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

Proceedings

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ACRONYMS

ASEAN	Association of Southeast Asian Nations
ASRT	Academy of Sciences, Republic of Tajikistan
CACET	Caribbean Accreditation Council for Engineering and Technology
CAS	Central Asian States
CAST	Chinese Association of Science and Technology
CARs	Central Asian Republics
CSAB	Computing Sciences Accreditation Board
EAB	Engineering Accreditation Board
EAD	Engineering Accreditation Department
ECOSF	Economic Cooperation Organization Science Foundation
ENAEE	European Network for Accreditation of Engineering Education
EQSAPS	Engineering Qualification Standardization, Accreditation and Professional System
FEIAP	Federation of Engineering Institutions of Asia and the Pacific
HEI	Higher Education Institute
ICACIT	Instituto De Calidad Y Acreditación De Programas De Computación, Ingeniería Y Tecnología
ICEE	International Centre for Engineering Education
IEEE	Institute of Electrical and Electronics Engineers
ISTIC	International Science, Technology & Innovation Centre
NREN	National Research and Education Network
OBA	Outcome Based Assessment
OBOR	One Belt One Road
PE	Professional Engineer
PEC	Pakistan Engineering Council
SDG	Sustainable Development Goals
TTU	Tajikistan Technical University
UNESCO	The United Nations Educational, Scientific and Cultural Organization
UPADI	PanAmerican Federation of Engineering Societies (Unión Panamericana de Asociaciones de Ingenieros (Spanish
WA	Washington Accord

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:

1. 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.
2. 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.
3. 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.
4. ASRT and TTU should make a forum under the umbrella of Ministry of Education to develop accreditation system in the country
5. EQSAPS should be expanded to other Central Asian Countries. Kazakhstan showed willingness to host a similar workshop to adopt these standards
6. 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.

Preamble:

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 main objectives of EQSAPS are described below:

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. They professional expertise can benefit from gaining work experience in different countries. Hence there is a need for standardization of engineering qualifications across ECO countries so that their professional organizations and mechanisms for recognition of professional qualification is recognized.

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. 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.

In this context, 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. 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 addresses 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 provided momentum to the Tajikistan efforts for the acquisition of modern knowledge and advance skills.

There was a strong need for developing engineering curriculum could fulfill the needs of industries and trade requirements that are compatible with local Tajikistan job market and regional trends.

Cooperation under UNESCO in Kuala Lumpur Malaysia, as 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 were selected for pilot study, namely Pakistan, Myanmar, PNG, Nigeria, Timur Leste, Peru and Tajikistan. FIEAP 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 was Tajikistan's turn. In this regard, this initiative was 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

Participants of the meeting included 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 also participated. The mentors (UNESCO, PEC, FEIAP, ISTIC, IEEE and ECOSF attended the EQSAPS. Complete list of participants is attached. In total nearly 100 participated in the opening session while 40-60 experts took part in various technical sessions.

Outcome of the EQSAPS:

The initiatives provided a platform for the stakeholders to share their experiences and practices and helped to formulate a comprehensive plan towards standardization of engineering qualification, accreditation and professional system for Tajikistan. Once implemented in Tajikistan, it is most likely that other Central Asia States will also come forward to adopt general FEIAP guideline with the support of UNESCO and ECOSF. Comprehensive outcome along with the way forward based on the recommendation that came out of EQSAPS is part of this comprehensive report.

Future Goals:

Based on experiences from EQSAPS held in Tajikistan, and past experience from Pakistan and other countries, a follow-up action shall be initiated so as to encourage Tajikistan and other regional countries for adopting the improved accreditation and engineering education standardization guideline of FEIAP.

Financial Report:

Financial Report (IPA # 4500309504-A2) of EQSAPS is attached at Annex-VI.

Introduction and the Opening Session

Economic Cooperation Organization Science Foundation (ECOSF) and UNESCO in partnership with, 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) took an initiative to extend the FEIAP guidelines on engineering qualification standardization to countries of the Central Asia region starting from Tajikistan. In this context three days International High Level Policy Form and Workshop on Developing the Roadmap on Engineering Qualification Standardization, Accreditation and Professional System (EQSAPS) was held at Academy of Sciences, Republic of Tajikistan (ASRT) in Dushanbe from 27 to 29th March, 2017.

