germaniya hamkorligi
DEUTSCHE ZUSAMMENARBEIT

Implemented by:

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Ministry of Health of the Republic of Uzbekistan

Activity report of GIZ project «Advanced training of doctors and medical staff to work on modern high-tech medical equipment in Uzbekistan»

December, 2014
Tashkent, Uzbekistan

CONTENT:

1. SHORT DESCRIPTION OF THE PROJECT

Project number: 09.2265.8-001

Reporting period: 06.05.2011 - 31.08.2014

In recent years, Uzbekistan has significantly increased public spending on its health care program. Substantial amounts of medical equipment have been purchased through donor-funded programs. These procurements included modern high-tech medical equipment for clinical specialty areas such as imaging, laboratory, anaesthesia and intensive care medicine, as well as endoscopy and less invasive surgery. However, the current deficit of suitably qualified personnel significantly inhibits the effective and efficient use of modern technology, as well as the quality of procurement management, maintenance and logistics. Consequently, the quality of the health services using advanced diagnostic methods and therapies are insufficient and compromised. Against this background, the need to improve medical services in the use of modern diagnostic and treatment technology is paramount.

The objective of the Uzbekistan-German Development Cooperation Project “Advanced Training for Medical Doctors and Health Workers for the use of modern technology in Uzbekistan”, carried out by the Ministry of Health of the Republic of Uzbekistan, and the GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit und nachhhaltige Entwicklung GmbH), is directed to increase capacities of health professionals in the effective and efficient use of advanced technologies in selected clinical areas (imaging systems and minimal-invasive surgery). Major activities to reach the objective are:

1) Capacity building of medical and technical professionals in the use of advanced, modern health technology;
2) Quality assurance and management improvement within procurement, logistic and maintenance in the selected clinical areas;
3) Improvement of procurement planning and financing in selected clinical areas,
4) Public-Private-Partnership (PPP) in Centres specialized in advanced training for health professionals and technicians.

The project is implemented in cooperation with the key project partner, the Ministry of Health of the Republic of Uzbekistan, and related structures like the Institute of Postgraduate Education of Doctors, the Republican Research Centre of Emergency Medicine and the privately organized “Uztibtexnika” in charge for maintenance.

Activities at the national level will benefit all regions of the country. Intensive cooperation on training of multipliers and activities on quality management and maintenance will be conducted with institutions in Tashkent and two other regions which are selected together with the partner. The project provides large potential for an integrated public-private partnerships and / or strategic partnerships with the private sector. At the national level, the project aims to advise the relevant departments of the Ministry of Health and the Institute of Postgraduate Medical Education in issues of processing regulations on professional development and implementation, training programs for training courses, accreditation of courses, definition of the target group of participants, as well as the selection and training of teaching staff. Advisory and financial support will be provided to develop training materials, demonstration of the best practices as well as monitoring and evaluation of the outcomes of training programs. In addition, the project will support partnerships with manufacturers of medical devices that offer access to training centres. The project will promote the partnership with German universities to improve the quality in the long term.

Expected impact

The project improves the skills of partner specialists, who, subsequently, assist the government in the transition from normative to needs-based planning. Furthermore, it facilitates partnerships with medical equipment manufacturers and international academic partners. This promotes the

involvement of government agencies in collaborative networking and the establishment of private sector cooperation. At healthcare institution level, the project strengthens personal competence and professional accountability. The direct impact of project activity includes the efficient, effective and economical use of medical equipment for selected clinical areas. Furthermore, effective use of medical technology leads to cost-savings through optimal use of equipment, improved diagnosis and treatment resulting in the prevention of undesired interventions and complications in addition to a significant reduction of the ALOS (average length of stay).

2. PROGRESS IN ACHIEVING THE EXPECTED OUTPUTS, OUTCOME AND IMPACT AND THE MILESTONES, INCLUDING THE RISK-ASSESSMENT (please also refer to the monitoring results matrix and tables on activities as included in the approved application)

Throughout the project implementation, the following **outputs** have been used by components:

1- Component: Capacity building of medical and technical professionals in the use of advanced, modern health technology

- Established 2 working groups with involvement of the partner institutions Tashkent Institute for Postgraduate Education of Doctors and RRCEM. The groups, consisting of faculty teachers and practical doctors, designed the curriculum on clinical visualisation (CT/MRI) and less/minimal invasive surgery;
- Knowledge transfer to increase the capacity of the working group members was organised by study tours to Austria, Russian Federation, Karl Storz and Siemens manufacturers training centres, the measures were accompanied by visits of international consultants from Germany, Austria, France, UK and Russian Federation and by participation in multilateral round tables in Uzbekistan.

