

TECHNICAL ASSISTANCE TO SUPPORT THE STRENGTHENING OF THE HEALTH INFORMATION SYSTEM IN TAJIKISTAN



A project funded by European Union



This project is implemented by a consortium led by EPOS Health Management

NEWSLETTER

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The European Union funded project "Technical Assistance to Support the Strengthening of the Health Information System in Tajikistan" presented progress of project activities at a fourth Steering Committee meeting held on October 30 2014.

The meeting was successful and was hosted by the EU Ambassador, the Vice Minister of Health and Social Protection of Population, and the Vice Minister of Justice, with active participation of 42 specialists from the Ministry of Health and Social Protection of Population, Ministry of Justice, Civil Registration Offices, Agency on Statistics under President of the Republic of Tajikistan, international donor organizations and Projects. Presentations were delivered by the Project team on the third-semester report. Important issues related to Project implementation have been identified and solutions have been discussed.

The developed DHIS2 software has been fully adapted for data entry, data analysis and reporting, and is ready for countrywide utilization starting in January 2015. Necessary equipment was distributed and

installed in health care facilities and civil registration offices in all 65 districts and cities of the Republic of Tajikistan. Currently, 60 districts and cities are connected to the central server and the online data entry process started in all connected points during a pilot stage. Around 800 specialists from the Ministry of Health and Social Protection of Population and Ministry of Justice have been trained in DHIS2 and statistics and two international study tours were organized for the representatives of the Ministry of Health and Social Protection of Population, Ministry of Justice and Agency on Statistics under President of the Republic of Tajikistan.

Eight forms for the registration of acts of civil state, including online and offline versions, and two statistical forms for collecting demographic data for the Ministry of Health and Social Protection of Population and Agency on Statistics under President of the Republic of Tajikistan were developed for the Civil Registration Office under DHIS2. The developed forms are currently being piloted online in seven Civil Registration Offices of Dushanbe, Shahrinav, Rudachi and Gissar districts and offline in four Jamoats of Gissar district.

In addition, an outline of the planned activities for the fourth-semester of Project implementation



has been presented. The third Progress Report was approved and the Project activities were positively appreciated by the Vice Minister of Health and Social Protection of Population and Vice Minister of Justice. During the SC meeting, Elena Maximenco, Project TL, was awarded the Jubilee Medal "90 years of Justice of the Republic of Tajikistan".

The next steering committee meeting is planned for March 2015.



A session of the Project Steering Committee (photograph from project archive).



Navruz Djunaidulloevici Djafarov – Deputy Minister of Health and Social Protection of the Population RT

Dear Mr. Deputy Minister,

You are the key person in the Ministry of Health and Social Protection of Population for the issues of electronic systems in the healthcare and in particular for the EU funded project "Technical Assistance to Support the Strengthening of the Health Information System in Tajikistan". Could you please say several words of your role and main tasks?

The project assisted us a lot and contributed greatly in the development of the Health Information System in Tajikistan designed to meet our requirements and needs. Up till nowadays we used paper based information collection means for our reporting needs and now we are at the transition stage from paper to computer and digital versions of documents. In other words, now for sending information from the remote district to the centre only one thing is necessary, to have the connection to the information system DHIS2 and access to internet, and information becomes instantly available online for the decision makers and healthcare managers.

The value of the new system is to provide a possibility to have the information available for the decision makers not only after the end of the reporting period but ensures on-going access in the real time.

This process needs to be controlled and even not so much controlled but coordinated. Mainly it is coordination of activities within the healthcare system, development and introduction of information materials, reporting and accounting records. I was given the responsibility as the Deputy Minister to coordinate all the activities that are included in the development and introduction of information systems as well as efficiency analysis of measures and decisions taken to respond to the figures and information that we have. Information system includes demographic data such as births and deaths. At the moment the CRO offices are making the registration but as the next stage it is possible to develop the national register system. Then it would be possible to register new-borns in hospitals, i.e. when parents come to get their new-born registered he or she would be already in the information system.

The project activities and activities of the project's partners, in particular of the Republican Centre of Medical Statistics and Information, are targeted at the timely collection and analysis of information. Nowadays we rather frequently face the situation when districts have a great challenge collecting the required information, as all the information is paper-based. We hope that after the introduction of the information system in the healthcare we will timely get all the information from all the districts and this would create a possibility to analyse the information on a timely basis and to take needed decisions at the local, regional and central levels on the improvement of management of the health system, introduction of national or sectorial programmes, for example aimed at the reduction of any varying incidence or introduction of prevention programmes.

