

Concept Note

International High Level Policy Forum and Workshop on Developing the Roadmap on Engineering Qualification Standardization, Accreditation and Professional System (EQSAPS)

Date: 27 to 29 March, 2017
Venue: Dushanbe, Tajikistan

Introduction

UNESCO in partnership with Economic Cooperation Organization Science Foundation (ECOSF), the Pakistan Engineering Council (PEC), the Federation of Engineering Institutions of Asia and the Pacific (FEIAP), the International Science, Technology & Innovation Centre (ISTIC) and Academy of Sciences in Tajikistan are planning an initiative to extend the FEIAP guidelines on engineering qualification standardization to countries of the Central Asia region and Tajikistan has been selected as pilot country. In this context an International High Level Policy Forum and Workshop on “Developing the Roadmap on Engineering Qualification Standardization, Accreditation and Professional System (EQSAPS)” has been organized in Dushanbe, Tajikistan from 27 to 29 March 2017.

Objectives

The objectives of this initiative are:

- a. Mobilization of engineering technologies and accredited programs.
- b. Discuss the certification processes in engineering.
- c. Build international network for the accreditation of engineering education.
- d. 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.
- e. Propose a strategy for standardization of engineering qualification in Tajikistan, with a clear timeframe and goal, using the FEIAP guidelines while keeping in view the engineering qualification standards in other countries of Central Asia.
- f. Develop a joint platform to identify job requirements in all engineering sectors, and train the students as per those identified requirements.

Background

Engineers play a key role in the planning, design, construction and maintenance of infrastructure, products, equipment and systems for the benefit and wellbeing of mankind. Engineers play a lead role in ensuring sustainable development by improving the efficient use of energy, transportation systems and natural resources as well as by improving health and use of data. Engineers can benefit from gaining work experience in different countries; however, the host country often does not recognize their

qualification. There is hence a need for more standardization of engineering qualifications.

Professional organizations and mechanisms for recognition of professional qualification

The United Nations Educational, Scientific and Cultural Organization (UNESCO), has since the 1960s, supported the creation of professional organizations such as the World Federation of Engineering Organizations.¹ On 6 July 1978, following an exploratory meeting organized by The Engineering Institute of Thailand, with the support of UNESCO, the Federation of Engineering Institutions of South-East Asia and the Pacific was established as an international non-profit professional organization. In 2008, the name was changed to the Federation of Engineering Institutions of Asia and the Pacific (FEIAP) and Pakistan, represented by the Pakistan Engineering Council, became a member in October 2011. The objectives of FEIAP are to encourage the application of technical progress to economic and social advancement throughout the world; to advance engineering as a profession in the interest of all people; and to foster peace throughout the world. It provides its members with a platform for sharing information and good practices on issues of concern to engineers in the region.

The existence of many bilateral agreements between countries in different parts of the world prompted six countries in 1988 to draft the original Washington Accord, which was signed in 1989. It is an international agreement among bodies responsible for accrediting engineering degree programs. It recognizes the substantial equivalency of programs accredited by those bodies and recommends that graduates of programmes accredited by any of the signatory bodies be recognized by the other bodies as having met the academic requirements for entry to the practice of engineering.² At the meeting of the Washington Accord signatories in October 1997, it was agreed to establish an independent forum to be known as the Engineers Mobility Forum, one of the objectives of which was to facilitate international mobility of professional engineers. Still much effort is required to standardize and harmonize engineering curricula in all countries, which would enable engineers from developing countries to share their knowledge and skills and be employable worldwide.

Central Asia and Tajikistan

Central Asia is the core region of the Asian continent and stretches from the Caspian Sea in the west to China in the east and from Afghanistan in the south to Russia in the north. It is also sometimes referred to as Middle Asia, and, colloquially, "the 'stans" (as the six countries generally considered to be within the region all have names ending with the Persian suffix "-stan", meaning "land of" and is within the scope of the wider Eurasian continent. Central Asia include five republics of the former Soviet Union: Kazakhstan (pop. 17 million), Kyrgyzstan (5.7 million), Tajikistan (8.0 million), Turkmenistan (5.2 million), and Uzbekistan (30 million), for a total population of

¹The World Federation of Engineering Organizations (WFEO), is an international, non-governmental organization representing the engineering profession worldwide, founded in Paris in 1968 by a group of regional engineering organizations, under the auspices of UNESCO, which brings together national engineering organizations from over 90 nations and represents some 15 million engineers from around the world.

²International Engineering Alliance <http://www.ieagrements.org/washington-accord>.

about 66 million as of 2013–2014.