- Organized a training centre on clinical visualization (CT/MRI) and less invasive surgery in the frame of collaboration with the partner institutions Tashkent Institute for Postgraduate Education of Doctors and RRCEM; the project introduced new didactic-oriented teaching methodologies and provided training materials to support the centre;

- 227 of trained surgeons from 13 provinces and Tashkent city who provide laparoscopy interventions have been trained in various subjects and applications of laparoscopy;
- Increased proportion of less/minimal invasive surgeries in selected health facilities (1st quarter of 2013 the number of laparoscopy interventions was 288, this changed to 1188 operations in the 1st quarter of 2014); Comparative analysis of the average duration of laparoscopic cholecystectomy operations revealed that the average duration of operations in the 1st quarter of 2013 was 53 minutes, and in the same period in 2014 this changed to 44 minutes. The average length of stay (ALOS) in the 1st quarter of 2013 totalled 7.6 days. In the same period, in 2014 it was shortened to 5.9 days.

- 156 radiology specialists from 13 provinces and Tashkent city have been trained at 10 in various systems and organs of CT/MRI diagnostics. All courses intended to increase the quality of reports by WHO and other internationally accepted associations (i.e., European and Russian associations of radiologists);
- The projects' ongoing activities and courses resulted in a sustainable professional development of visualization specialists. They profit as physician by enhancement of their professional knowledge and as educator, or even better, trainer of trainers. The project included training and study tours to Europe and neighboring countries.
- By introducing more didactic-oriented methods of teaching the project could enhance the efficacy of the training measures in the areas of CT/MRI diagnostics including new interventions in cardio-vascular diseases, brain tumors and trauma, strokes and abdominal diseases. CT diagnostics of brain and hemorrhagic strokes increased twice, 144 in I-Q, 2013 and 311 in I-Q, 2014; CT diagnostics of urine-genital organs was 4 in I-Q, 2013 and 85 in I-Q, 2014, CT diagnostics of polyetiologic trauma increased in 4,4 times, was 62 in I-Q, 2013 and 274 in I-Q, 2014.

- Training of nurses plays a huge role in the prevention of postoperative complications in minimally invasive operations and, in turn, will reduce significantly the ALOS. Therefore 106 theatre nurses of 6 provincial hospitals collected basic knowledge on modern endoscopic technologies and the use of the corresponding instruments. Furthermore the introduction of specific features of the new equipment, treatment and storage of the apparatus and their accessories basic rules of care including the use of modern disinfectants and strategies of their efficient use were given in the lectures.

- The capacity of the working groups on visualisation and laparoscopy involved in development of training materials was increased by constant interaction with selected top-ranking professionals and by a journal club studying various materials published by other projects worldwide.
- On the basis of training to trainers faculties' teachers could develop and mainstream existing curricula at all chairs of the Tashkent Institute of Postgraduate Education.
- Training presentations included didactic-oriented teaching methods, interactive methods with models/mannequins, use of computer work stations of the training centers and on-the-job trainings. These master-trainers started to teach their target audience through cascade trainings using a similar approach and similar tools. Such methods improved the knowledge transfer from trainer to trainees. Contribution of international consultants and trainings abroad facilitated the design of a modern training framework, of adequate materials and the content of master classes.

2-Component. Quality assurance and management improvement within procurement, logistic and maintenance in the selected clinical areas;

- The project conducted several assessments, monitored the outputs and consultative meetings to define the main directions to reform the Uzbek health system, define the training needs of medical staff to use modern high-tech equipment;

- Reports on health technology management were provided to stakeholders (Report on "Operation and Maintenance of Medical Equipment", Dieter Horneber; Baseline report "Begutachtung des ausbildungsbedarfs von medizinischem und technischen personal für die verwendung von hochtechnologischer medizintechnik in Uzbekistan, SaniPlan/Jörg Essigke; Report on "Life cycle cost of equipment", Maria Varella/Resah).
- A unique computer based inventory system was installed and used in the pilot hospital of the National RRCEM. Together with the identified potential for better health technology management, the need for a modern and integrated information system on medical equipment became apparent in the Uzbekistan health facilities. However, most commercial software systems on the market have high licence costs and complex structures. Therefore as an alternative, the open source application "openMEDIS", which has been developed at the Swiss Centre for International Health of the Swiss Tropical and Public Health Institute (Swiss TPH) was introduced.

No official international nomenclature system for medical devices was used by Government or Non-State-Actors in Uzbekistan in the past. During the implementation period of an inventory system the Project assisted the Ministry to become a member of the GMDN (Global Medical Device Nomenclature) association.

- The project serves as a platform to establish links between the international and the European Society of specialists in the use of high-tech equipment and equipment management. The followings have been introduced:
- RRCEM has joined the International Hospital Federation (IHF) as a member in 2013 after their participation to the IHF World Hospital Congress held in Oslo. The involvement of RRCEM in international activities and the possibility to increase interaction with other organizations from foreign countries will contribute to the sustainability of their development and optimize the use of medical equipment. IHF membership helps to increase the exposure of RRCEM to managerial and organizational practices from around the world and assists in the development of own responses to future challenges. The membership provides opportunities for each member to raise the international profile and awareness by using all communication instruments that IHF has in place.