FEIAP is an international non-profit professional organization founded on July 6, 1978. It was established following an exploratory meeting convened and organized by The Engineering Institute of Thailand under The King's Patronage with the support of UNESCO on July 03, 1978 in Chiang Mai, Thailand. Being an independent umbrella organization for the engineering institutions in the Asia and the Pacific region, FEIAP holds objectives 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.

In this scenario, UNESCO Regional Science Bureau for Asia and the Pacific in Jakarta began a programme of nurturing the process of Engineering Qualification Standardization and Accreditation in the Asia & Pacific Region, with the technical cooperation of FEIAP. For ECO Region, the UNESCO and ECOSF joined hands to implement the initiative. Thus in collaboration with Pakistan Engineering Council (PEC), UNESCO and ECOSF supported accreditation of PEC by FEIAP and the first scoping workshop was held in January 2015 in Islamabad. The process led to certification and accreditation of PEC by FEIAP in 2016. It was further agreed that on behalf of FEIAP, the PEC will mentor more economies of ECO Region under the patronage and support of ECOSF, UNESCO and FEIAP as well as the International Science, Technology and Innovation Centre (ISTIC) Malaysia.

Therefore, the ECOSF began consulting other ECO member states, especially Central Asian States who lack a system of accreditation. It so happened that ASRT realized that there is a strong need for developing engineering curriculum that may fulfill needs of industries and trade requirements that is compatible with local Tajikistan job market and regional trends. Thus ASRT offered to ECOSF to co-host the event in Dushanbe and programme was decided in consultation with other stakeholders.

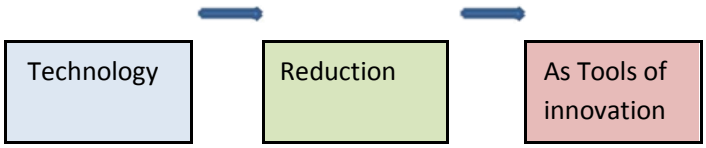
The High Level Policy Forum was opened by the President of the Academy of Sciences of Tajikistan; he was joined by the Minister of Culture, Deputy Minister of Education and Deputy Minister of Foreign Affairs, Republic of Tajikistan. Other high level dignitaries included the Minsters of Culture, Industry and New Technologies and Foreign Affairs and

the Rector of Tajik Technical University. Besides, the workshop attracted an engaging and active participation of key stakeholders of the region that included participants from Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Pakistan and Uzbekistan. The forum was also attended by the experts from China. The programme of the event is at Annex-I. Complete list of participants is at Annex-II.

Prof. Dr. Farhod Rahimi, the President, Academy of Sciences Republic of Tajikistan (ASRT), opened the inaugural session and welcomed all the participants. Dr. Rahimi said that this is an important initiative and the workshop shall help Tajikistan and the region for development of engineering education and standardization of engineering qualification. His welcome address is at Annex-III.

Mr. Orumbekzoda Shamsiddin Shodibek, the Minister for Culture during his remarks, welcomed all participants and extended Nauroz greetings. He hoped lessons learnt from this event will contribute to better engineering education standards in Tajikistan and nearby region. Complete speech of Mr. Orumbekzoda is attached as Annex-IV.

Prof. Dr. Shahbaz Khan, Director UNESCO Regional Bureau for Science in Asia and the Pacific briefed and highlighted the role of UNESCO in promoting quality S&T education, including strengthening of engineering qualification standards in the region. He also briefed about the strategic plans and initiatives undertaken by the UNESCO under the improved engineering standards and education programs. He particularly emphasized on the global challenges of energy efficiency and contribution of engineers in improving urban environment with three important factors of sustainability, innovation and technology. Dr. Khan showed his serious concern on brain drain of engineers from developing economies that have created a serious shortage of qualified and experienced engineers to contribute locally. During his presentation, Dr. Khan said that UNESCO aims to strengthen scientific and technical capacity in the region in order to achieve the UN-SDGs targets. He said that “we should encourage more female engineers in various engineering disciplines” to work together with men in all sections of society as engineers. In addition, he emphasized on infrastructure sustainability and appropriate technologies to access better urban environment through energy efficiency and selection of materials. He opined that shortage of engineers is one of the causes responsible for slow development and lower economic growth. Dr. Khan also briefed on promotion of increased mobility of engineers (manpower and resources) in Asia and Pacific through training and continued professional development by developing improved curricula and quality assurance in the universities and academic institutes. He appreciated the efforts taken by the Government of Tajikistan.