Tajikistan is one of the progressive countries of the region and very much interested to be part of the engineering qualification standardization initiative and adopt the guidelines of FEIAP. Some basic facts about Tajikistan are as below;

Tajikistan reportedly has more than 600 mineral deposits containing such minerals as anthracite coal, antimony, bismuth, boron, copper, gemstones, gold, iron ore, lead, manganese, molybdenum, natural gas, nickel, petroleum, phosphor, salt, silver, strontium, tin, tungsten, uranium, and zinc. Tajikistan with its water resources is one of the largest countries with hydropower engineering capacity in the world. Hydropower engineering resources of Tajikistan are unique. The country occupies the eighth place in the world by its hydropower engineering resources and one of the primary places by its specific resources. Tajikistan has capacity to produce up to 527 milliard kWh electricity with total capacity of 4070 megawatts of hydroelectric power stations, however, nowadays, the country uses only up to 5% of existing potential. The need for qualification standardization of engineering professionals to enable them address the impending challenges of country. Engineering input is indispensable for sustainable and long-term development. The role of engineers in this situation had assumed greater significance for a better planning to address issues related to energy, water, sanitation, nutrition, health and safety. The conduct of this workshop in Tajikistan is indeed auspicious as it holds the promise for the advancement of engineering in all its manifestations. The workshop would provide momentum to the Tajikistan efforts for the acquisition of modern knowledge and advance skills.

There is a strong need for developing engineering curriculum which fulfils needs of industries and trade requirements that is compatible with local Tajikistan job market and regional trends.

UNESCO-FEIAP collaboration

ISTIC is the International Science Technology and Innovation Centre for South-South Cooperation under the Auspices of UNESCO in Kuala Lumpur Malaysia. One of ISTIC's priority programs is the accreditation of engineering education courses to acceptable international standards leading to regional mobility of engineers and technologists in the developing world. ISTIC approached UNESCO Director General Irina Bokova in 2013 for UNESCO to be the intergovernmental organization to oversee the above initiative. It was agreed to use Asia Pacific as the test bed. ISTIC brokered the agreement for the Federation of Engineering Institutions of Asia and the Pacific (FEIAP) to collaborate with the UNESCO Regional Science Bureau for Asia and the Pacific in Jakarta to improve the standard of engineering qualification in universities and institutes of higher education, in association with the national engineering bodies. Under the FEIAP/UNESCO AP agreement, UNESCO AP agrees to upscale the existing FEIAP program to spread its Engineering Education Guidelines to more countries in South countries. FEIAP's "Engineering Education Guidelines" is recognized by the Washington Accord and APEC. Under the FEIAP/UNESCO AP Agreement, the following countries have been selected for pilot study, namely Pakistan, Myanmar,

PNG, Nigeria, Timur Leste, Peru and Tajikistan. FEIAP has conducted workshops and forums in the first six nations. The most significant events were the Forums in Abuja Nigeria in July 2016 and in Lima Peru December 2016 and now it is Tajikistan's turn.

In the case of Pakistan, a scoping meeting was organized in January 2015, in Islamabad, Pakistan, and in September 2015, two reviewers from Institution of Engineers Malaysia were appointed by FEIAP to review the preparedness of engineering accreditation system of Pakistan Engineering Council for recognition by FEIAP. The review visit was held from 12-16 September 2015. The review included observation of accreditation of an engineering degree in a University in Pakistan by PEC and meeting with the Chairman of the Office of the Higher Education Commission. Review Team also gave a one day workshop on "Overview of Engineers Mobility, Accreditation and FEIAP Engineering Education Guidelines" and "Outcome based Engineering Education". In result, Pakistan has been accredited by FEIAP. The recognition of Pakistan's engineering qualifications by FEIAP Accreditation System has enabled Pakistan to be considered by Asia Pacific Economic Cooperation (APEC Engineer) towards registration of Pakistani engineering graduates, which would enhance mobility of engineers for the purpose of employment in other FEIAP economies.

Moreover FEIAP directed PEC to do mentoring of Central Asian States for the same cause. In this regard, this initiative is planned for Tajikistan to hold an International High Level Policy Forum and Workshop on "Developing the Roadmap on Engineering Qualification Standardization, Accreditation and Professional System (EQSAPS) from 27 – 29 March, 2017.

Participants

The participants of the meeting will be representatives of Universities, Engineering Schools and Industry from Tajikistan including regulatory body of higher education, Academy of Sciences and Academy of Engineers, etc. Focal points of other Central Asian States will be participating as well. Presentation will be made on the steps taken to achieve the engineering qualification standardization accreditation and professional system. The ultimate aim is to prepare future engineers for sustainable socio economic development of the country / region. The Engineering Industry will present the latest needs and requirements from the engineering institutions. The mentors (UNESCO, PEC, FEIAP, ISTIC, ECOSF) will provide their feedback on where improvements can be made.

Format

Presentations, lectures, discussions and visit of engineering training facilities, etc.

Expected Outcome

The initiatives will provide a platform for the stakeholders to share their experiences and practices and help to formulate a comprehensive plan towards standardization of engineering qualification, accreditation and professional system for Tajikistan particularly

and Central Asia in general in-line with FEIAP guideline as supported by UNESCO being the minimum standard / bench mark in substantial equivalence of qualification Engineers competency and mobility towards the global agenda of UN “Sustainable Development Goals”. Based on experiences from Pakistan and other countries, a follow-up action shall be initiated so Tajikistan adopts and is accredited by FEIAP.

Meeting Dates

Date	Day	Activity	Remarks
26 March 2017	Sunday	Arrival of participants	
27 March 2017	Monday	Workshop Day-1	Inauguration and Technical Sessions
28 March 2017	Tuesday	Workshop Day-2	Technical Sessions and Conclusion
29 March 2017	Wednesday	Workshop Day-3	Field Visit of Engineering Industry
30 March 2017	Thursday	Departure of participants	