

International High Level Policy Forum & Workshop

on

“Developing the Roadmap on Engineering Qualification, Standardization, Accreditation & Professional System (EQSAPS)”

27-29 March, 2017

Dushanbe, Republic of Tajikistan

Executive Summary

Harmonization and standardization of engineering qualification and curricula is an important step to realize the potential of regional cooperation and to establish an ‘area of knowledge’, which facilitates the interactions in engineering fields, increase human resource mobility and employment opportunities in the region and beyond. In a region which is so diverse in cultural and social values, languages and educational systems, there is a need to develop a harmonized system of engineering education in order to achieve a higher level of understanding, a sense of shared purpose and common destiny. The primary goal of establishing standards and harmonization is to facilitate the comparability of engineering degree/curricula through similar degree cycle, qualifications framework, and credit transfer system etc.

In this context, Economic Cooperation Organization Science Foundation (ECOSF) and UNESCO in partnership with the Academy of Sciences, Republic of Tajikistan, the Federation of Engineering Institutions of Asia and the Pacific (FEIAP), the International Science, Technology & Innovation Centre (ISTIC) and Pakistan Engineering Council (PEC) organized an International High Level Policy Forum and Workshop on “Developing the Roadmap on Engineering Qualification Standardization, Accreditation and Professional System (EQSAPS)” in Dushanbe, Tajikistan from 27 to 29 March 2017. This roadmap is aimed at extension and adaptation of the FEIAP guidelines on engineering qualification standardization to countries of ECO region with focus on Central Asia region. Purpose of the workshop was also to assess and review the existing engineering curricula offered in Tajikistan with the objective of harmonization and standardization of curricula within the country with the FEIAP engineering qualification guidelines. FEIAP is a regional non-profit professional accreditation organization based in Kuala Lumpur, Malaysia, which develops and improve the regional

standards of engineering qualification in universities and institutes of higher education, in association with the national engineering bodies.

The first ECO Country so accredited by FEIAP with the efforts of UNESCO and ECO Science Foundation, is Pakistan. Thus Pakistan has sufficient capacity and expertise to help other regional countries for development of a Roadmap on Engineering Qualification Standardization, Accreditation and Professional System (EQSAPS) in Central Asia, and Tajikistan has been selected as the pilot country and the first stop in the region. The primary aim of holding this workshop was mobilization of engineering technologies and accreditation process and the certification processes in engineering.

The workshop brought together key stakeholders, policy makers, academicians and engineers from diverse fields and backgrounds that included representatives of high level Government from Republic of Tajikistan, participants from Universities, Engineering Schools and Industry, regulatory bodies of higher education, Academies of Sciences and Engineering Institutions, and some key persons from Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Pakistan, and Uzbekistan participated in the Forum. The mentors and facilitators from UNESCO Regional Science Bureau Jakarta & Islamabad, FEIAP Malaysia, Indonesia, Myanmar and China, PEC, ISTIC Malaysia, IEEE and ECOSF facilitated and/or contributed to the conduct of EQSAPS. In all, 23 International and 16 local experts besides other government officials took part in EQSAPS that was spread to six sessions.

EQSAPS provided a platform for the stakeholders to share their experiences and practices to formulate a comprehensive plan towards standardization of engineering qualification, accreditation and professional system for Tajikistan. Besides, it is envisaged that once implemented in Tajikistan, it is most likely that other Central Asian States will also come forward to adopt general FEIAP guidelines with the support of UNESCO and ECOSF.

The workshop paved the way to develop ultimate consensus to enhance the efforts and build a platform to identify job requirements in all engineering sectors, and train the students as per those identified requirements that came out after thorough deliberations during the three days proceedings.

The following recommendations were adopted with consensus.

Key Recommendations:

- UNESCO, ECOSF and FEIAP, should work together with the selected universities, academic bodies, and engineering organizations to formulate a comprehensive plan towards standardization of engineering qualification, accreditation and professional system for Central Asian Republics.
- PEC, CAST and IEM should come forward and help Tajikistan as mentors. In the process, the engineering qualification standards to be improved within next four years.
- China will have a leadership role, the linkages with CAST should be explored to realize the potential of “One Belt One Road” and CAR countries should work together on

engineering qualification standardization and accreditation to train their own professionals to enhance their job opportunities.