3-Component. Improvement of procurement planning and financing in selected clinical areas

- MoH staff also had the opportunity to meet executives of ECRI (Emergency Care Research Institute) on inventory management standards and advanced purchasing approaches. These meetings strengthen the improvement of the purchasing capacities in Uzbekistan;
- ECRI expert(s) introduced tools and standards on procurement planning and financing;
- Ministry of Health representatives participated at the annual conference of the Institute of Healthcare Engineering and Estate Management (IHEEM). As a professional development organization, it keeps its members up-to-date on new technologies and actual regulatory processes;
- Assisted to pilot health institutions in the adequate planning and execution of own **maintenance budgets** (especially if the planned 5% maintenance budget rule comes into effect). Therefore the Resah Institute of France conducted an assessment on the analysis of equipment life cycle costing. This resulted in a better understanding the

life-cycle cost / total cost of ownership for medical equipment in pilot facilities and calculated the out of service time. Furthermore the assessment provided an analysis of the reasons for the loss of earnings. The findings were discussed at pilot facilities and with Ministry of Health staff. A report was provided.

4-Component. Public-Private-Partnership (PPP) activities in Centres specialized in advanced training for health professionals and technicians.

- Education, training improvement of maintenance management provide great potential for integrated PPPs and / or strategic partnerships with the private sector (PPP-1). The active involvement of private companies in the setting up and running of the newly constructed Training Centre at the RRCEM in Tashkent motivates such companies to also provide adequate and qualified technical services for their equipment. This results in a win-win situation for the involved companies because they can demonstrate reliability and quality of their products.
- Due to restrictive monetary policies in the country, this potential is only partially available because it needs engaged companies / manufacturers that do not shy away from investments.
- Relevant manufacturers' representatives (Siemens, Draeger, K.Storz) were invited to make a joint operation planning with relevance to the project partners.
- Based on a MoU between K.Storz HQ, regional and local managers provided several master classes, study tours; ToT and the project reached an agreement on the provision of training materials for the centre.

A close cooperation with the KfW especially with the FZ-measure "Cardiology Center of Uzbekistan" (BMZ No. 2009 6701.8) and the proposed FZ-measure "Modernization of multi-profile medical centres" (BMZ No.2013 6590.7) is intended and will be realised in 2015.

3. RESEARCHES, MONITORING AND CONSULTATIVE MEETINGS

Date and place	Goal of the mission	Responsible
September, 2012	Report on the main issues in regard to a reform of the health system in Uzbekistan	Dr. Asadov D.A. Head of the department of organization, economy and health management of the Tashkent Institute of Postgraduate Medical Education
September, 2012 Tashkent, Andijan, Navoi, Samarkand	Base research on "Training needs assessment of medical and technical staff to work on modern high-tech equipment in Uzbekistan"	Dr. Joerg Essigke – expert from SANIPLAN – German consultancy company on Hygiene and Medicine, Dr. Anvarov H.A., local consultant from RRCEC Mr. Pak Dmitriy, representative of Karl Storz in Uzbekistan.
September, 2012 Tashkent	Consultative meeting with participation of partner from MoH, representatives of Regional Health Departments, Medical institutes, representatives of "Uztibtehnika", donor organizations and projects,	Project staff

	representatives of foreign manufactures.	
November, 2012	Monitoring of project indicators to identify the baseline	Gulyamov B.T. – Deputy director of RRCEC Urunova D.T. – Project expert
November\, 2013	Monitoring of project indicators to determine the medium-term influence of conducted activities	Gulyamov B.T. – Deputy director of RRCEC Urunova D.T. – Project expert
December, 2013	Assessment mission of the project «Advanced training of doctors and medical staff to work on modern high-tech medical equipment in Uzbekistan» for 2012-2013, and proposal of recommendations for next project on training of medical technicians	Ronald Bauer – expert of Saniplan - German company on medicine and technical maintenance. Ruth Hildebrandt – Expert from GIZ HQ
April-May, 2014	Monitoring of project indicators to determine the medium-term influence of conducted activities	Gulyamov B.T. – Deputy director of RRCEC Urunova D.T. – Project expert