Engineering: Issues, Challenges and Opportunities for Development. (Source: UNESCO report 2010)

Based on above model engineering needs international perspective to develop green engineering and reach to sustainable level. In addition, engineering fields need for better statistics and indicators to assist policy-makers. UNESCO engineering initiatives (UEI) promote sustainable development for professional training and development, besides developing interdisciplinary and sustainability components in engineering.

The Deputy Minister of Education welcomed and thanked all International participants and re-affirmed that Government of Tajikistan will extend full cooperation to implement the recommendations coming out of this 3 days event. Deputy Minister of Foreign Affairs was also present on the occasion.

President Elect, FEIAP, Prof. Dr. Liu Xila requested Secretary General, FEIAP, Ir. Tan Yean Chin to read out the message of President, FEIAP Dr. John C Li who could not participate for some reason. In his message, he stated that Dr. John Li extended his best wishes for holding this important workshop in Tajikistan. He further desired that engineering standards be adopted as per FEIAP guidelines for widespread acceptability of young engineers across regions.

President, Elect, FEIAP, Prof. Xila Liu, in his remarks emphasized that in the 21st century, all new and innovative engineering educational standards either developed in the West or in the East must be implemented across the world without any further delay. Only such approach will bring sustainable development at rapid speed to the benefit of human beings.

At the end of the opening session, President ECOSF, Prof. Dr. Manzoor H Soomro thanked the organizers and participants for making this event a success. He particularly thanked high Government Representatives attending this workshop and appreciated President ASRT and his team's role in extending full assistance in organizing EQSAPS in Tajikistan. He also thanked other supporters and partners; UNESCO, FEIAP, ISTIC, IEEE, Technical University, Tajikistan and the ECOSF Staff for their cooperation and support in organizing this event. Adding on to his vote of thanks, he also shared with the audience, the programmes of ECOSF, current priority areas for research funding and encouraged them to benefit from ECOSF programmes. Dr. Soomro's vote of thanks is attached as Annex-V.

With the vote of thanks from Dr. Soomro, the opening session came to an end with follow up Technical Sessions.

Technical Session-I: Engineering, Education, Accreditation and Professional System - Case Studies

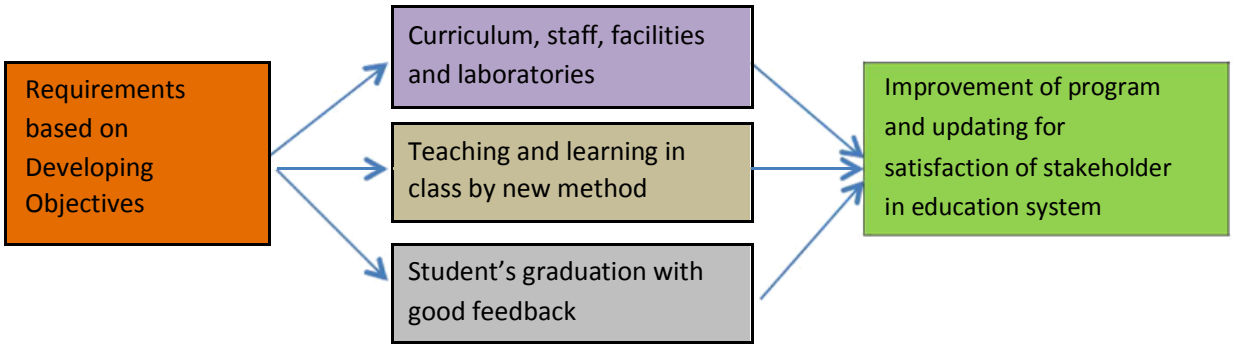
(Day-1, 27th March)

Chair: Dr. Shahbaz Khan, Director (UNESCO) and Rapporteur Dr. Elmira Shamshiry, Consultant (UNESCO)

