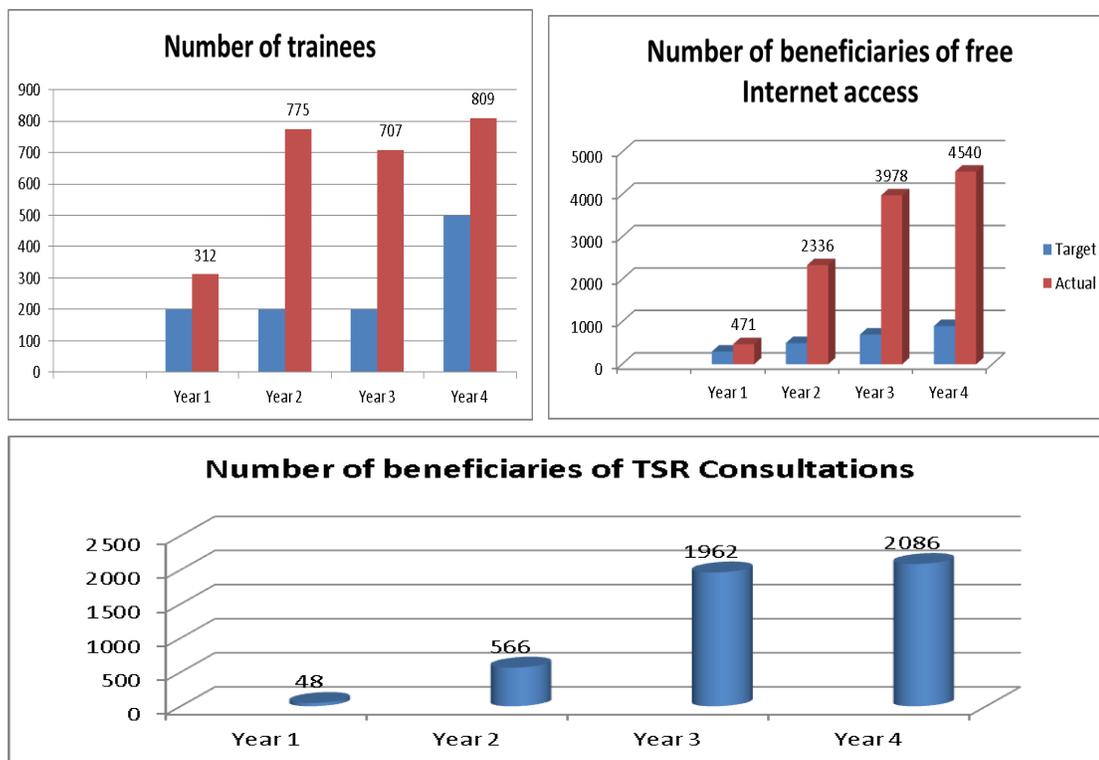
Table 5. Monitoring and Evaluation Plan Progress

Indicators	PICTT Target for Life of the Project	Number for the period: September 30, 2009 – December, 31, 2013	Data source	Data collection method	Baseline information
Number of host country individuals trained as a result of the USG investments involving HEIs	1 100	2 742	PICTT database	List of participants	Participants trained on computer applications and Internet usage.
Number of people who received internet access due to USG-funded programs	2 400	12 073	PICTT database	List of participants	Visitors from Academy of Science, HEI faculty, graduate students and secondary school teachers use internet for e-mail and research
PICTT-supported institute constituents communicate through e-mail, online discussions, and other virtual communication on minimum monthly basis	350	256	Monthly report, HEIs	On-line monitoring	HEI representatives communicated with colleagues through virtual communication and established e-mail accounts.
At least two distance learning courses developed and piloted in Turkmenistan	2	4	Program database	Monthly report	PICTT team has developed video courses: -Multimedia Board -CourseLab -MS Movie Maker -Excel: Charts and Filters

PICTT surpassed targets for every indicator, except for the virtual communication.

Figures below indicate that the demand for ICT services and internet was higher than expected as set by target indicators.

Chart 1: Year-to-year dynamics in the number of PICTT beneficiaries



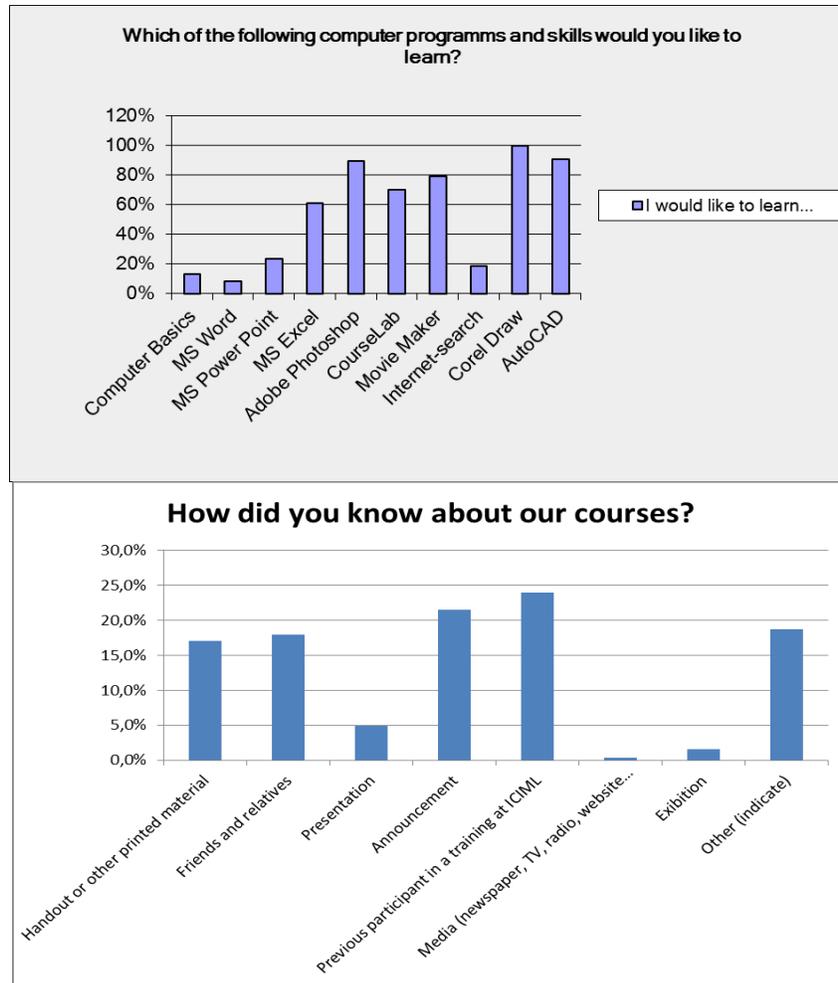
Surveys

PICTT staff conducted post training surveys for each participant. While the survey was helpful in evaluating impact and making plans, some limitations had to be taken into consideration. Some bias could exist with respondents concerning sensitive questions such as those evaluating quality of instruction and the trainers. Respondents expressed concern over being approached with surveys by unknown individuals. Even though PICTT has been present during the surveys and exercised great effort to explain the questions, mechanical mistakes or omissions could constitute a small proportion of the responses. Finally, since Internet surveys were not possible, the cumbersome process of transferring the paper records manually to online form itself could also slightly affect accuracy.