4. INTRODUCTORY AND STUDY VISITS TO EUROPE AND CIS COUNTRIES

Date and Place	Goal of the visit	Participants
October, 2012 Moscow, Russia	Introductory visit to training centers of Karl Storz и Siemens	Specialists from RRCEC and TIPME
October, 2012 Moscow, Russia	Study course on CT/MRI	2 specialists from TMA and TIPME
14-21 November, 2012 Berlin- Dusseldorf, Germany	Meeting with representatives of MoH of Germany, Karl Storz and visit the exhibition of Medical technologies MEDICA 2012.	3 specialists from MoH and Cabinet of Ministries
5-7 April, 2013 St.Petersburg, Russia	Visit to Annual International Nevskiy forum of Radiology	2 specialists from RRCEC and TIPME
9-10 April, 2013 Moscow, Russia	Study course on CT/MRI	2 specialists from RRCEC and TIPME
10-13 April, 2013 Bern, Switzerland	The European Congress for Hospital Engineering (ECHE) which presents a program to improve quality management, improve management in procurement, logistics and maintenance in the use of high-tech equipment.	2 specialists from MoH
22-23 April, 2013 Berlin, Germany	Participation at 4th Economical Conference in Central Asia	1 specialist from MoH
11-12 May, 2013 Moscow, Russia	Study course on CT/MRI	Trainer from TIPME
18-20 June, 2013 Oslo, Norway	38th World Hospital Congress in Oslo, Norway, where Republican Scientific Center of Emergency Medical Care became an honorary member of the International Association of Hospitals. First membership fee made by the project.	3 specialists form MoH
9-13 September, 2013 Clermont-Ferrand, France	Study visit to training center Karl Storz, where specialists improved their skills on methods of gynecological Endosurgery.	3 specialists from RRCEC and TIPME
8 -10 October, 2013 Manchester, UK.	Visit IHEEM Healthcare Estates Conference and Exhibition 2013 on advanced medical	2 specialists from MoH and representative of

	technology	"UZTIBLOYIHA"
6-10 March, 2014 Vienna, Austria	Attending European Congress of Radiology	1 specialists from the Ministry of Health and two specialists from X-ray department of TIPED
4-9 April, 2014 Saints-Petersburg, Russia	Visiting Annual International Nevsky Forum of Radiologists, Study tour in scientific and clinical education center "Radiology diagnostics and nuclear medicine" in Institute of High Medical Technologies of St. Peter State University. Attending Karl Storz training centers of Scientific Research Institute AIG named Otto and the Center for Emergency Medicine of Ministry of Emergency Cases in Russia	Head of Radiology Association, Vice Rector and 2 teachers from TIPED, specialist RRCEC.
4-9 April, 2014 St. Petersburg, Russia	Annual International Nevsky Forum of Radiologists, Study tour in scientific and clinical education center "Radiology diagnostics and nuclear medicine" in Institute of High Medical Technologies of St. Peter State University; attended Karl Storz training centers of Scientific Research Institute AIG named Otto and the Center for Emergency Medicine of Ministry of Emergency Cases in Russia;	Head of Radiology Association, Vice Rector and 2 teachers from TIPED, specialist RRCEC.
3-7 November, 2014 Clermont-Ferrand, France	Study visit to training center Karl Storz, where specialists improved their skills on methods of gynecological Endosurgery.	2 specialists from TIPME

5. CONDUCTED ACTIVITIES FOR ADVANCE TRAINING OF ENDO-SURGEONS

Date and Place	Title of the Training	Course Coach	Participants
15-16 March, 2013 Training Centre at RRCEC Tashkent, Uzbekistan	Modern laparoscopic operations	Prof. Anischenko V.V., Head of Surgery Department in Faculty of advance training and retraining of doctors of Novosibirsk State Medical University. Head of references clinic «KARL STORZ» GmbH Germany	17 endo surgeons from 13 regions of Uzbekistan
28-30 March, 2013 Training Centre at RRCEC Tashkent, Uzbekistan	Emergency diagnostic and operative laparoscopy	Aripov U.R Khakimov A.Kh	16 endo surgeons from 13 regions
20-25 May, 2013 Training Centre at RRCEC Tashkent, Uzbekistan	Laparoscopy in the diagnosis and treatment of emergency abdominal diseases	Aripov U.R Khakimov A.Kh	13 endo surgeons from 13 regions
11-15 June, 2013 Training Centre at RRCEC Tashkent, Uzbekistan	Laparoscopy in the diagnosis and treatment of emergency abdominal diseases	Aripov U.R Khakimov A.Kh	15 endo surgeons from 13 regions
20-23 November, 2013 Training Centre at RRCEC	Endo-surgical operative interventions / nosology in gynecology	Popov A.A, leading researcher at the Moscow Regional	50 endo surgeons from 13 regions and Tashkent city

Tashkent, Uzbekistan		Research Institute of Obstetrics and Gynecology	
27-29.03.2014 Training Centre at RRCEC Tashkent, Uzbekistan	Endo-surgical operative interventions / nosology in gynecology	Professor Shtyrov Sergey Vyachaslavovich – (MD), Professor of Obstetrics and Gynecology department in Russian State Medical University under Pirogov N.I.,	45 endo surgeons из from 13 regions and Tashkent city
21-24.04.2014. Andijan branch of RRCEC, Uzbekistan	Endo-surgical operative interventions, laparoscopy in gynecology, thoracoscopy	Aripov U.R Endo-surgeon, of Dep. emergency surgery RRCEC Khakimov A.Kh Endo- surgeon, of Dep. emergency surgery RRCEC Rakhmanov R.D. Endo- surgeon, of Dep. emergency surgery RRCEC Gafurov J.M. , Endo - Gynecologist , Republican Perinatal Center (RPC)	37 endo surgeons from 3 regions of Fergana Valley
5-8.05.2014. Navoi branch of RRCEC, Uzbekistan	Endo-surgical operative interventions, laparoscopy in gynecology, thoracoscopy	Aripov U.R Endo-surgeon, of Dep. emergency surgery RRCEC Khakimov A.Kh Endo- surgeon, of Dep. emergency surgery RRCEC Rakhmanov R.D. Endo- surgeon, of Dep. emergency surgery RRCEC Gafurov J.M. , Endo - Gynecologist , Republican Perinatal Center (RPC)	34 endo surgeons from 4 regions (Navoi, Samarkand, Kashkadarya, Bukhara)

