

# Support to strengthening the higher education system in Azerbaijan



Twinning project ENI/2018/395-401

## Mission Report

Short-Term Mission on Activity 1.5. Provide recommendations for improvement of education standards for qualification for programmes in the priority areas (incl. legislative arrangements) with a view to describing achievements based on competences and skills, considering the AzQF

(January 28 – February 1, 2019)

1. Name and Function of the Expert:

Full name of expert

Mr. Jean-Marc Planeix, France

Signature 

Full name of expert

Mrs. Inga Juknytė-Petreikienė, Lithuania

Signature 

## **2. Objective and Tasks of the Mission:**

The mission is carried out within the framework of:

### **COMPONENT 1: SELECTED NATIONAL EDUCATION STANDARDS ARE ALIGNED TO INCLUDE A COMPETENCE-BASED FOCUS**

Activity 1.5. Provide recommendations for improvement of education standards for qualification for programmes in the priority areas (incl. legislative arrangements) with a view to describing achievements based on competences and skills, considering the AzQF

Benchmarks for this activity are:

- **State standards for selected study programmes are revised**, with a view to describing achievements based on competences and learning outcomes, considering AzQF;
- **Other relevant documents/ methodology materials are prepared.**

**3. Time schedule of the mission:**

<b>Date and Time</b>	<b>Activity</b>
Monday 28 January 2019	<b>Deskwork in Ministry of Education regarding the revision of study programmes.</b>
Tuesday 29 January 2019	<b>Deskwork in hotel to draft a new version of study programmes.</b>
Wednesday 30 January 2019	<b>A joint deskwork and discussion with MoE representatives regarding a revised version of study programmes.</b> <i>Ms. Vusala Gurbanova, Senior Advisor at HE Dept., MoE, CL I</i> <i>Ms. Nargiz Garakhanova, Senior Advisor at HE Dept., MoE, CL IV</i>
Thursday 31 January 2019	<b>Deskwork in hotel to draft a new version of study programmes.</b>
Friday 1 February 2019	<ul style="list-style-type: none"><li>- <b>Deskwork in hotel to draft a new version of study programmes.</b></li><li>- <b>Report writing</b></li></ul>

#### **4. Relevant Background Information/State of Affairs regarding the mission**

This mission is as a continuation of the **first mission carried out** under the same activity (Activity 1.5) in **November 2018**.

The objective of the **first mission** carried out in Nov. 2018 was to conduct workshops with working groups from 3 priority areas (Natural Sciences, Educational Sciences and Engineering Sciences) in order to discuss how the current state standards for selected study programmes (Physics, Physics Teacher, Chemistry Teacher, Chemical Engineering) could be revised, with a view to describing achievements based on competences and learning outcomes, considering the AzQF. **As an outcome of these discussions, a new template for state standards for study programmes (SSSP) was suggested by experts.**

The objective of this **second mission** was twofold:

- **discuss the new suggested format of SSSP with the staff from the Ministry of Education** (Dept. for Higher Education, Accreditation Unit of Dept. for Accreditation and Nostrification, Higher Education Unit at Institute of Education), considering the revised version of general state standards in Higher Education, and provide a finalised version of SSSP;
- devise **state standards for selected study programmes** in the areas of natural sciences, engineering sciences and educational sciences.

## **5. Achievement of the Expected Results**

### **Achievements on the first activity: New suggested format of SSSP**

The new suggested format of SSSP was discussed with the staff from the Ministry of Education. The representatives of Ministry of Education were satisfied with the new suggested format of SSSP. However, some minor updates were suggested to be introduced in the final version of SSSP.

In order do not confuse SSSP with other legislative documents like SS for HE, the title of the SSSP is supposed to be changed as follows: “State description for the study field for ....” or “State reference standard for the study field of ....” or “The study field descriptor for study field in ...”. The final decision on the title, which should be comprehensible for the stakeholders of Azerbaijani higher education must be done by the Ministry of Education.

General provisions of SSSP must be in compliance with current legislative documents of Republic of Azerbaijan and permanently amended by the Ministry of Education according the national legislative updates.

Talking about the scope of study programmes it was suggested by experts and agreed with representatives of the Ministry of Education to indicate in each SSSP for particular study field minimum requirements for the amount of credits dedicated to practice. Practices (placements outside the HEI) and any other kind of practical training within the classes must account for at least a third of the study programme’s scope in Bachelor level. This should encourage the use of interactive teaching and learning methods that provide students not only knowledge but also practical skills relevant to the needs of labour market.

It was discussed and agreed that the data and requirements for different study fields should vary in the following chapters of new suggested format of SSSP:

Chapter 2. Competences and learning outcomes of the study programmes in the study field of ...