Academician Dato Ir. Prof Dr Chuah Hean Teik, FASc Immediate Past President, FEIAP delivered his presentation on "Mobility of Engineers and International Benchmarking of Engineering Education vis-a-vis FEIAP Engineering Education Guideline". During his presentation, he explained "registration process of engineers as it serves as a gateway to trade liberalization and professional services" He was of the view that for mobility, we need mutual recognition, and thus accreditation and international benchmarking is essential. He shared that engineering forum commenced in 2001 with a development of a framework for international standards of engineering and practicing engineering technology. He added, we need mutual recognition for standardizing the quality of engineering education and internal benchmarking for making significant improvements in the engineering faculties. Prof. Teik added that we must give due assurances and confidence to our prospective students, graduates, prospective employers, graduate schools, licensing agencies and Governments.

He said "we have engineering agreements with other international engineering accreditation bodies, including Washington accord, ENAEE, UPADI, FEIAP, CACET, Sydney

Accord and Dublin Accord". He also emphasized on the stakeholder engagement in the process of CQA programme.



Ideal Process map to check during accreditation visit

Accreditation is for continuous improvement of delivery education issues for producing human resource.

Engr. Dr. K.M. Nasir, Pakistan Engineering Council (PEC) presented the case study on Pakistan and made a presentation on "Pakistan's Engineering Education – Accreditation and Professional System". His presentation outlines included Engineering Accreditation Board (EAB); Engineering Accreditation Department (EAD); Engineering Education & Career Path; Accreditation Milestones & Statistics; Accreditation Process in Pakistan; Paradigm Shift from Accred. Manual 2007 to OBA-Accreditation Manual 2014 (in line with FEIAP & WA); Capacity Building for HEIs (OBE) & PEVs (OBA); Professional Practice – Engineers Registration; CPD framework, formal education, work-based learning, continued Professional Development & Practice Exam and Challenges and Future Plans of PEC. He stressed that "Establishment of National Engineering Academy" and a "Think Tank on Engineering Education" is need of the hour through regional consultation.

Dr. Charlie Than, President, Myanmar Engineering Council made a presentation on "Experience on Setting up of Accreditation systems in Myanmar". He emphasized on development of roadmap for engineering through mobilization, certification, international network and standardization. Moreover, engineering service providers are grouped into three categories of engineer (WA), engineering technologists (SA) and engineering technician (DA). He shared with participants that in Myanmar Registration of Engineers as Professional Engineer is processed in three levels: (i) Registered Engineer (ii) Registered Senior Engineer and (iii) Professional Engineer. In Myanmar, MES is responsible for the development of engineering profession, competitiveness, capacity building and industrial development and benchmarking engineering degree programs. A graduate engineer can get himself/herself registered as an apprentice engineer, if the applicant has achieved an engineering degree from a recognized University. He further added that apart from the graduate engineer, there are also Graduate Technicians (B.Tech.) and Technicians Diploma (AGTI) holders who are also given opportunities to enter into the pathway to become

Professional Engineer (P.E.), if they meet certain criteria and qualification. In Myanmar, engineering program is developed according to 4 significant elements of Act, plan, do and check that is based on standards with attention to two critical issues of time and quality improvement.

Dr. Yadullah Babayev, Baku Engineering University, Azerbaijan made his presentation on "Engineering Qualification Standards in Azerbaijan". He mentioned that general outcome of engineering program is to improve the adequate knowledge in mathematics, science and engineering, ability of students to use theoretical and applied information, and solving engineering problems. He briefly shared the engineering educational system in Azerbaijan. He informed participants that the accreditation of educational institutions in Azerbaijan is implemented once every 5 years. Objective of society of engineering in Azerbaijan are as follows:

1. Develop regional Engineering network to share knowledge and experience,
2. Develop cooperation between science and industrial organizations;
3. applying international engineering standards to the region;
4. Raise public awareness, Increase professional development of local engineers, and
5. Develop ideas to transform Caspian countries into major industrial region; Provide engineering support to NGOs in the region.