- ASRT and TTU should make a forum under the umbrella of Ministry of Education to develop accreditation system in the country
- EQSAPS should be expanded to other Central Asian Countries. Kazakhstan showed willingness to host a similar workshop to adopt these standards
- UNESCO should take lead in providing templates and previous accreditation documents for easy understanding of documentation process. UNESCO, FEIAP and PEC should train Tajikistan officials on accreditation system.

Besides above outcome, it was very encouraging to observe that Chinese delegates (Prof. Liu Xila and Prof. Wu Qidi) indicated willingness to take the leading role under the new leadership of the President Elect, Prof. Liu Xila. Kazakhstan delegation requested a similar workshop in their country, as there are some universities interested to adopt these standards. ECOSF, UNESCO and FEIAP look forward along with its other partners like ISTIC, CAST and PEC to replicate the initiatives in other countries of Central Asia.

Summary of Expert Consultation in Dushanbe

The interviews analysis revealed that:

- This EQSAPS meeting is a good step towards gathering many central Asia professionals at one platform
- All participants desired that they want to achieve integrated guideline but they need to direct step by step systematic way. Thus EQSAPS shall provide methodical guidelines based on engineering demand fields.
- Guidelines endorsed by UNESCO that applied in the Philippines, Pakistan, Nigeria and Myanmar, was proper one and tested in mentioned countries, it should be shared widely.
- Objective of EQSAPS is focus on developing practical engineer ability and increase knowledge of students with theoretical related field that this program help Central Asia states, and it starts from Tajikistan
- Central Asia countries are practicing in some way accreditation and standards system in coordination with ministry of education in their countries or ministry of science and technology in their region that they are implementing initial level and they are not focusing on professional way. There is no exposure to international standards. There are not available integrated professional accreditation bodies in these countries. All mentioned countries need same accreditation bodies that transfer of students and lecturer to enhance education and academic level.

- In Tajikistan there is no specific accreditation body. Recognition of engineering programmes are realizing through evaluation of curriculum and regulatory criteria through ministry of education. EQSAPS will help participants to recognize gap, then analysis that gap, the next step will produce roadmap aligned with FEIAP guidelines and national criteria complete. Participants should be able to understand the process and they need more trainings and it is better to participate workshop of such kind (EQSAPS). Most of participants are agree with a need to change and update engineering curriculum. Also; there is a need for independent accreditation bodies.
- Participants were of the view that FEIAP is active organization. Hence FEIAP should drive a step in along with UNESCO to take a leadership role besides China to bring CAR States with other developing nations.
- National participants from Tajikistan wished to have guidance from UNESCO and FEIAP. Most participants believe that fast change of system towards European would be difficult, so progressive change should be enforced and applied.
- All national and international participants agreed with engineering standards should be based on worldwide approved criteria then they will be able to exchange their students and lecturers with countries for better job opportunities.

Feedback and Recommendations

The way forward

- For the CAR, UNESCO, ECOSF and FEIAP, should work together with the selected universities, academic bodies, and engineering organizations.
- Academy of Sciences should become FEIAP member
- National education and research centre should setup the engineering education accreditation system and should work as mentor
- PEC, CAST and IEM should come forward and help Tajikistan as mentor. In the process the engineering qualification standards will improve in Tajikistan. The target should be that in the next four years Tajikistan should achieve the national standards system
- Through ECO, Member States apply for FEIAP Regional Membership with the support of their respective Education Ministries
- China will have a leadership role, the linkages with CAST should be explored
- Tajikistan has ASRT, academy of engineers and TTU can make a forum under the umbrella of ministry of education to develop accredited system in the country. Also, Tajikistan should become member of FEIAP.
- Stepping up to learn FEIAP guidelines
- EQSAPS workshops should be expanded to other Asian countries
- The core message from EQSAPS is that other countries should utilize the expertise and guidelines of PEC
- Participants suggested that UNESCO may take lead in providing templates and previous accredited documents for the easy understanding of documentation. UNESCO, FEIAP and PEC should train the Tajikistan officials on accreditation system.