As much as I understood from the Project team this year is a year of change – the decision has been taken to finalise the use of the previous version of the statistical programme MEDSTAT and from the beginning of 2015 the new information system DHIS2 should be in place and start being operational. Do you see any challengers in this process and how the project might help in the transition period?

The main issue that is always arisen when the new projects are being introduced is qualified staff. All the new programmes provide educational trainings for the specialists working at the field but then sometimes we do not find trained people – people change jobs or move to other places.

Social-economic factors influence brain drain and sometimes it happens that a specialist is leaving the country. Training of specialists at all levels, starting from the primary level is of an extreme importance. We think that it would be advisable to introduce the training course on the basics of information system in the Medical University curriculum or in Medical Colleges. This would help to educate graduates of Medical University or Medical Colleges on how to work with the information system and desirably teach them some skills. Using this opportunity I would like to express my suggestion to the project, after the system introduction and evaluation of its sustainability proving its efficiency, we would like together with the project to suggest the introduction of the information system training programme into the curriculum of Medical University and Medical Colleges.

Another challenge that I see in the development of the information technologies on the district level is the access of remote districts to the telephone connection: telephone lines or Internet.

We know from the several presentations of the President that the population of the Republic of Tajikistan is a little more than 8 million but the number of sim cards sold to the population exceeds 10 million. It proves that availability of mobile connection is getting

higher. With this said I want to hope that availability and access to Internet connection would be getting higher in future. So far mobile communication is cheaper in Tajikistan compared to other countries and it is possible to consider using flash-modems to get Internet access in case there is a mobile coverage.

Another issue is the use of landlines. It would be good if our partners – Tajiktelecom works with Governmental agencies with understanding and in particular with healthcare system and helps to information transfer in the healthcare system. I would give an example coming from the sector I am responsible for – sanitation and epidemiology, if within 6 - 24 hours we are not getting any information about the most dangerous infection happened somewhere in a remote area, it is not possible for us to control the situation or to take any measures. It would be good if socially significant projects find a solid support of our partners. Pricing policy of the landline communication is so far acceptable and it is a safe, reliable communication and we hope for the further cooperation.

The next questions follows from all the mentioned above – the issue of budget allocation. It would be good if every district allocated not less than 5% out of the total district budget. At the moment we know that not all the districts can afford to cover the Internet connection from their budget. This is one more challenge that might influence the information system introduction plans that we set for the next year.

What do you think that the health system of Tajikistan and the health specialists are ready to move to the new and modern information system?

You know, we got many responses from the regions and people treat with enthusiasm everything that comes new. And enthusiasm as such helps our health professionals to introduce new technologies and to overcome challengers. The National Health Strategy of the Republic of Tajikistan for 2010-2020 is targeted on the promotion of the medical services to the remote areas and this makes us to think that slowly the newest medical technologies would be available for the population in the remote areas. The information system plays here an important role, not only in information exchange but also the equal importance lays in the fact that medical facility would be obliged to have access to Internet. This fact changes traditions and prepares situation for other coming technologies. The most important is to start. And speaking about our project it is worth saying that the start has been already launched and nowadays the project progress is on-going and stable: the specialists are trained, equipment in the needed numbers is in the field and is already used appropriately in the pilot mode.

I hope that the change of statistical programmes generations would go successfully and very soon we will be using all the advantages of the new information system for the Tajik population benefits.

Thank you!

Ion, I heard from various people that the information system is somewhat unique. Can you please tell our readers what is unique in the system?

Some signs of uniqueness probably the system really has. The thing is that till nowadays the DHIS2 system has never been used for such a complicated statistical system as in Tajikistan. The challenge is not in the population size of the country or in the volume of data entered but in the number and complexity of forms, tables, data elements that are to be entered. According to our calculations, it is necessary to enter up to 40-50 thousands of statistical values. As an example let's take the experience of other countries where only about hundred or two hundred values are entered and that means those ones are hundred times simpler. It became clear for us that in case the standard system DHIS2 is used for simple statistical systems it works well. But when it is used for sophisticated statistical systems as in Tajikistan then the system discloses its narrow places. I even would not call it drawbacks, DHIS as the system was not initially designed for such a big volume.