The survey can be accessed here: <https://www.surveymonkey.com/s/V5G35BJ>.

Respondents provided useful comments in text fields concerning various aspects of PICTT trainings. Based on these comments PICTT was able to better tailor future trainings based on expressed needs of participants. Requests included offerings in advanced software or programming such as AutoCAD, Delphi, C++, Photoshop, Java, and CourseLab (See Chart 3). There was a considerable number of comments soliciting increase in frequency and duration of lessons or the introduction of continuous study and upgrading of skills at the institution. Out of two hundred, there were only a couple of negative comments citing lack of time and feeling tired of the training; one researcher complained that many of those who wish cannot get the trainings, particularly, fewer senior people are allowed to the courses. PICTT staff has always been attentive about needs of beneficiaries so efforts were continuously made to address those needs. In the charts below there is a collection of salient findings from the PICTT trainee survey. It was clear that beneficiaries were willing to move to more advanced ICT subjects after the initial ICT basics courses. Another important finding was the fact that majority of beneficiaries seemed to know about PICTT not from promotional activities like conferences or handouts but directly from other beneficiaries. Such a positive word-of-mouth promotion meant satisfaction of the past beneficiaries of PICTT services.

Chart 2: How trainees find out about PICTT courses and the software which trainees would like to learn in the future after completion of their first training by PICTT



Development of M&E system and reporting the program impact

To track different types of program activities, PICTT staff kept four main systems of M&E:

- MS Access database with records of all trainings including personal data of participants;
- Consultation Chart in Google Drive tracking technical consultations and Internet access at TSR (online at https://docs.google.com/spreadsheets/cc?key=0AvT64B8kj84SdEE1aTExMGNpcDZkd25wOU9aTDdkYXc&usp=drive_web);
- PICTT section of Knowledge Management Portal / MIS Statistics Database belonging to Counterpart International (online at <https://mande.counterpart.org>);

SurveyMonkey for final questionnaires filled by trainees and other surveys (through organizational account at <https://ru.surveymonkey.com/>)

During regional trainings in 2012 – 2013, PICTT also actively employed telephone surveys of trainees to track quality of instruction by local partners. In addition, separate reports to be filled

by regional trainers were developed specially for the partners to track progress in training activities outside ICIML.

In January 2013, USAID hosted a training session for all implementing partners on evaluation and performance indicator reporting for projects delivered at the local level. PICTT staff attended the training and gained a better understanding of USAID requirements and how they apply to the project. In response to requests from Counterpart International, PICTT started entering additional information into MIS online database such as the proportion of youth among beneficiaries (those under the age of 30) and detailed breakdown of technical consultations at TSR according to main topics. Most of the additional information was available before from detailed monthly reports but for some new formats of records were necessary.

USAID and PICTT staff met in March 2013 to conduct a Data Quality Analysis on specific indicators, in particular female participation in USG-assisted programs. The USAID Outreach Specialist, together with PICTT staff, verified sources and validated data that PICTT gathers for the PMP and other reports. The investigation found that the current monitoring system is effective and results are collected in a reliable and accurate manner. Also in 2013, it was decided to track closely and include the number of emails used for academic purposes as an indicator of virtual communication.

Following the meetings with USAID, PICTT staff discussed possible new techniques to measure the impact of the program. Traditionally, local organizations and individuals are highly sensitive to inquiries by foreign organizations. Even seemingly innocent questions to past beneficiaries could draw negative reactions from respondents or organizations to which they are linked. In an effort to mitigate this risk, PICTT developed a series of indirect indicators to measure outcomes and assess impact, such as calculating the number of beneficiaries who returned after a significant period of time to enroll in additional trainings, consultation, or accessing computers connected to the internet. Results of the analysis showed that:

- Approximately one out of ten beneficiaries who received PICTT training return to ICIML to have one or more trainings, after a period of at least one month
- 10% to 30% of beneficiaries who had PICTT training before return to TSR to have a technical consultation in ICT (the wide range is caused by extraction of data from separate databases)

PICTT believes that such figures demonstrate that beneficiaries return because they are putting these ICT skills to use as well as looking to expand their knowledge.

To date, PICTT has provided ICT training and consultations for over 1,000 faculty, students, and researchers covering 80% of HEIs in Turkmenistan. In the regions, PICTT conducted mobile trainings for participants at 15 out of 22 HEIs and professional schools (approximately 70% of such institutions in Turkmenistan).

While formal participant surveys were not feasible, PICTT conducted informal interviews of graduate students and professionals at the TSR. Findings include:

- The unique mix of courses and consultations at ICIML/TSR offers convenience and quality of instruction for graduate students. The ICIML's central location serves as a strategic center

inside the AoS, adjacent to the specialized language center where all graduate students come to take part in lessons and consultations. In addition, students take advantage of services such as downloads, special orders, saving, scanning printing of files, and other forms of comprehensive support. Students enjoy significant cost savings on these scarce resources.

- There are well-known public access points throughout Ashgabat that provide free internet but few can match the ICIML's level of service and meet the specific needs of graduate students. Respondents mentioned that the ICIML lacks many of the bureaucratic hurdles that other, comparable centers apply. Respondents continued to mention the "friendly and supportive environment that the ICIML offers. A number of beneficiaries mentioned that despite owning a personal USB-modem, they prefer the space, connectivity, and access to technical support that is provided by the ICIML.
- PICTT courses are an affordable alternative to private IT courses, provided elsewhere. Students save time and money taking advantage of PICTT's free consultations. Graduate students are required to pass a mandatory course on computer basics at the AoS. Still, many of them take additional computer courses at the ICIML, citing that the PICTT courses offer a unique opportunity to engage in advanced subject areas.
- Faculty created high-impact presentations and e-lessons, thanks to support in using CourseLab, Photoshop, Movie Maker, and IWBs. One graduate student explained that she was able to create PowerPoint presentations on her research, whereupon she was able to present her research at five international conferences.
- Beneficiaries from certain research institutions, in particular those who attended school before the advent of the personal computer, secured their jobs by meeting enhanced ICT criteria demanded by the recent official policy on promoting e-government. The most prominent example is the Institute of Health researching of Child and Mother. PICTT provided numerous trainings for over 120 medical researchers from this institution, which operates under the Ministry of Health. After completing the full cycle of ICIML trainings, not only were employees able to enhance their productivity at work, but they were also able to minimize ICT qualifications required by their employers. Many secondary school teachers that had completed trainings at the ICIML in past years reported similar impact on enhanced job security.