Preparing for accreditation	Self-assessment	Implement analysis	Preparing final certificate	Determining status of education

Stages of accreditation process in Azerbaijan

Educational institutions are required to submit documents to the Ministry of Education at least a month before the accreditation process is initiated. These document include:

1. Regulations of the educational institution and a copy of document (license) issued for the educational activity;
2. Self-assessment report of educational institution and its affiliates;
3. List of disciplines included in the curriculum of accredited programs and questions prepared in accordance with these programs;

Prof. Dr. Tulkin Gayibov, Member of Attestation Commission on Engineering, Uzbekistan was the last speaker in Technical Session-I who presented "The System of Higher Education in Engineering in the Republic of Uzbekistan". He presented the breakup of total study period/time of the engineering education for bachelor's degree in Uzbekistan, which is distributed as under:

- Theoretical training: 63-70%
- Testing/Examination: 8-10%
- Holidays: 12-16%
- Qualification practice: 6-12%
- Graduation qualification work: 2-3%

Dr. H.H. Muminov, Vice President ASRT opened the Q&A session and encouraged all the participants to actively participate in the Q&A session to fully utilize the knowledge and experiences of expert panelists to achieve our common goal of improved engineering educational standards.

Dr. Mahdi Zarghami from Iran stressed for improving the quality of engineering education. He was of the view that with ever increasing number of engineering universities, we must not comprise on the quality of engineering educational standards. Relevant authorities and bodies must work to enhance the research capacity and improve quality engineering education by imparting required training and provide them with the state of the art laboratories. Dato Ir. Prof Dr Chuah Hean Teik fully endorsed Dr. Zarghami's comments.

Secretary General, FEIAP, Ir. Tan Yean Chin, Tin was appreciative of the fact that Pakistan has already taken lead in adopting the FEIAP Standards and urged other regional countries to follow Pakistan's example.

At the end of the Q&A Session, Dr. Elmira Shamshiry was requested by the Chair of the session to brief local participants in Persian language as most of the local audiences were able to grasp the outcome of Session-1.

The Technical Session-I was closed after Dr. Manzoor H Soomro congratulated Dr. H.H. Muminov for taking over as Vice President, ASRT.

Technical Session- I Continued after Lunch Break

Chair: Dr. H.H. Muminov, Vice President ASRT and Rapporteur Engr. Dr. Nasir M Khan

Dr. Yasunov Pulat, Deputy Director, Institute of Geology, Earthquake Engineering and Seismology Academy of Sciences of the Republic of Tajikistan made a presentation on "Certification of the design and construction quality is the basis of seismic safety". He was of the view that there is a need for creation of a Licensing Center of the Committee for Architecture and Construction under the Government of the Republic of Tajikistan under a special commission for the certification of experts who may carry out quality control of design and construction. He also suggested that we need effective disaster management framework to deal with engineering construction in earthquake prone areas. Furthermore, academic systems in Tajikistan should be integrated in order to address all needs of engineering qualifications.

Dr. H. H. Muminov as Chair, while Dr. Nasir M Khan sought some clarifications if some standards have been developed to evaluate safe designs of new building and inspecting older buildings. Dr. Yasunov Pulat replied in positive that they are in the process and also in the process of improvement of these standards with the availability new technologies.

Prof. Sadikov Khisrav Rizoevich, Chairman of the Tajik Technical University briefed participants on "The role of the National Research and Education Network TARENA to improve." He concluded his presentation with a recommendation that the implementation of the planned plans for implementation of improved engineering education and standards must be facilitated by the acting NREN TARENA, which are part of the Central Asia Network CAREN, and also connected to the European NREN GEANT and NREN TEIN of the countries

of the Asia Pacific. He stressed on improving the communication of workers of the Institute of the Republic of Tajikistan with colleagues from the countries of Central Asia, Europe and the Asia Pacific to improve the quality of training at the level of international requirements in Tajikistan and in other ECO Member States.

Day-1 finished with an official dinner hosted by President, ASRT during which a memorable cultural show was also arranged.

Day-2 (28th March, 2017)

Technical Session-II: Academia

Chair: Academia (Session Chair Professor Liu Xila, and Rapporteur Dr. Yadullah Babayev

Prof. Odinaev Haydar Odinaevich, Rector of Technical University of Tajikistan opened the second technical session with his opening remarks on the second day of the event. The second technical session focused on role of Academia in establishment and strengthening engineering curricula. He wished all the best to all presenters of the day. He welcomed all International Participants just after the Nauroze festival. He mentioned that Technical University has established international linkages and cooperation in the field of human resource development, particularly with Shanghai University, China. He greatly encouraged the promotion of Inter-university exchange programs for staff and students, as they can be very effective means for getting the on-job training that gives a wide exposure to staff and faculty. He hoped that EQSAPS deliberation will further guide and help improve our current efforts.