Chapter 3. The scope of study programmes in ....

Chapter 6. Infrastructure, teaching base and staff capacity

Chapter 8. Employability and further education of graduate

Some data and requirements for different study fields should vary in the following chapters of new suggested format of SSSP:

Chapter 4. Teaching, learning and assessment – the differences shall be emphasised in teaching, learning and assessment methods to be applied in order to achieve the indicated learning outcomes of the programme.

Chapter 7. Requirements on final state attestation and assessment - the differences shall be emphasised how many ECTS student shall accumulate at Bachelor level in order to be graduated.

New suggested format of SSSP with above-mentioned updates and recommendations was accepted. Revised version of the new suggested format of SSSP is added as Annex 1. The planned outcomes of this activity were fully achieved.

### **Achievements on the second activity: State standards for selected study programmes**

Based on analysis of economic and social priorities, as well as data explaining the distribution of students across sectors and graduate employability, 3 priority sectors with 15 study programmes have been identified. SSSP for Physics, Physics Teacher, Chemistry Teacher, Chemical Engineering were revised in the first mission.

Currently the following SSSP for Educational Sciences, Natural Sciences and Technical and Technological Sciences were revised taking into account the competence-based approach:

- Educational Sciences: Foreign Language Teacher, Math Teacher, Informatics Teacher, Primary School Teacher;
- Natural Sciences: Biology, Ecology, Geography, Computer Science;
- Technical and Technological Sciences: Computer Engineering, Electrical Energy Engineering, Information Technologies, Oil and Gas Engineering.

At this stage of the project it was decided to focus only on Bachelor Degree in Natural Sciences and Technical and Technological Sciences as to the higher current priority of higher education in Azerbaijan (for more see part 7). In Education sciences it was focused on both Bachelor and Master Degrees, as the teacher's competences are of crucial importance for the future of the country human resources capacities. Also, it is necessary to point out, that, for e.g. in France there is teacher qualification awarded only in Master level.

Following the new suggested format of SSSP the experts based on the experience of Lithuania, France and Tuning project resources developed general and professional competences, provided the examples of links of general and professional competences with learning outcome of the programme and subjects to be taught in order to attain the foreseen learning outcome and develop indicated competences, also examples of subjects and its ECTS from universities of Lithuania and France were presented for each study programme.

However, 2 study programmes in Educational Sciences: Math Teacher and Informatics Teacher and 2 study programmes in Natural Sciences: Biology and Ecology were merged based on the European experience.

Experts want to point out that the shortage of specialists in science, technology, engineering, mathematics is currently a major problem across Europe. These sciences are considered to be heavy, dry, and uninteresting for students. One of the reasons is overly theoretical training in exact and natural subjects, lack of practicality and understanding of how precision things can be applied in everyday life. Most of the advanced countries, including Lithuania and France, are taking these factors into account. Therefore, it is introduced the practise to integrate the teaching and learning of these sciences, which is called in Lithuania STEAM education direction. STEAM stands for Science, Technology, Engineering, Art (Design) and Mathematics. Lately, the letter A in STEAM is used in a broader sense than art / design: A - All other disciplines. STEAM education emphasizes creativity and technical creation as an interdisciplinary approach, combining its rationally with the peculiarities of individual subjects. Therefore, in case of subject Teacher, there are no separate competences indicated for the Teachers of Natural, Physical and Technological Sciences (Teacher of Biology, Chemistry, Physics, Informatics, Math and Technologies); the student usually should choose 2 directions from STEAM sciences. Taking into account the current trends in pedagogy education and better employability prospects for the students, the experts developed the common general and professional competences for both Math Teacher and Informatics Teacher.

Also, it is necessary to note that in European HE area Ecology is a branch of Biology field, therefore experts developed competences common for the person who is going to be graduated in Biology or

Ecology as competences (knowledge and skills) in Biology are fundamental for competences (knowledge and skills) in Ecology.

It was agreed with the representatives of the Ministry of Education that the learning outcomes of each study programme will be developed by the national working groups representing academics from different universities. It is strongly advisable involve representatives of employers in to the national working groups to reflect the current and future needs of Azerbaijanian society. It is recommended to use in Europe well know methodological guidelines how to write learning outcomes. Electronic version of Dr. Declan Kennedy's guide to writing learning outcomes is attached to this report.

It is necessary to note that presented examples of subjects and its ECTS from universities of Lithuania and France for each study programme are only advisory for Azerbaijanian universities. Decisions on what kind of subjects and what amount of ECTS shall be allocated must depend on the profile of the study programmes, needs of Azerbaijan society and labor market.