- There are lots of opportunities under “One Belt One Road” and CAR countries should work together on engineering qualification standardization and accreditation to train their own professionals to enhance their job opportunities.
- Kazakhstan requested a similar workshop in Kazakhstan as there are some universities which are interested to adopt these standards in Kazakhstan.
- All participants agreed that there is a need for modern facilities and laboratories in engineering institutions
- Most participants suggested that more emphasis should be given on practical and lab work in comparison to theory.

Engagement of Relevant Stakeholders

- FEIAP should impart give trainings on:
 - FEIAP guidelines
 - Route to Professional Engineering
 - Entrepreneurship
 - FEIAP will do mentorship

It was also agreed that:

- PEC is ready to extend all kind of support in training, developing accreditation system in Tajikistan to speed up the whole process.
- Under ECO agreement bilateral support is agreed. Engineering education standardization and accreditation should be part of it.
- UCAP project between Pakistan and CA Countries has been signed and this initiative should be part of it.
- Regional Centre for Technology Development, UNESCO Cat II Centre, should organize training workshops and similar trainings can be organized for CA countries through ECO.
- UNESCO can support Tajikistan through our experiences.
- Research project for Washington Accord and European Engineers may also be used in China for research project.
- Contribute through experts in UNESCO, FEIAP training workshop on engineering qualification and accreditation.
- There is a private organization in Kazakhstan promoting the engineering and sciences through sending professionals in the training workshop.
- Preparing master and bachelor plan for special field with contribution of Ministry of Education.
- Improved communication between experts is essential.
- Encourage for exchanging students for short term and long term amongst CAR countries.
- Enhanced cooperation with engineering industries and educational institutes.

How can we strengthen partnership?

- Tajikistan Industry should be part of this initiative as key stakeholder
- Other gulf countries should be part of this process so they could learn
- Major universities in the region should be part of the process

- UENSCO, FEAIAP, PEC, ISTIC and ECO should work together
- Industry should be part of this process, so we may know what is required by the industry
- Accreditation department under the ministry of education should be part of the process
- China should play its leading role and involved in the whole process.
- Technocrats and bureaucrats should be part of the process, existing accreditation focal point should be involved
- Subject specialists must be included in the process
- Full professors should be included in the process

Development of a Roadmap

- Educational road map that should update in view point of engineer and update ones
- Government help lecturers and experts in university that they can focus on practical issues in society
- Internships industry placement
- Entrepreneurship training
- Update references and notes also equipment
- Engineering needs are growing in a globalized environment, while applied traditional program, so we need updated program that is combination of Russia and Europe systems.
- China has many things to offer and Tajikistan has many things to share.

Other Suggestions

1. Institute of Engineers to be established in Tajikistan
2. Some CAR can become Member as country like Azerbaijan already has an Institute of Engineers.
3. UNESCO will sign some MoU with Tajikistan so that process gets initiated
4. Other organizations like FEIAP should start their own MoUs with CAR states Technical Universities
5. The other major step is to link with China with OBOR.
6. We must link with the right political connection in the Government.
7. Feedback of all interviews either within from Tajikistan or out of Tajikistan were similar on engineering standards and accreditation procedures
8. At the end three MoUs were signed.
9. ICEE, PEC, IERS, FEIAP, and UNESCO need to prepare their own MoUs and enhance their technical collaboration.
10. Madhi Zarghami commented that FEIAP should start a media / social campaign to know rapid changes coming up,
11. Local participant from Tajikistan emphasized that all standards should be uniform within Asia and Pacific based on Washington Accord
12. Dr. Elmira thanked all, but she showed her concern that children should be properly guided when they are in the age going from pre schooling to higher education. Should not be based on parents' desire.
13. Dr. Manzoor Soomro endorsed Dr. Elmira comments and informed that in his address he has already covered this aspect where we must give priority to children education as this leads to a solid base for them to move forward in their career.