The general conclusion from this feedback was that the largest impact seemed to be enabling beneficiaries to better conduct their research and meet ever-stricter ICT requirements in the workplace. Beneficiaries are acquiring skills that allow them to remain competitive. This in turn contributes to improved quality of academic research, improved ability to obtain degrees, the ability to maintain one's employment, and improved ability to advance in one's career.

5. ACHIEVEMENTS

Cooperation with the Academy of Science (AoS)

In regards to ICT access, the program has been very successful increasing the number of individuals trained and internet users through AoS, the approved governmental partner. Due to the mutually beneficial cooperation, PICTT surpassed its target goals for the main indicators and

covered the majority of higher education institutions in the country. PICTT achieved and maintained the status of the most beneficial foreign project for postgraduate student providing convenience and quality of services at ICIML/TSR. By providing sound services to the visitors at ICIML and actively seeking and recruiting new partners under the auspices of the Academy, the PICTT program staff have taken full advantage of available resources and added to the broader success of PICTT in Turkmenistan. The e-platform developed by PICTT was also hosted by Academy of Science.

Development of tailored training materials in two languages

PICTT has successfully developed various new training tools and videos such as distance learning courses and advanced ICT courses, such as graphics editing software, video editing software and CourseLab. PICTT has also developed digital record keeping resources, such as an e-catalog for the AoS Institute of Languages, resulting in improved organizational functioning. PICTT has tailored materials and trainings to target the obstacles to ICT in HEIs. PICTT developed and translated twelve manuals in Russian and Turkmen: Computer Basics, MS Word, MS Excel, MS Publisher, MS Movie Maker, Multimedia Board, Internet Search and Email, Excel Advanced, Adobe Photoshop, Adobe Premiere, CourseLab, and Autodesk Inventor. These translated materials will last as a durable resource for HEIs throughout Turkmenistan.

Electronic resources for education

Throughout the program, PICTT staff provided assistance to educators in developing creative interactive lessons. In total, 49 electronic resources of various kinds were created by beneficiaries including e-lectures, lesson plans, presentations, quizzes etc. (outlined in Table 3). Beneficiaries were actively encouraged to create and share training resources during visits to ICIML, conferences, consultations and other events. In addition, PICTT held four contests and corresponding award ceremonies for the best electronic material development using CourseLab software. The main criteria for participation was to create new e-material in Turkmen language, technology enhanced lesson plan components, presentations, and so on. Participants began developing their materials with comprehensive assistance of ICIML trainers. Finalists were selected and their lessons were added to the AoS Intranet for other teachers to access.

E-gallery and e-books

2012 saw successful cooperation with the Institute of History of the AoS, and the joint creation of two prestigious products: e-book “Khorezm and Gurganj: New Discoveries” in three languages (Turkmen, English and Russian) and an e-gallery of the Institute’s Archeological Fund. Both products are illustrative examples of what could be created with the use of modern ICT. They were presented during international conference and raised high interest from Turkmen professionals and their foreign counterparts.

Trainings in the Regions through Local Partners

Respected NGOs, Hemayat, Bilgirje and UIET, were contracted to provide trainings at their learning centers around the country. These learning centers allowed PICTT to operate in all

regions of Turkmenistan. Contracts were negotiated to ensure PICTT has full quality control, monitoring access, and final decision on which trainers and trainees are covered. PICTT staff regularly conducted unannounced site visits and contacted trainees to ensure accuracy in contractor reports and adherence to the PICTT model. PICTT partners UIET, Bilgirje, and Hemayat completed trainings in accordance with their contractual obligations. Through these regional trainings, students and faculty outside of Ashgabat have received ICT training that was previously limited to the capital. PICTT extended its instruction model to all five regions of Turkmenistan. In addition to providing instruction in ICT, students and faculty also completed advanced courses in CourseLab, Photoshop, and IWB. Over the course of the training activities, PICTT provided beneficiaries with free manuals, handouts, educational videos, interactive multimedia, and other resources. Through this partnership model, PICTT has addressed the challenge of providing ICT training in the regions outside of the capital. The strategy of partnering with local NGOs proved to be an effective method of extending program activities to all regions of Turkmenistan. Over 700 individuals have taken part in regional trainings, making PICTT the most comprehensive ICT training program in the country. This number is equivalent to about 25 % of the total number of trained beneficiaries in the PICTT project lifespan and represents the first program activity outside of the capital Ashgabat. Core to the regional training effort was building the capacity of local NGOs to effectively deliver the PICTT model. Through ToTs, PICTT staff engaged partner NGOs in module delivery, project management, and financial reporting.

Advanced mobile trainings through local partners

PICTT employed a successful model of conducting mobile trainings on advanced computer programs in the regions using facilities of regional partners. Hemayat was the most instrumental partner in such activities. In September and November 2012, forty students from the Transport Institution in Turkmenbashi attended a week-long mobile training on IWB and Photoshop. In December 2012, eleven participants from various HEIs attended two-week training on CourseLab in Dashoguz. In 2013, at Hemayat's Mary center these trainings attracted faculty and students from the Medical and Pedagogical Schools. In a ten-day period, PICTT trainers delivered courses on IWB and Movie Maker for four groups of sixty two students and teachers. This model for conducting mobile trainings worked well with participants allowing reaching out to target beneficiaries in other regions of Turkmenistan (refer to the complete list of advanced trainings in Tables 2 and 4).

Advocacy for ICT in higher education in the local mass media

PICTT staff made an effort to increase the program's visibility in the media. PICTT activities were featured in a number of publications.

- *Neutral Turkmenistan*, the most widely-circulated newspaper in the Russian language, published four articles covering PICTT activities such as the contest among the faculty and graduate students of HEIs for the best developed electronic material, the successful collaboration with the AoS, development of E-books and E-Gallery, localization of CourseLab software, PhET and other educational resources (Online versions of article were also available).
- "*Turkmenistan*" State TV Channel made two reports dedicated to bigger PICTT events such as e-contest and E-learning conference.

In addition, PICTT was briefly mentioned in these and other media several times mentioning participation in international conferences and other events. Coverage of this type is significant for a number of reasons: First, it indicates that there is increasing support for such activities on the part of government leaders. Second, it also sends encouraging signals for current and prospective partners for further cooperation. Some of the articles on PICTT available online:

In Russian:

<http://www.turkmenistan.gov.tm/?id=3393>
<http://www.turkmenistan.ru/ru/articles/39215.html>
<http://www.ca-news.org/news:1089468/>
<http://www.trend.az/regions/casia/turkmenistan/2215195.html>
<http://tdh.gov.tm/ru/2013-04-13-07-33-61/1857-2013-11-25-00-30-00>
<http://russian.ashgabat.usembassy.gov/pr20131125.html>
<http://turkmenistan.gov.tm/?id=5365>
<http://www.turkmenistan.gov.tm/en/?idr=9&id=110420a>

In English and Turkmen:

<http://turkmenistan.gov.tm/eng/?id=2972>
<http://turkmen.ashgabat.usembassy.gov/pr20131125.html>
<http://turkmenistan.usembassy.gov/pr20131125.html>
<http://turkmenistan.gov.tm/tmt/?id=3554>
<http://youtu.be/nvwZr6ihMcE>

Analysis of the Language Packs for Turkmen versions of Windows 7 and Office 2010

PICTT prepared an in-depth analysis of the language packs for Turkmen versions of Windows 7 and Office 2010 to share with the Microsoft Business Development Manager in Turkmenistan. The evaluation report outlined a number of shortcomings in the current Turkmen translation and included a set of specific recommendations on improvement for future versions.