In other words and to make it easier for the readers let consider an analogy, an example of a bicycle and a rocket. We've had a free (open source) programme DHIS as we see now a 'bicycle' and in the process of work we had to upgrade it to a 'rocket' and the additional investments were insignificant but well targeted.

Let's continue using the example, examples make things easier understood. There is a validation function in the system. What does validation mean? It is a verification of the data entered. Logical checks are usually used for these purposes, for example, figure from the first column should be equal to the sum of figures from the second and the third columns. If this does not happen, the system gives error. This function was certainly present in the system, but when we started using the system it became clear that the calculation of validation for only one form and one organization takes 30-40 minutes. And when the validation function was used by 10 persons during the trainings, it resulted in a complete stop of programme as it was not designed for processing of such complex data. It became evident that we need to redesign it.

Let's take another example – we need to configure the system to meet the requirements of the local statistics. As I mentioned above, fifty thousand data values needed to configure in all our forms as follows from our calculations. Initially we started data entering, as it should be done in the original DHIS system, using its instruments. Firstly, approximately 1-2% of configurations turned out to be erroneous. In other words it is 500-1000 errors for every 50 thousands entries. If the same percept is applied for 100 entries then nothing is wrong (5 errors). But for our needs it is almost a disaster. Such errors will be discovered only after the

introduction of the system into operation and it is possible that the project won't be in the country by that time. And secondly, minimum 20 years of work is required to manually configure using the modules that are designed in DHIS as it proved by a simple time consumption calculation. And again, it became clear that we had to upgrade the system. We managed to find the method based on the automation of the configuration process, which works 20 times quicker and gives feasible terms.

Now let's look at the aggregation of data. Aggregation of data from the statistical tickets has been made till nowadays manually in Tajikistan and it took an enormous quantity of time and labour efforts. It is practically impossible to do such a big work without mistakes. Again here – now I am speaking about statistical tickets. DHIS for the first time gave the possibility of automatic aggregation of statistical tickets by means of information system. It is true, such a module was in the system but it seems nobody exempt us (at the moment of implementation of this module in Tajikistan) tried this module to work at an industrial scale. When we started working with DHIS it was discovered that aggregation process takes minimum 30-40 minutes for every organisation. And if at the same time 200 organisations start using this function then the system simply stops working.

These are some problems that we have solved, and this makes the system now in some way unique among the other open-source statistical systems.

Is my understanding correct that mainly you had to significantly improve the performance of the system at all the levels?

Yes. We were probably the first ones who reached such an improved performance able to solve so sophisticated tasks with the help of DHIS.

Productivity of validation and aggregation modules was increased about 1000 times. All the problems have been discovered while started using the system, at the trainings and in the process of piloting. When people started entering data and actively use system then all the problems became obvious.

One more issue that we were working on is the user-friendliness of the interface. Lots of things we had to change and improve according to the users' requirements and recommendations. We asked participants at the trainings to tell us what is uncomfortable while working with the system and then thought how to improve it. We added many properties that improved the interface.

It is very important to mention here that the installed system requires a greater responsibility from the local partners,

INTERVIEW



Ion Stanciu – Key expert 2, Project “Technical Assistance to Support the Strengthening of the Health Information System in Tajikistan”

specialists will be required to provide technical support for this considerably modernized system and adapt the system for the new needs in the future. Let's imagine that some statistical form is changed – DHIS specialists are needed who can correctly make all the changes in the system. From one hand, we used a free system (open-source programme) but from the other hand - to have it functioning in the country well-qualified specialists are needed who know the system and are able to provide technical support. There is an international group of authors – the developers of DHIS in Norway (Oslo University). At the beginning of the project, we hoped for a close cooperation, started informing them about the problems and inconveniences revealed. Some they corrected but they had not enough time to change and improve everything we needed. We understood that we as a project could not depend on the external uncertainty.

The only way-out that we had seen at that time was to change everything by our own staff. We have an IT specialist's team in the project who are qualified enough to solve emerging problems. The local IT capacity has been built to provide technical maintenance of the system at the local level.

Was there any comprehensive training programmes for users, and for building capacity of the IT specialists who are responsible for the technical issues of DHIS?

Yes, sure. At the moment we have IT specialists team of a necessary professional level and it consists of several specialists specialised in different fields. But it is necessary to think how the DHIS2 system will be technically supported after the end of the project. Now all the IT specialists are part of the project team and will not be anymore financed after the end of the project.