6. CONDUCTED ACTIVITIES FOR ADVANCE TRAINING OF SPECIALISTS ON VISUALIZATION METHODS

Date and Place	Title of the Training	Course Coach	Participants
15-17 March, 2013 Training Centre at RRCEC Tashkent, Uzbekistan	Integrated CT and MRI diagnosis of strokes	MD Konovalov Rodion Nikolaevich, Scientific Center of Neurology RAMS (Moscow, Russia).	15 Radiologists from 13 regions and Tashkent city
29-30 March, 2013 Training Centre at RRCEC Tashkent, Uzbekistan	Integrated CT and MRI diagnosis of strokes	Khusankhodjaev J.U. Nizamova M.M.	13 Radilogists from 13 regions
18-20 May, 2013 Training Centre at RRCEC	Basics of computer tomography of the chest cavity	Khusankhodjaev J.U. Nizamova M.M.	16 Radiologists from 13 regions and Tashkent city

Tashkent, Uzbekistan			
21-24 May, 2013 Training Centre at RRCEC Tashkent, Uzbekistan	Complex radiography, CT and MRI diagnosis of cardiovascular diseases	Professor Rainer Rienmüller, Graz/Austria	25 Radiologists from 13 regions and Tashkent city
7-8 June, Andijan, Uzbekistan	CT angiography	Khusankhodjaev J.U. Nizamova M.M.	10 Radiologists from 3 regions of Fergana Valley
14-16 June, 2013 Navoi, Uzbekistan	CT angiography	Khusankhodjaev J.U. Nizamova M.M.	11 Radiologists from 4 regions (Navoi, Samarkand, Kashkadarya, Bukhara)
24-28 February, 2013 Training Centre at RRCEC Tashkent, Uzbekistan	Effective use of X-ray equipment and digitizers	Coach of «AGFA» representative Khusankhodjaev J.U.	14 Head of radiologists from regions of Uzbekistan
3-4 February, 2014 Training Centre at RRCEC Tashkent, Uzbekistan	Normal CT - anatomy of the brain	Nizamova M.M. Khalibaeva G.B.	12 clinic ordinators and doctors
1-3 April, 2014 Training Centre at RRCEC Tashkent, Uzbekistan	CT and MRI diagnosis of strokes	Nizamova M.M. Khalibaeva G.B.	14 clinic ordinators and doctors
1-3 May, 2014 16-19 September, Training Centre at RRCEC Tashkent, Uzbekistan	Complex radiation diagnosis of brain pathologies	Trofimova T.N. MD, Professor Senior Researcher in Institute of Human Brain under name of N.P.Behterevoy RAS, chief specialist on x-ray diagnostics in St. Petersburg, Russia	26 Radiologists from13 regions and Tashkent city

7. CONDUCTED ACTIVITIES FOR ADVANCE TRAINING OF OPERATIONAL MEDICAL NURSES.

Date and Place	Title of the Training	Course Coach	Participants
17 June, Samarkand, Uzbekistan	The role of nurses in the laparoscopy and sterilization of instruments	Pak D Alimukhamedov A.	13 operational medical nurses in Samarkand
18 June, 2013 Navoi, Uzbekistan	The role of nurses in the laparoscopy and sterilization of instruments	Pak D Alimukhamedov A.	14 operational medical nurses in Navoi
19 June, 2013 Bukhara, Uzbekistan	The role of nurses in the laparoscopy and sterilization of instruments	Pak D Alimukhamedov A.	9 operational medical nurses in Bukhara
21 June, 2013 Namangan, Uzbekistan	The role of nurses in the laparoscopy and sterilization of instruments	Pak D Alimukhamedov A..	12 operational medical nurses in Namangan
22 June, 2013 Andijan, Uzbekistan	The role of nurses in the laparoscopy and sterilization of instruments	Pak D Alimukhamedov A.	43 operational medical nurses in Andijan
23 June, 2013 Fergana, Uzbekistan	The role of nurses in the o laparoscopy and sterilization of instruments	Pak D Alimukhamedov A.	15 operational medical nurses in Fergana
Total number of trained operational medical nurses			**106**