CourseLab 2.7 in Turkmen language

PICTT cooperated with the WebSoft Company to create a final version of CourseLab 2.7 software in Turkmen language. The process of negotiations, translation, localization and final testing lasted for several months. CourseLab is a robust e-learning authoring tool that offers a programming-free environment for creating high-quality interactive e-Learning content that can be published on the internet, Learning Management Systems (LMS), CD-ROMs, and other devices. CourseLab is currently the most popular piece of e-Learning authoring software in the CIS area. The latest Turkmen localization opens wide possibilities for Turkmen educators to implement E-Learning in native language with support of interactive rich applications and the web. Notably, it is the first localized software in this category for Turkmen users. In recognition of localization efforts, WebSoft donated six license keys for the new CourseLab version. PICTT transferred the keys to six local HEIs affiliated with participants who won e-contests. PICTT also prepared a distance learning course on CourseLab. PICTT translated the official user's manual for the latest version of CourseLab. This comprehensive, 650-page manual not only covers details of using this powerful application, but also provides general principles of working with e-

learning authoring systems. During the June 2013 Science Exhibition, PICTT introduced this new localization package to the representatives of AoS and the Ministry of Education.

Participation in the International Exhibitions

PICTT promoted its activities through two important annual exhibitions – “International Exhibition and Scientific Conference on Education, Sport and Tourism in the Era of Power and Happiness” and “International Exhibition and Conference on Science, Technology and Innovations in the Epoch of Power and Happiness”. PICTT distributed free educational materials to faculty, students, and high-ranking officials. At the exhibitions, PICTT staff met with various government officials and heads of other local organizations to explore possible future partnerships. They were a significant opportunity for PICTT to engage new institutions, introducing unique products and services.

Distance learning courses and video lessons

PICTT developed four complete distance learning course on Multimedia Board, CourseLab, MS Movie Maker, and Excel: Charts and Filters. Taking into account slow and limited access to online resources, offline versions in CD proved to be an effective means of distribution. The courses were created based on feedback from faculty, staff, and students, expressing a need for new techniques maximizing the functionality and features of the software. Faculty and researchers are among. As these were the first distance learning courses of the kind in Turkmen language, there was a good potential for wide and sustained adoption.

IrYdium Virtual Chemistry Lab

In 2012, PICTT provided a Turkmen-language version of the open source IrYdium Virtual Chemistry Lab (<http://www.chemcollective.org/vlab/vlab.php>). This was popular among the participants at exhibitions and PICTT distributed copies brought to the booth of the program during such events. Such kind of relatively simple localizations of open source educational software was further used as a way to make ICT relevant for policymakers and targeted beneficiaries.

Collection of Interactive Multimedia on Natural Sciences

In 2013, PICTT continued work on creating localized interactive multimedia. PhET Interactive Simulations and Walter Fendt Applets were made available in Turkmen language for both offline (CD) and online distribution (available at <http://phet.colorado.edu/en/simulations/translated/tk> / <http://www.walter-fendt.de/ph14tm> / <http://www.walter-fendt.de/m14tm> / <http://www.walter-fendt.de/a14tm>).

ICT dictionary and GoldenDict localization

PICTT staff responded to a number of questions from ICIML visitors regarding translation of research papers in English. CD versions of GoldenDict dictionary was prepared with integrated dictionaries including the most common languages for use by graduate students. Both GoldenDict and included dictionaries were open-source. GoldenDict is currently considered the

most powerful and popular dictionary lookup application in open-source category. This program is capable of using nearly all electronic dictionary formats including highly popular Lingvo and Babylon dictionaries. PICTT staff translated the program interface to Turkmen language. Corresponding localization file was submitted to developers' site so that Turkmen is included to upcoming GoldenDict 1.5 version along with many languages. In addition, Turkmen – English ICT Dictionary was compiled by the program staff and added as an electronic dictionary into GoldenDict CD for distribution. The dictionary is mostly based on translations taken from the largest and freely available Turkmen localizations of well-known software. Its main purpose was to assist developers in future localizations from English to Turkmen language. Sources included The Microsoft Terminology Collection, CourseLab 2.7 Help and Manual, WordPress Translation of 3.5.x, Moodle Turkmen Language Pack and other localizations, glossaries and manuals in Turkmen language. There is yet no established ICT terminology in Turkmen language so several translations may exist for the same word. When created in 2013, this dictionary, with some 4 000 terms and 1 500 word combinations, was the most up-to-date dictionary in the related category.

Activity Based Training Conference on E-learning and Moodle

PICTT has identified a sustained demand for affordable and comprehensive E-learning tools. The popular open-source Learning Management Systems (LMS) could potentially bring significant benefits to faculty and students at Turkmen HEIs, as these would help meet the growing demand for distance-learning courses. Moodle Conferences are regularly organized around the world. In November 2013, PICTT organized the first event of its kind in Turkmenistan. In fact, that was the largest event organized by the program. Numerous logistical and technical issues had to be solved to make this seminar possible. An expert on Moodle has been invited to present the features of the Moodle LMS to HEI students, administrators, and educators. Education administrators were the focus of the conference, as LMS could help them respond to the existing nationwide policy on the promotion of ICT in a very cost-effective manner. PICTT also prepared a portable offline package of Moodle for local users, a Turkmen translation of the most important section of Moodle LMS, and made it available in the related Language Portal (<http://download.moodle.org/langpack/2.4/>). Not only Moodle, but also web conferencing and E-learning and mixed learning were discussed during the seminar. Essentially, focus was on promotion of open-source resources in the country rapidly moving towards E-document management systems. The event was successful and enjoyed a notable interest from the local and even foreign media. An unprecedented number of news articles appeared on the seminar creating positive media coverage of PICTT.

6. CHALLENGES

Opening a second ICT Center

The biggest challenges have been in areas of public expansion with new partners and in new places. There is no better way to introduce new levels of ICT use in education than by working directly within at an HEI's facility. PICTT failed to open the second ICT center in any of the collaborative HEIs (Institute of Transport in Turkmenbashi, National Conservatory, AoS Institute of History). Despite the sincere interest of those organizations and good reputation of

PICTT project gained through the work in ICIML Center at the Academy of Sciences, all proposals sent through the dipnotes did not receive approval. In response to these challenges, PICTT established partnerships with local NGOs. By providing equipment and furniture to the computer rooms of the UIET Business Schools in Dashoguz, Mary and Turkmenabat, PICTT opened “virtual centers,” and initiated computer trainings in three regions outside of Ashgabat.