Thankyou!

It was preferred that one of the visited countries would be a former Soviet Union country, because the Civil Registration Offices and healthcare statistics remained pretty similar. With these in mind the Project selected Moldova as a destination for a study tour for our local partners, namely Ministry of Health and Social Protection of Population, Civil Registration Office of the Ministry of Justice and Agency on Statistics under President of Tajikistan. Moldova is the most relevant country for study in the former Soviet area because it has similarities in all interesting for study areas (healthcare statistics, national statistics, and civil registration), and has relatively higher level of information technologies allowing to serve as insight for feasible development, analysis and possible application in the Tajikistan settings. The study tour was conducted in October 2014

STUDY TOUR TO MOLDOVA

The main objective of the study tour was to get the health professionals from Tajikistan familiarized with the long standing experience in the development and implementation of the National Health Management Information systems in Moldova, the Moldovan experience in CRO system and interaction between various agencies.

The particular attention was given to the CRO experience: information systems, ways of computerization and peculiarities of registration, development of national demographic indicators, methods of the interaction between the various healthcare agencies, the National Statistics Bureau, and CRO for generating correct statistics. The issues of interest were also history of development and introduction of information systems, search for optimization solutions, their costs and sustainability.

Ion Stancu, the Key Expert of the Project, - *“Talking about the main moments of the Moldovan experience, firstly it needs to be mentioned that it was started on the Government level and it was started with the correct mathematical tasks, for example, with the introduction of the individual identification number of the citizen. Identification number of the citizen is needed (besides its direct purpose) to link together all the data on the person from various sources and agencies to enable analysis and generalized data use. All the statistical data including births and deaths are linked to the concrete person and these data are easily put together. This mathematical model was used as a basis for the development of the National Population Register. This might be called the core of the whole system and this “core” is being used in all the agencies in Moldova including the CRO”.*



Computerization experience of Moldovan CRO was very interesting for the participants of the study tour. Plans to computerize the CRO system had been started in 2002 and the CRO information system was launched in 2005. All the documents were entered in computer and linked to the concrete person using the identification number of the citizen. After the introduction of the system the drawbacks of the system became apparent. Technology at that moment was not able to support the whole volume of work digitally, every document should have been printed and signed, and the Law on the electronic signature was not in force yet. Five million entries were done within five years. The main problem was in a big quantity of mistakes and it was practically impossible to trace the mistakes. As a result, the computerization was not given the intended results and in order to find a person double work should have been done: search in database and search in paper-based archive. CRO requested the Centre of the e-Government in Moldova for optimization and CRO was offered a method of scanning. Now instead of data entering the scanning is used, electronic image and metadata (Name/Surname, birth date, address and other) are linked together. Search function enables to find all the documents that are registered for a concrete person and the search in the paper-based archive becomes unnecessary. New entries are done electronically but are doubled on paper. Now there is already an understating that it is possible not to double everything on paper but CRO is currently checking the options and possibilities of the information system.



Another strong side of the information technologies in Moldova is statistical information system in healthcare. The entering of data is organised differently – demographic data such as births and deaths are registered within the system of the Ministry of Health but available to CRO, the National Statistics Bureau and other Governmental structures.

In the Centre of e-Government created by the Government of the Republic of Moldova in August 2010 it was clearly demonstrated how interagency collaboration might be organized.

Working group meetings in Moldova (photos from project archive).

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Main functions of the e-Government Centre are as follows:

- Strategic planning, projects management and introduction of the information and communication systems for the Government;
- Development of "roadmaps" for the progress of information technologies and communication for Governmental agencies of the Republic of Moldova, projecting basic infrastructure, development of qualified staff and further development of technical progress;
- Promotion of e-transformation and further development of the level of use of information technologies and communication by population.

Many questions have been directed to the National Health Insurance Company: objectives of the company, how it is organised, introduction and management of the compulsory health insurance with the approved procedures and mechanisms of financial fund organisation to cover the treatment and prevention costs. All the services are included in the United Programme of compulsory Health Insurance approved and upgraded by the Government. The Company is represented in the regions to cover the whole country.

Also informative meeting have been organized in the National Statistics Bureau, National Centre of Healthcare Management, School of Public Health and AMT Centru (Policlinic #1).