8. CONDUCTED ACTIVITIES ON PLANNING AND PROCUREMENT OF MEDICAL EQUIPMENT, AND INTRODUCING THE MODERN MEDICAL EQUIPMENT INVENTORY SYSTEM

Date and Place	Title of the Training	Course Coach	Participants
7 October, 2013 London, The Great Britain	Visit to ECRI - Emergency Care Research Institute		Two (2) specialists from the Ministry of Health and Representative from «UzTibLoyiha»
16-19 September, Training Centre at RRCEC Tashkent, Uzbekistan	Planning and procurement of medical equipment	Mr. Ramnath Sundaram ECRI Consultant	47 specialists from 13 Regional Health Departments, UzTibTexnika, UzMedExport and RRCEC
23- 30 September, 2013 Tashkent, Andijan, Navoi.	Conducted research on life cycle assessment of medical equipment in the pilot regions of the Republic	International expert Maria Varela From Resah organization (France)	
5 December, 2014 the Ministry of Health Tashkent, Uzbekistan	Presentation of research results on life cycle assessment of medical equipment in the pilot regions of the Republic	International expert Maria Varela From Resah organization (France)	20 from the Ministry of Health, TMA, UzTibTexnika, UzMedExport and RRCEC
24-26 March, 2014 Training Centre at RRCEC Tashkent, Uzbekistan	The first consultative mission to introduce computerized software for inventory system in hospitals in Uzbekistan	Claudio Zaugg, Specialist of medical technologies in Swiss Tropical Institute of Medicine and Public Health.	22

9. Result monitoring matrix and state of the project indicators

Description of the technical cooperation measure

"Advance training of doctors and medical personnel for the use of modern high-tech medical equipment in Uzbekistan"

Project number

09.2265.8-001.00

Country

Uzbekistan

Impact matrix created on

14.11.2013

<table>
<tr><th>Summary</th><th>Indicators of success</th><th>Sources verifiability</th><th>Central assumptions / risks</th></tr>
<tr>
<td>Module goal (outcome)
In selected clinical areas of application modern medical technology is effectively and efficiently used.</td>
<td>1. Disturbances caused downtime of CT and MRI equipment in selected facilities are on average lower than … days per year (Documentation of the facilities, value placement in the first year of implementation).

Baseline value: Downtime decrease of CT and laparoscopes in selected health facilities by 2013 year

<table>
<tr><td>Region</td><td>2012</td><td>2013</td><td>decrease</td></tr>
<tr><td>Tashkent</td><td>6 h</td><td>3 h</td><td>100%</td></tr>
<tr><td>Andijan</td><td>5 h</td><td>5 h</td><td></td></tr>
<tr><td>Navoi</td><td>Several hours</td><td>4 h</td><td></td></tr>
</table>
Target value: Downtime of CT and laparoscopes has decreased in selected health facilities by 2013year</td>
<td>Data in institutions are incomplete and weak because required documents are missing.

Risk: when that took place in December mission to measure the indicator is found that there are hardly any entries in the system for downtime. Such documents must be re-introduced. Registered downtime between 5 hours and 9 months

Output data were available from January 2013. Latest data for 2013 show 10 to 25 examinations per day (Andijan - Tashkent)</td>
<td>(here describe the significant assumptions that are important to achieving the objective of the program)

Lead executing agency upholds importance of the application of high technology in medical technology and provides necessary training for staff ready. The logistics and improved organization in management will be a priority for the funds to be provided.

Political will must be present in order to implement changes in the management system, efficiency, effectiveness and access conditions must be improved at the partner. Investments in logistics (maintenance budgets, construction workshops, etc.) must be scheduled at partner.</td>
</tr>
</table>

<table>
<tr><th>Summary</th><th>Indicators of success</th><th>Sources verifiability</th><th>Central assumptions / risks</th></tr>
<tr><td></td><td>
2. The number of examinations of the selected institutions per CT scanner increases in the average to at least 15 per working day (Documentation of the facilities, value placement in the first year of implementation).

Baseline value: The number of examinations of the selected institutions per CT scanner increased up to 47 per working day (increased up to 135 % in average in compare to 2012).
<table>
<tr><td>Region</td><td>2012</td><td>2014</td><td>increase %</td></tr>
<tr><td>Tashkent</td><td>11</td><td>20</td><td>82%</td></tr>
<tr><td>Andijan</td><td>3</td><td>6</td><td>100%</td></tr>
<tr><td>Navoi</td><td>6</td><td>21</td><td>250%</td></tr>
</table>
Target value: Increase in the number of examinations in selected institutions per CT machine.