Revised general and professional competences for state standards for selected study programmes, examples of links of general and professional competences, learning outcome of the programme and subjects, examples of subjects and its ECTS from universities of Lithuania and France for each study programme are added as Annex 2, Annex 3, Annex 4, Annex 5, Annex 6, Annex 7, Annex 8, Annex 9, Annex 10, Annex 11. The planned outcomes of this activity were achieved.

## **6. Unexpected Results**

During the mission under the request of the representatives of Ministry of Education SSSP for Chemistry was developed additionally. SSSP for Chemistry is added as Annex 1.

## **7. Issues Left Open After the Mission**

The experts noticed that the number of study programmes per field of study is very high. For ex. in Mathematics, there are 18 specialties, while in Strasbourg University in the 1st year of Master there is only 1 and there are 2 of them in the 2<sup>nd</sup> year of Master. In Chemistry, there are 17 specialties, while in Strasbourg there are 5 or 6 of them in the 1st year of Master and 2 in the 2nd year of Master.

Because of this approach, the specialization area appears as very restricted: i.e. High molecule compounds chemistry or Colloid chemistry. In many European programmes, these would be just modules within a study programme.

It could be recommended to decrease the number of specialties in the national classification (for ex. to divide by 4) and make more complete and broader programmes in order to prepare more polyvalent students.

It could also be suggested to have a common tronc in the 1st year of studies; a specialisation shall then be based on research activities and / or research laboratories specialisation. It could be recommended to have programmes combining a large thematical area and an important area of application for the economic and scientific development of the country.

It could be recommended that study programmes:

- include 2 modules of experimental practice in laboratory (one in the 1st year of Master, another one in the 2nd year);
- develop student's autonomy through project-based learning;
- the whole last semester shall be organized in the situation of research production: an internship in a research laboratory for Natural Sciences programmes, in a company for programs in Engineering, or at school for Education Sciences programmes;
- a teaching team within a university is structured around areas of research which are recognized inside and outside of the university; one specialty shall regroup various fields; current topics shall be regrouped in modules. For ex.:
  - Non-organic chemistry: Inorganic chemistry, Chemistry of composite materials, Chemistry of nano materials
  - Organic chemistry: Chemistry of natural and physiologically active substances, High molecule compounds chemistry, Chemistry of oil
  - Physical chemistry: Electrochemistry, Colloid chemistry, Solids chemistry, Chemical kinetics and catalysis, Chromatographies, Spectrometries, Spectroscopies etc.
  - Analytical chemistry: Environmental chemistry, Ecological chemistry.

A suggested way to achieve it would be to ask academic staff to get regrouped in various domains combining their methodological approach and expertise in such a way that in a natural manner a larger research area would appear and with pluridisciplinary teams. Teams grouped together on broader research topics could engage in projects of new scientific equipment that could be made more effective because dedicated to a reasonable number of researchers.

## **8. Recommendations (including recommendation for future missions)**

The main challenge is competence-based curricula implementation in practice. In order to reach the real change in higher education, support must be provided to help HEIs' communities to achieve transition to competence-based higher education standards. Therefore, in order to strengthen the impact and sustainability of the project for further development and real implementation of competence-based higher education in Azerbaijan it is strongly recommended to invite working groups represented by universities community members to discuss the SSSP competences, learning outcomes of the study programmes, teaching, learning and assessment methods, infrastructure and teaching staff capacity within the project and beyond it. National working groups must permanently review and update the SSSP to echo the modern developments in science, societies and labour markets.

In future missions' workshops at universities how to (re-)design, develop, implement, evaluate and enhance quality of the 1<sup>st</sup> and 2nd cycle degree programmes should be held, by foreign and national experts.

## **9. Acknowledgments (if any)**

The experts express their gratitude to the representative of Ministry of Education Ms Vusala Qurbanova, Ms Nargiz Garakhanova and Lithuanian expert for mission 4.1 Ms Aurelija Valeikienė for their contribution to the revision of new suggested format of SSSP.

## **Annexes**

**Annex I: New suggested format of SSSP based on Chemistry**

**Annex II: Primary school teacher**

**Annex III: Informatics and Math Teacher**

**Annex IV: Foreign Language Teacher**

**Annex V: Geography**

**Annex VI: Biology- Ecology**

**Annex VII: Computer sciences**

**Annex VIII: Oil and gas engineering**

**Annex IX: Information technologies**

**Annex X: Electrical energy engineering**

**Annex XI: Computer engineering**

**Annex XII: KENNEDY, D. 2006. Writing and using learning outcomes: a practical guide, Cork, University College Cork.**