The participants of the delegation developed the following recommendations to consider for the implementation in Tajikistan:

- it is necessary to develop the single national Population Register, where all the information about every citizen is collected at the basis of unique identification code;
- it is recommended to learn from Moldovan experience in the field of computerization of CRO registration system, based at scanning of documents and application of e-signature which significantly speed up digitizing of the existing archive;
- it is recommended to transfer the coding process of deaths' reasons to the Ministry of Health and Social Protection of Population;
- it is necessary to study in details the experience of Moldova in organisation of births and deaths registration to decrease the discrepancy between the data of CRO and Ministry of Health and Social Protection of Population, for example to issue the Births Certificates in hospital etc.;
- it is necessary to study the experience in preparing the demographic statistics at the district level (sex, age, rural/urban) to have health indicators calculated in the information system DHIS;
- more attention to be given to the intersectoral cooperation between various Governmental agencies in information exchange including e-information;
- it is advisable to study experience in development of diseases registers and other aspects of healthcare system;
- it is advisable to invite some key specialists for counselling in the filed of population registration, unique identification and computerisation of CRO documents scanning.

STUDY TOUR TO INDIA

At the end of November 2014 the study tour to India was organised by EPOS Health Management jointly with HISP India for the delegation from Tajikistan.

The purpose of the study tour was to strengthen the knowledge base of the healthcare specialists of the Ministry of Health and Social Protection of Population in the issues of the full-scale introduction and implementation of information system DHIS2 in India. The gained expertise and knowledge would help the specialists to formulate more effective strategies in the introduction and maintenance of the information system DHIS2 in Tajikistan.

The strengthening of cooperation with the Indian states, which have the most advanced at the moment experience in DHIS2 introduction and implementation among the developing countries and studying this experience was one of the key purposes of the study tour. A lot of attention was also given to more comprehensive understanding of alternative models of DHIS2 introduction and what is more important to technical maintenance of the system after the introduction. Many discussions were devoted to strengthening of the understanding of the strategies to ensure high quality of data and development of possibilities of more effective use of information, finding the fields of possible future cooperation and support between two countries.

Delegation of the Tajik specialists visited the Healthcare Information and Management System office at the state level. The discussion about the work of DHIS2 at the moment and models of technical support was very interesting. The issues of the use of other information systems in the state and their inter-cooperation with DHIS2 have been discussed. The issues of further expansion of DHIS2 system possibilities, server management and plans to further development of information system DHIS2 have been of a particular interest.

Meetings have been made with the district administration where an open discussion took place on the challengers of the process of DHIS2 introduction,

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Working group meetings in India (photographs from project archive).

STUDY TOURS

organisation of technical support, influence DHIS2 has on the improvement of work of the district administration, plans of further development of the system.

Visiting of the primary health care and hospitals was very informative and enabled to see in reality the practical and everyday application of DHIS2, to understand the challenges which have to be overcome working with DHIS2 and estimate the value of using DHIS2 on the improvement of the healthcare facilities.

The study tour and visits made in healthcare facilities in India and HISP India office have been very informative and useful – the participants had an opportunity to study in detail the Indian experience in the development of information systems in the healthcare, management of information and use of information for decision taken by the Governmental agencies.

«Participants liked the most visit to the Healthcare Management Office Bihar, Medical Emergencies Centre Bihar, Primary Healthcare of Patna State », - said Lola Sapharkulovna Radjabova, Senior Expert of

the Project. "It was very useful to see the way the healthcare specialists of various levels practically using information system DHIS2 in their work on the everyday basis, starting with the patients registration and finishing with the diagnosis registration, prescriptions and further visits to the doctors. All the participants were impressed by the minimum of paper-based work, absence of large volume of primary medical documentations and reporting statistical forms".

After the study tour the participations of the delegation made the following recommendations on the possible introduction of the experience studied in India in the settings of Tajikistan:

- To reduce the quantity of indicators, quantity of primary medical documentation and reporting forms;
- To develop electronic forms of primary medical documentation, ensure complete medical statistical reports from the primary medical documentation forms using information system DHIS2 in online regime;
- To widen the DHIS2 introduction and to cover rural Health Centres.



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The European Union is made up of 28 Member States who have decided to gradually link together their know-how, resources and destinies. Together, during a period of enlargement of 50 years, they have built a zone of stability, democracy and sustainable development whilst maintaining cultural diversity, tolerance and individual freedoms. The European Union is committed to sharing its achievements and its values with countries and

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