Monitoring and Tracking of Regional Trainings

Trainings in the regions using local Hemayat, UIET and Bilgirje partners proved to be an effective way to overcome bureaucratic obstacles in reaching broader territorial coverage of PICTT activities. At the same time, lack of direct control of the regional trainers, trainees, and administrators created new challenges. There were some cases of irregularities in reporting from some of the regions in Hemayat and UIET. PICTT has ceased support of Hemayat Turkmenabad training center and has worked with local partners to streamline new systems for invoices, reports, and curriculum to ensure the tracking and payment process is clear. Besides short delays in providing the list of participants, Bilgirje did not have any problems in following and complying with PICTT established regulations.

Cooperation with UIET

Since June 2012, UIET has experienced difficulty renewing its license to conduct educational activities. For that reason, UIET suspended PICTT trainings in the regions. In December 2012, UIET obtained its license and all trainings for remaining groups were completed before summer 2013. The Contract between PICTT and UIET had to be extended so that the partner could meet its obligations. After the change of leadership in the Business School of UIET, the level of cooperation decreased and no new contracts were signed despite several contacts and requests made by PICTT staff.

Virtual Conferences

Virtual Conferences are designed to help promote the value of ICT among HEI beneficiaries, especially when budget constraints may hinder research. PICTT contacted the AoS in May 2012 to discuss the possibility of commencing virtual discussions between international experts in Russian-speaking countries and Turkmen academics in Ashgabat. The AoS responded in May 2012 prohibiting any such activity.

Employee turnover

PICTT has experienced a high rate of employee turnover. During the four-year project life cycle, there were three Program Directors, four Country Coordinators, two Education Initiative Coordinators, two Web and Training Coordinators, three Program Associates, and also replacement of trainers in ICIML Center. Only Andrey Skopov, ICIML Center Administrator, worked on its position for the entire duration of PICTT. Of course, new employees bring new ideas and fresh air into the project implementation. At the same time, such shifts especially of the key staff, Program Director and Country Coordinator, raise questions about the importance of the project among local stake holders. Additionally, it takes time for new staff members to get familiarized with the program, scope of duties, and responsibilities. Overall this had a negative

impact on project implementation, especially in an operating environment where personal relationships and connections are so important.

Legislation on foreign assistance

The Government of Turkmenistan passed new legislation on foreign assistance, adding new rules and procedures for registration and the use of foreign grants and other forms of financial assistance including both international and local organizations, individuals and other beneficiaries. In January 2013, the President of Turkmenistan signed the resolution, titled, “On the government registration of foreign projects and programs on gratuitous technical, financial, humanitarian assistance and grants.” The new regulations have not had a substantial impact on current PICTT activities but could negatively affect willingness of partners for further cooperation. <http://turkmenistan.gov.tm/eng/?id=1785>

Irregular Internet connection

During the reporting period, the IREX office dealt with a number of network connectivity issues. These incidents occurred daily, with disruptions ranging from a few minutes to several days. TurkmenTelecom, the sole internet service provider, explained that the poor delivery of this service was caused by technical problems. It appears as though the actual reason is related to the drastic limitation of outgoing traffic, recently imposed on all organizations using this kind of special internet service. These connectivity issues have made an impact on some of the PICTT activities, such as the preparation of educational resources and other timely communications. The situation is unlikely to improve, as IREX has no means to avoid the general limitations of outgoing internet traffic.

Apart from relatively good Internet connection available in ICIML Center through the broadband CAREN network, high costs and poor service of Internet in Turkmenistan makes it barely possible to teach internet search or other internet based modules during mobile trainings in Ashgabat and in the regions. Only Bilgirje managed to meet those extra costs and conduct the trainings on internet for all of their trainees in Turkmenabad.

7. EXPENDITURES

PICTT spending continues to be within budget at the close-out of the project. The SF-425 will be sent as a separate attachment.

8. LESSONS LEARNED

1. Turkmenistan HEIs are not ready for distance learning in its proper sense (low internet penetration, high censorship and the fear that some ideas learned through this media can undermine the ideology promoted within the country). This was the main reason why virtual meetings, Skype or web conferencing were generally prohibited by the authorities. The AoS even sent a letter of disapproval after the virtual conference between Turkmen educators and a professor from Mongolia in spring 2012, banning any further such activities at ICIML. However, in the case when a virtual communication event was conducted within the framework of MFA approved activity, such as the E-learning conference in 2013, virtual

meetings were welcomed, being considered an innovative approach, and an integrated component of e-learning.

Despite difficulties with slow internet, the PICTT program found a solution by preparing video-courses, burning them on CDs, and distributing to visitors of ICIML and TSR, to wider audiences during international exhibitions, through partner organizations, and by placing those Turkmen language tutorials on PICTT page of AoS website.

2. All internationally funded education initiatives must establish an official partnership with local scientific research organization, or an institution under the Ministry of Education. It is important, especially in the startup phase to coordinate these efforts through diplomatic channels with the Ministry of Foreign Affairs (MFA), which effectively oversees all internationally funded activities. Without official MFA approval, no program activities may occur.

Authorities maintain strict control over HEIs and professional schools. Any interaction with foreigners must be officially sanctioned; otherwise students risk losing an opportunity to continue their study, and teachers and administrators can lose their jobs. This is why directly promoting PICTT activities at local institutions was not always possible. Outreach activities mainly occurred through participation in conferences and exhibitions. The success of the program owes mostly to the partnership with the Academy of Sciences and its institutions, and a strong reputation earned through the high-quality trainings at ICIML Center and consultation services to graduate students at the TSR.

3. It is important to consider the benefits of working with local partners. Often it is the most efficient way to reach greater audiences, especially in the regions where citizens have fewer opportunities to receive quality education and training services. Also faculty and administration often suggest that they would prefer for their colleagues and students to attend the trainings provided by local organizations or the AoS training center rather than interacting directly with program staff of international organizations.

Despite challenges of finding reliable local partners and matching PICTT courses with their curriculum, working through local NGOs proved to be an excellent opportunity to build the capacity of these organizations, and to continue the program legacy after PICTT closes.

4. Establishing trusting relationships with government agencies is essential. Establishing this opens doors for participation in the numerous international conferences and exhibitions held in the country. This provides an opportunity to share best practices, demonstrate accomplishments, and highlight the achievements of activities conducted in joint cooperation with Turkmen professionals. For example PICTT assisted the AoS Institute of History to digitize exhibitions and archives, and create E-galleries. These practices demonstrate the feasibility such projects in the local context, and set an encouraging example for other institutions to follow.
5. It is relatively easier to receive authorization for conducting big-scale events with participation of international experts. The advantages of such events include media coverage, increased visibility, the opportunity to send new signals, and to be heard. However these activities also have disadvantages, such as high costs, considerable time and effort in planning and securing approvals. Projects cannot rely entirely on the success of a single conference, but rather has to incorporate it as an element within a broader strategy

Even with official approvals, there are often surprises. Out of several attempts to receive authorization to conduct trainings different HEIs, PICTT received only one approval for the Institute of International Relations. Despite initial appearances of success, the Institution canceled the trainings after two weeks without any explanation.