3. At least … % of patients with selected conditions (eg stroke), a CT or MRI scan performed (sampling, value placement in the first year of implementation)

Baseline value: increased the number of MSCT angiography researches by 79 in selected health facilities.
</td><td>Ditto</td><td></td></tr>
</table>

<table>
<tr><th>Summary</th><th>Indicators of success</th><th>Sources verifiability</th><th>Central assumptions / risks</th></tr>
<tr><td></td><td>
Target value: increased the number of MSCT angiography researches in selected health facilities

Baseline value: # of patients who received CT/MRI examination has increased by 14 089 in selected institutions by 2014 year (increased in average by 93% in compare to 2012)
<table>
<tr><td>Region</td><td>2012</td><td>2014</td><td>Increased %</td></tr>
<tr><td>Tashkent</td><td>4 138</td><td>6062</td><td>46%</td></tr>
<tr><td>Andijan</td><td>1126</td><td>1440</td><td>28%</td></tr>
<tr><td>Navoi</td><td>2046</td><td>6587</td><td>222%</td></tr>
</table>
Target value: The number of patients who received CT/MRI examination has increased by 20 % in selected institutions by 2014 year

4. Increase in the proportion of selected operations that are performed in a minimally invasive in selected institutions (Documentation of the facilities to determine the source and target value in the first year of implementation)

Baseline value: The proportion of less invasive surgeries increased up to 5 234 in selected health facilities by 2014 (increased in average by 38% in compare to 2012).
</td><td></td><td></td></tr>
</table>

Summary	Indicators of success	Sources verifiability	Central assumptions / risks

Tashkent RSCEMC (Republican Scientific Center for Emergency Medical Care).

Type of intervention	2012	2013	Increase
Appendectomy	301	457	52%
Cholecystectomy	266	403	52%
Tubal pregnancy	32	49	53%
Cystectomy	136	256	88%

Andijan RSCEMC

Type of intervention	2012	2013	Increase
Appendectomy	182	283	55%
Cholecystectomy	99	267	170%
Tubal pregnancy	3	6	100%
Cystectomy	46	89	93%

Navoi RSCEMC

Type of intervention	2012	2013	Increase
Appendectomy	62	95	53%
Cholecystectomy	329	350	6%
Tubal pregnancy-	12	11	-8%
Cystectomy	15	19	27%

Target value: The proportion of less

<table>
<tr><th>Summary</th><th>Indicators of success</th><th>Sources verifiability</th><th>Central assumptions / risks</th></tr>
<tr><td></td><td>invasive surgeries increased up to X in selected health facilities in compare to 2013

5. Improving the quality of selected diagnostic or therapeutic applications (accuracy of Indications, correct evaluation, etc.) in selected areas(Define sample evaluation by international experts , the source and target value in the first year of implementation)

Baseline value: Knowledge of professionals, patient satisfaction has increased from 50% in 2012 to 75% in 2013.
<table>
<tr><td>Specialist</td><td>2012</td><td>2013</td></tr>
<tr><td>CT expert</td><td>67.4%</td><td>76.7%</td></tr>
<tr><td>Endo-surgeon</td><td>58%</td><td>74.2%</td></tr>
<tr><td>Nurse.</td><td>62.4%</td><td>73%</td></tr>
<tr><td>Satisfaction of patients</td><td>16%</td><td>76.3%</td></tr>
</table>
Target value: Knowledge of professionals, patient satisfaction has increased by X until the end of 2013 in selected facilities.

Baseline value: Duration of laparoscopic interventions has decreased in average by 21% after the start of the project implementation.
<table>
<tr><td>Type of</td><td>01.2013</td><td>10.2013</td><td></td></tr>
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Summary	Indicators of success	Sources verifiability	Central assumptions / risks
	<table><tr><td>intervention</td><td></td><td></td><td></td></tr><tr><td>Appendectomy</td><td>46.9 min</td><td>39.7 min</td><td>-25%</td></tr><tr><td>Cystectomy.</td><td>60min</td><td>50min</td><td>-17%</td></tr></table> ***Target value**: Duration of laparoscopic interventions has decreased by X %*		
Output *Output A Logistic management of equipment procurement, use and maintenance improved*	Unique computer based inventory system installed and used in pilot areas by 2014 year ***Baseline value:** 0* ***Target value**: ongoing process*	*Decree of the Ministry*	*(here describe the significant assumptions that are important to achieving the objective module)* *The Ministry takes over the system for its affiliated hospitals*
Output B Clinicians (medical staff) can offer improved services by using modern technology equipment	***Baseline value 1**:* X number of surgeons trained on provision of more variety of laparoscopy interventions ***Target value 1:*** 110 endo-surgeons at pilot facilities trained to provide more variety of laparoscopy interventions ***Baseline value 2**: special MSCT examinations with contrast (angiography) not performed in pilot facilities* ***Target value 2**: 79 special MSCT examinations performed in pilot facilities.* ***Baseline value 3:** 2 radiologists can perform special MSCT examination.* ***Target value 3:** 21 radiologists can perform*	*Training center activity documentation* *Patients documentation*	*Enough Specialists are available for trainings.* *Toosl for angiography are available (budget hospital)*