6. Establishing personal relationships with officials and partners is extremely important. As these take time to develop, it is essential to retain key personnel for as long as possible. Frequent staff turnover creates a sense of mistrust among local authorities, and has a significant effect on program activities. While an expatriate Program Director can bring international experience, and new ideas, a strong local Program Manager is necessary for any successful project. Project implementers should also strive to develop a professional team, and ensure that staff remain to the end of the program.
7. Refrain from writing any openly controversial reports, conducting surveys without approval, and giving interviews or appearing in any media outlets deemed suspicious by local authorities. For example, any mention by sources such as Radio Liberty, (whether positive or negative) will draw negative attention from local authorities. .
8. It is worthwhile to build working relationships with other international organizations and projects, to share experiences avoid duplicating the same activities. Cost-sharing in the organization of large-scale events with other projects is also a good practice that benefits both stakeholders. (USAID-funded QED project was one partner that co-financed the PICTT Conference on E-learning.)

ANNEX 1: POLITICAL CONTEXT

PICTT staff continually monitored mass media for articles that were relevant to the program. News stories will often outline official government announcements that affect the program, such as those relating to education or ICT policy. Additionally, media coverage of program events often constitutes official government sanction and it is useful to understand trends in these areas.

News Related to ICT and Education

Opening of the Information Centre for Human Right: *the Center at the Turkmen National Institute for Democracy and Human Rights under the President of Turkmenistan* opening was held in May 2011 as part of the ongoing project *strengthening the National Capacity of Turkmenistan to Promote and Protect Human Rights*. This effort was jointly implemented by the Government of Turkmenistan, the European Union, the UN Development Project, and the Office of the United Nations High Commissioner for Human Rights. The Centre served as a library, a venue for relevant seminars and lectures and provided internet access.

Progress in Academic Cooperation with European Counterparts: In November 2011, the Tempus Information Day was held at the Turkmen State Institute of Transport and Communication, designed to enhance cooperation between Turkmen and European Union institutes of higher education. http://www.turkmenistan.gov.tm/_eng/?id=192

Science of Turkmenistan – Strategy of Change: In his memorable speech at the AoS after the Science Day celebrations on June 12 2012, the President outlined his top priorities for the national science program which included bringing Turkmen science to world standards, increasing the efficiency of R&D, the practical use of solving problems facing society. ICT was mentioned as one of the five main requirements for developing the science sector. Perhaps most interestingly the president admitted the short shortcomings of past efforts.

Investments and Modernization in Scientific Establishments: After the above-mentioned speech the President officially approved \$10 million to upgrade the scientific institutions under the AoS, increase salaries and subsidies for holders of scientific degrees, and announced the construction of a Technopark in Ashgabat - a modern science and technology center, which will bring together research institutions, industrial facilities, business centers, exhibition halls, and educational institutions. <http://www.turkmenistan.ru/en/node/8186>

Official Event on Social Networking: The 14th Central Asia Media Conference “From Traditional to Online Media: Best Practices and Perspectives” organized by OSCE took place at the President Hotel in Ashgabat, July 5-6, 2012. Considering local sensitivities, the topics of the conference were quite unorthodox. Acceptance of such an event may signal that local officials are ready to cautiously adopt more advanced Web 2.0 platforms. <http://www.osce.org/fom/91887>

Central Asian Research and Education Network: During a video conference with high-ranking local officials, the president approved further cooperation with the CAREN project. This network connects research and education institutions of five Central Asian countries to the European GEANT network. The proposed plan on switching the network from satellite to cable connections also received a positive appraisal as more advantageous in terms of technology and finance. http://turkmenistan.gov.tm/_eng/?id=1316

Number of HEIs Increased: In 2012, Turkmenistan produced an estimated 110,000 high school graduates, with over 5700 students continuing on to higher education, and an additional 5700 on to vocational schools. Two new HEIs were created in 2012, the Turkmen State Architectural Institute and the Turkmen State Institute of oil and gas, contributing to the 700 student increase in overall higher education enrollment. Each year the government sponsors approximately 2,000 students to study abroad within the framework of interstate agreements, though additional students choose to study abroad using foreign scholarships or their own funds. http://turkmenistan.gov.tm/_eng/?id=1204

http://turkmenistan.gov.tm/_eng/?id=979 http://turkmenistan.gov.tm/_eng/?id=1229

A Second Political Party Created in Turkmenistan: The new Party of Industrialists and Entrepreneurs of Turkmenistan was created on August 22nd, with support from the Union of Industrialists and Entrepreneurs of Turkmenistan. The UIET Business School partnered with PICTT to conduct local trainings in regional areas, and is a subsidiary of the larger Union. http://turkmenistan.gov.tm/_eng/?id=1181

Internet use is growing but still far behind neighboring CIS countries: In the recent UN Report, internet penetration in Turkmenistan was estimated to reach 5% in 2011 which is a substantial increase from the previous year (3%) and even greater progress as compared to 2007 when it was around 1%. Still the country is lagging behind all other CIS countries, including neighbors in Central Asia. According to the same UN report, mobile cellular telephone subscriptions in Turkmenistan increased more than threefold since 2007, which also explain growing use of mobile internet. <http://unstats.un.org>

World Bank lists Turkmenistan as an upper middle income country: It was described as “an economic miracle” in the local media that the economic growth in Turkmenistan making up an average of 11 percent over the past five years has led to a practical doubling of the GDP per capita. In 2012, the GDP per capita in Turkmenistan reached the middle upper income mark according to data confirmed by the World Bank. Such a development has a wide range of implications - from increases in foreign investment in ICT to rising prices, wages and other costs of operations for organizations in Turkmenistan. http://turkmenistan.gov.tm/_eng/?id=1624

Important International Study on Internet: “Neither Here Nor There: Turkmenistan’s Digital Doldrums,” the new study from the SecDev Group highlights the policies concerning internet in Turkmenistan. Key findings of the unique report present considerable interest for the program. PICTT had been preparing "Turkmenistan Internet in Education Adoption Index" for the Turkmen government measuring the similar indicators in higher education. General conclusions drawn from the study are mixed: well-known serious challenges for internet use in the country remain and there is stagnation in some fields. At the same time, progress has been made in other fields as compared to the previous government. In light of the other reports made in the past which were harshly critical on the government actions, some results of this study could even be considered as positive as they state that restrictions on citizens online appear to be less effective than it seemed. Also, efforts that Turkmen officials took to expand internet access are recognized. <http://openet.net/neither-here-nor-there-turkmenistan's-digital-doldrums>

Experiments with standardized computer-based testing: Turkmen State Institute of Transport and Communications has standardized the use of computer based testing. Last year this method was tested for the first time within the framework of the students’ intellectual contest in physics and mathematics. http://turkmenistan.gov.tm/_eng/?id=1569

President of Turkmenistan approves quota for admission to postgraduate studies: A resolution at a government meeting in December approving the admission for 2013: 55 - to postgraduate studies (full-time graduate student at the level of Candidate of Science), 2 – to doctoral studies, 42 – to clinical studies, 241 – as applicants for the academic degree of Candidate of Sciences and 9 – applicants for the academic degree of Doctor of Science (so-called “Soiskatel” students). <http://www.turkmenistan.ru/en/articles/16925.html>

Branch of Gubkin Russian State University of Oil and Gas closed in Turkmenistan: At the end of September 2012, the news appeared about the closure of the branch of the leading Russian HEI in the field of petroleum engineering in foreign websites; however, there was no mention about this development in the local media. The institution was among first officially approved institution of a foreign university to appear after proclamation of the new educational policy few years ago which was meant to showcase the progress in internationalization of higher education in the country. Plans were made for further expansion of the branch in terms of intake and the number of specializations. As has often been the case, no specific clarifications were made by the local authorities. The closure was probably linked to the opening of the new Turkmen State Institute of Oil and Gas after which the Branch could be considered redundant by the officials. <http://neftegaz.ru/news/view/112210>

Turkmen parliament passes a law on mass media: Turkmen MPs unanimously passed a new law in December that will determine the procedure of gathering, preparation, and dissemination of information and define the rights, duties, and responsibilities of entities involved in preparation and dissemination of information. <http://www.turkmenistan.ru/en/articles/16984.html>

Fund for Young Scientists established in Turkmenistan: During a government meeting at the end of December, President Gurbanguly Berdimuhamedov signed a decree on the establishment of the Presidential Fund for Young Scientists. Lack of funding from local institutions specifically designated for postgraduate research as it normally happens with PhD studies abroad was one of the main factors hampering effective research on the local level. <http://www.turkmenistan.ru/en/articles/16980.html>

Foundation of Agency for Intellectual Property: Turkmenistan is ready to establish a State Agency for Intellectual Property. President Gurbanguly Berdimuhamedov signed a resolution to this effect at a government meeting which instructs the Ministry of Economy and Development of Turkmenistan to establish a State Agency for Intellectual Property and develop and approve the regulations and structure of this agency. <http://www.turkmenistan.ru/en/articles/17084.html>

Promotion of Virtual Communication among Local HEIs: An online video network linked the students of the Turkmen State Institute of Transport and Communications and Institute of Architecture and Construction into single educational space. The Institute of Architecture and Construction and Institute of Energy are united within the frames of the European project – “TEMPUS” aimed at inclusion of new energy management into the list of specialties of both higher educational establishments. <http://turkmenistan.gov.tm/eng/?id=2017>

Awarding young talents of the Turkmen science: Winners of the contest for the best scientific work among youth attended a ceremony at the Turkmen State University. <http://turkmenistan.gov.tm/eng/?id=2364>

Turkmenistan to establish single electronic library network: The Ministry of Culture of Turkmenistan will connect major regional, district and city libraries in a single electronic library

network. President Gurbanguly Berdimuhamedov signed a decree to this effect at a government meeting. According to the document, the Ministry of Culture of Turkmenistan will hold an international tender on establishment of a single electronic library network. <http://www.turkmenistan.ru/en/articles/17343.html>

Turkmen literary heritage comes in electronic format: The internet resource “Medeniet” (Culture) has presented a new section of the Virtual Library which was prepared jointly with the Institute of Manuscripts of the Academy of Sciences of Turkmenistan. The Virtual Library will feature scientific and art works such as electronic editions of epics. <http://www.turkmenistan.ru/en/articles/17333.html>

International Certificate and Star of Quality awarded to the Institute of Oil and Gas: England. Socrates Committee of Europe Business Assembly (Europe Business Assembly, Oxford, UK) awarded the Turkmen State Institute of Oil and Gas with the international prize “European Quality” and included it into official register of leading educational establishments on version of Europe Business Assembly. Earlier, only within a year – its first academic year, the Turkmen State Institute of Oil and Gas was also honored with the certificate and emblem of the International Association of Universities (IAU) for making contribution to the higher education through cooperation with the higher educational institutions and research centers. <http://turkmenistan.gov.tm/eng/?id=2549>

Turkmenistan’s entrance examinations to HEIs: According to the Ministry of Education of the country, 27.426 school leavers applied to the higher education establishments (excluding military) of Turkmenistan in 2013. Of them, 6100 were admitted as first-year students, up 334 students on the last year. The national admission average at the higher education establishments was 4-5 students per place in 2013. Also, 37 vocational schools of Turkmenistan admitted 6522 students this year in accordance with the requirements of ministries, departments, enterprises and organizations. This is up 747 students on the last year. More than 13 thousand freshmen applied to such schools. Both HEIs and secondary vocational schools slightly increased admission number. Estimated 30,000 young people were able to enter initial level vocational schools of Turkmenistan. Local media reported that out of more than 98,000 school leavers, more than 42.6 thousand students (which makes up 43 percent) were able to continue their education at various schools of Turkmenistan. The steady increase in admission numbers over the past five years as well as reports about it in local media indicate attention of officials to existing issues of meeting growing demand towards educational attainment. Overall 6%, of those who were actually enrolled in the local HEIs, is still very low as compared to majority of countries not only in the region but also world. It is mainly due to the limited intake to national higher education system coupled with notorious quality of local instruction that thousands of young people once again had to go for studying abroad. Some of them were participants in officially approved academic programs as per intergovernmental agreements to allow Turkmen students study in China, Romania, Malaysia, Ukraine, and Belarus. Still the majority have been studying abroad independently using own funds. After restrictions imposed few years ago on travelling for study in Kyrgyzstan and Tajikistan, the main destinations for large population of Turkmen students abroad have now become Ukraine, Russia, Belarus, Turkey, Kazakhstan and Uzbekistan. <http://www.turkmenistan.ru/en/articles/17322.html> / <http://turkmenistan.gov.tm/?id=4898>

New Law on Education of Turkmenistan: The *Mejlis* (Parliament) of Turkmenistan of the fourth convocation reviewed a number of new draft laws and legal documents at its nineteenth

session in 2013. A new feature of this law is the provision made for an international structure of degrees (bachelor-master) which would co-exist with traditional Soviet structure (diploma-candidate of science). Representatives of relevant ministries and departments, law enforcement agencies, public associations, and the media were invited to the meeting. One of the key aspects of Turkmenistan's domestic policy is to improve the education system. The *Mejlis* of Turkmenistan, jointly with the Ministry of Education and other ministries and departments drafted the law “On education” and submitted it to members of parliament for consideration. As the speakers noted, the right to education is the fundamental and inalienable constitutional right of citizens of Turkmenistan, and adoption of this legislative act would contribute to the further improvement of the education system. The new concept of education also aims to achieve the best results in training of qualified specialists with good knowledge of modern innovative technologies. <http://www.turkmenistan.ru/en/articles/17173.html>