Summary	Indicators of success	Sources verifiability	Central assumptions / risks
	special MSCT examination.		
(Essential) activities in the module	*not to be filled!*	*not to be filled!*	*(here describe the significant assumptions that are important to the achievement of outputs)*
Activity A • *Supported participation of 2 MoH specialists on International Hospital Engineering Conference in Bern/Switzerland. There, programs were presented on management, logistics and engineering applications to improve quality / control, management.* • *Supported participation of 3 MoH specialists on the 38th Congress of International Hospital Federation in Oslo/Norway, where Republican Scientific Center for Emergency Care in Uzbekistan became a member of IHF. The first membership fee for 2013 was acquired by the project.* • *Supported participation of 3 MoH specialists at the International IHEEM (Institute of Hospital Engineering and Estate) conference and exhibition in Manchester, UK. This included attending a trade fair of Companies in the health sector*			*Due to a 12-month delay in signing of implementation agreement of the project the implementation activities in the country started with a 12-month delay. In order to not jeopardize the attainment of the goal, it is necessary to extend accordingly and provide with adequate resources.*

Summary	Indicators of success	Sources verifiability	Central assumptions / risks
(manufacturers, service providers). • *Supported participation of MOH specialist on the 4th economical conference if Central Asia in Berlin.* • *Supported visit of 2 MoH and 1 specialist from Cabinet of Ministry to Germany (meeting with representative of MoH of Germany, meeting with manufactures of medical technology, visit exhibition Medica 2012 in Dusseldorf.* • *Seminar on "Planning and Procurement of Medical Equipment " was conducted with the involvement of expert from ECRI (Emergency Care and Research Institute). Target group: head of medical institutions, technical staff and representatives of UZTIBTEHNIKA.* • *Organized a mission on the "Life-cycle Costing of Advanced Medical Equipment" in Republican Center for Emergency Medicine and its' branches of Andijan and Navoi region, with involvement of international experts from Resah, France, from 23 to 28 September 2013.* • **Annual International Nevsky**			

Summary	Indicators of success	Sources verifiability	Central assumptions / risks
Forum of Radiologists, on 4-5 April, 2014, St. Petersburg, Russia • **Study tour in scientific and clinical education center "Radiology diagnostics and nuclear medicine" in Institute of High Medical Technologies of St. Peter State University 6-7 April, 2014,St. Petersburg, Russia** • **attended Karl Storz training centers of Scientific Research Institute AIG named Otto and the Center for Emergency Medicine of Ministry of Emergency Cases in Russia, 8-9 April, 2014,St. Petersburg, Russia**			
Activity B • *Baseline study on the current situation in high-tech medical equipment.* • *Data collection on project indicators* • *Planning Workshop to develop operational plan of project* • *Ensured the training of 6 endo-surgeont and 2 nurses in the center of Karl STORZ in Moscow.* • *Ensured the training of 3 endo-gynecologists at training center of*			

Summary	Indicators of success	Sources verifiability	Central assumptions / risks
Karl Storz in Clermont-Ferrand/France • *Training of 4 radiologists at training center of Siemens in Moscow* • *Procured training materials (6 computerized working stations on visualization, screen, furniture) for the training centre at Republican Scientific Centre for Emergency Care* • *Conducted an opening ceremony of training centre for radiologists and laparoscopy surgeons* • *Conducted master class on usage of CT/MRI in cardiovascular deceases by Pr. Konovalov R.N. from Russia. Trained 15 radiologists.* • *Conducted master class on "Opportunities for single-port laparoscopic surgery in surgical diseases of the abdominal cavity" by Professor Anishenko V.V from Novosibirsk University. Trained 17 surgeons.* • *Conducted master class training on usage of CT/MRI at cardiovascular diseases by expert from Graz/Austria. Trained 52 radiologists.*			

Summary	Indicators of success	Sources verifiability	Central assumptions / risks
• *Provided 2 trainings on CT/MRI of abdominal and chest organs, cerebrovascular diseases and trained 27 radiologist.* • *Conducted on-site trainings on angiography in Navoi and Andijan regions and trained 21 radiologists.* • *Provided 3 trainings on emergency laparoscopy and trained 42 surgeons from emergency hospitals of 13 regions.* • *Conducted trainings in 6 regions for 106 nurses in the field of sterilization/disinfection of endoscopic instruments.* • *Conducted 1 master class on Gynecological laparoscopy with involvement of doctor's team from Moscow and trained 59 surgeons.20-23 November, 2013* • *Conducted 1 master class on Gynecological laparoscopy with involvement of doctor's team from Moscow and trained surgeons.27-29 March, 2014* • *Organized on-site master classes on Endo-surgical operative interventions, laparoscopy in gynecology, thoracoscopy in*			

Summary	Indicators of success	Sources verifiability	Central assumptions / risks
Andijan and Navoi from 21st of April to 8th of May, 2014. • *Ensured the training of 3 endo-gynecologists at training center of Karl Storz in Clermont-Ferrand/France, November 2014.*			