ANNEX 2: TOP TEN LIST OF PICTT ACCOMPLISHMENTS (2009-2013)

1. Trained over 1,000 faculty, students, and researchers from higher education institutions on ICT skills.
2. Over 400 monthly visits to the PICTT training centers at the National Academy of Sciences, where visitors from all higher education and research institutions in Turkmenistan received individual consultations on ICT subjects and assistance with research.
3. Program beneficiaries represented over 80% of all higher education institutions in Turkmenistan (17 out of 21 institutions).
4. PICTT reached beneficiaries from 68% of higher education institutions and professional schools based outside of Ashgabat, schools traditionally underserved by similar development projects (15 out of 22 regionally-based schools).
5. Partnered with 3 local organizations to conduct 48 regional trainings for 710 beneficiaries, and held 8 training of trainer events to strengthen capacity of 35 local trainers.
6. Increased the number of ICT training courses available in Turkmen and Russian languages. PICTT now offers 12 separate courses in local languages.
7. Based on the needs of local faculty, PICTT developed a variety of Turkmen language resources, including educational multimedia programs, ICT distance learning courses, manuals and video lessons, which are publically available through the National Academy of Sciences website.
8. Beneficiaries report increased job security, for example over 120 beneficiaries from the Institute of Health Research of Child and Mother were able to secure employment by meeting new ICT job requirements.
9. Fostered strong relationships with the local administration, for example the National Academy of Sciences has provided free facilities for PICTT training centers since the beginning of the program.
10. Maintained an active public profile despite local challenges, hosting an E-learning conference, participating in international conferences and exhibitions, and receiving positive attention in local print and broadcast media.



ANNEX 3 HOW PICTT ACTIVITIES CORRELATED WITH EVENTS IN EDUCATION SECTOR OF TURKMENISTAN (2009 – 2013)

Year	PICTT Activity	Year	Nationwide Event
2009	Launch of USAID funded Promotion of ICT in Turkmenistan Program (PICTT).	2009	The state policy towards education and science was reviewed, and the president defined the set of priorities, such as adoption of international standards in education, capitalizing on ICT penetration.
2008	Interactive whiteboard is purchased for IATP (predecessor of PICTT) at the time when such equipment is barely known in Turkmenistan. Responding to urgent need of local teachers in a specialized training, a course on advanced use of interactive whiteboards is developed for the first time in Turkmenistan. This training course attracts numerous beneficiaries and proves to be one of the most successful.	2009	Mass introduction of interactive whiteboards begins in education system
2009 - 2013	Comprehensive technical support for beneficiaries at ICIML center of PICTT at the Academy of Sciences has been growing since the start of the project: ICT trainings, Internet access and technical consultations offered unparalleled convenience and quality which attracted majority of postgraduate students from all of the HEIs and research institutions in Turkmenistan.	2009	Postgraduate studies restart in Turkmenistan
2009-2013	ICT training at the Academy of Science starts in 2009. By the end of 2013, PICTT provides ICT trainings for over one thousand faculty, students and researchers representing 80% of the institutions of higher education in Turkmenistan (17 out of the total 21 HEIs in Turkmenistan). Those courses include training in the most relevant skills: Computer Literacy and Internet, MS Office, MS Movie Maker, MS Excel (advanced), Adobe Photoshop, Adobe Premiere, Interactive Whiteboard, CourseLab	2012	ICT is declared as one of the top five priorities for study and research
2010 - 2013	PICTT invited to take part in seven international exhibitions and three conferences dedicated to science and education. The program manages to earn a positive reputation in Turkmenistan.	2010	International exhibitions and conferences actively promoted by government
2010 - 2013	PICTT publicizes ICT and the program activities in the local mass media through own section within the main science portal, eight articles in the central newspaper, four online articles, five TV reports and one radio interview. Such coverage is a sign of PICTT receiving favorable reactions from the local officials.	2012	Popularization of ICT among wider audience receives increasing attention
2012 -	Significant number of medical researchers from the Institute of Health Research of Child and Mother are able to	2011	Transfer to electronic

2013	meet ICT qualifications leading to enhanced job security and promotions after PICTT training.
2011 - 2013	PICTT develops interactive multimedia, ICT distance learning courses, training manuals and video-lessons in Turkmen language which address the lack of appropriate educational content. Created resources: <ul style="list-style-type: none"> Distance learning courses for learning Movie Maker, Excel, CourseLab, and Interactive Whiteboard. Turkmen language versions of popular and open-source interactive multimedia - Virtual Chemistry Lab, PhET Interactive Simulations, Walter Fendt Applets.
2013	PICTT launches localization projects of well-known ICT products to be used in education: <ul style="list-style-type: none"> CourseLab 2.7, the first localized e-Learning authoring tool in Turkmen language together with manual. Moodle Turkmen Language Package made available for download from the Moodle Language Portal.
2011	Turkmen language E-Catalog is introduced by PICTT at Institute of Language and Literature.
2012	PICTT organizes regular consultations, presentations, workshops and annual contests to assist in creating electronic resources. E-book “Khorezm and Gurganj: New Discoveries” (Institute of History) is one of the outcomes of such activities. E-platform is created by the program at the Academy of Science hosting 68 electronic teaching materials, 4 research papers, 2 online resources.
2012	PICTT builds capacities of the local NGOs serving need for ICT training in regions by providing equipment and TOTs. In case of UIET, the program support was crucial in equipping training centers in Dashoguz, Mary and Lebap regions. PICTT is the first program in Turkmenistan to achieve true nationwide coverage of ICT training for faculty and students: mobile trainings covered 15 out of 22 institutions of higher education and professional schools located outside the capital Ashgabat (about 70% of such institutions).
2012	E-Gallery of Archeological Fund is completed by PICTT specialist for the Institute of History. This project of virtual museum generates positive attention from the local media.
2013	PICTT organizes E-learning seminar introducing Moodle, the most popular open-source Learning Management System which provides a powerful platform for creation of websites for education institutions. Administrators and educators attended the event which was highly publicized in local media.

	document management in the National Health System
2011	All first-grade students of elementary schools in Turkmenistan are presented with netbooks
2011	Recognition of the need for Turkmen localizations: local specialists assist Microsoft in Turkmen versions of Windows 7 and Office 2010
2011	Establishment of single electronic library network
2012	Demand is increasing at educational institutions for new electronic resources
2012	Launch of regional branches of the Business School of the Union of Entrepreneurs made possible owing to support PICTT
2013	Virtual Museum created at Medeniyet, the official website on Turkmen culture
2013	Increasing number of government bodies open own websites and start offering online services



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