Dr. Soomro than invited Dr. Shahbaz to set the scene for proceedings of Day-2. Dr. Shahbaz shared some historical background of the Technical University by the name of M. Osimi. He thanked President, ECOSF Dr. Manzoor Soomro for brining all International Participants to

Dushanbe. He particularly thanked FEIAP and specially Prof. Liu Xila for participating in this event. He posed a question that how many Universities do we need to produce engineers depending on their population. He desired to make an attempt to prepare a draft roadmap by the end of the proceedings of Day-2. He outlined his point of view as to how we all can move forward with ECOSF from here onward after the conclusion of EQSAPS. He further suggested that during the Technical Session-II, we will also discuss about developing linkages with TTU and ASRT. He constituted and requested a two members team consisted of Mr. Raza, and Dr. Elimra (from UNESCO) to interview and explore participant's contribution as to how UNESCO, ECOSF and ASRT can contribute better to improve engineering education standards and methods. He further stressed that by the end of the Day-2, another committee comprising ECOSF, FEIAP, PEC, ASRT and UNESCO will read the output from Mr. Raza and Dr. Elmira (based on their interviews with the participants) and come up with an analysis.

Session –II: During this session, Prof. Manzoor H. Soomro, President ECOSF, made a presentation and shared the functions ECOSF and its programs with focus on youth engagement and sustainable development. He explained the objectives of ECOSF. He stressed on stronger integration of scientific and cultural aspects amongst nations and briefed the participants on various programs that ECOSF currently implementing emphasizing on engineering, energy and water sectors. ECOSF strongly believes and promotes partnerships and looks forward to extend and receive cooperation and support from all stakeholders. Prof. Soomro stressed for promotion of engineering, science, innovation, technology and entrepreneurship for stronger economic growth. He also shared the concept of SETIENSHIP that needs to be inculcated among the young generation at earliest possible age. This can be a substantial factor for achieving sustainable development, creation of new economic opportunities, jobs and wealth for any society.

Engr. Sohaib Qamar Sheikh, Chair, IEEE Pre-University Education Coordinating Committee gave a comprehensive account of IEEE's role in Global Accreditation and three components of IEE: Safety, Trust and Order. He shared that IEEE facilitates the cross-pollination of ideas, giving people access to ideas developed in other disciplines. Therefore, IEEE nurtures, develops, and advances the building of global technologies. Consumers around the world enjoy the benefits of IEEE's standards. He further added that IEEE does not do accreditation, but IEEE invests significant funds and human resources to support accreditation activities through globally. Thus, IEEE considers accreditation a strategic objective and supports accrediting bodies worldwide. He informed that the accreditation stakeholders include past, present and prospective students, parents of prospective students, educational Institutions, employers, higher education organizations, accrediting bodies, licensing bodies, Government and the public at large. He also gave brief background information on Lima Accord. He explained that IEEE Accreditation Facilitation Role in the following areas:

1. Computing Sciences Accreditation Board (CSAB)
2. Caribbean Accreditation Council for Engineering and Technology (CACET)
3. Instituto De Calidad Y Acreditación De Programas De Computación, Ingeniería Y Tecnología (ICACIT)
4. Computer Society of South Africa
5. Institution of Engineers in Zambia
6. Engineers Board of Kenya

All information is available on IEEE website <Accreditation.org>

During the presentation of Mr. Qamar, Prof. Xila Liu stressed that eye to eye contact with students and all stakeholders is very important, and he is very pleased that IEEE follow on this principle.

Dr. Mahdi Zarghami, presented a case study on "Water Security Needs Interdisciplinary Engineering; Iran's Experience", additionally he emphasized why engineer using water for less-value productions? He shared with participants that in 2013, the Government of Islamic Republic of Iran initiated the accreditation of not only engineering education but also degrees of other disciplines. A "Water Diplomacy Room" Group was constituted to oversee specifically the water issues in the country. The Group recommended taxes on water and ecotourism.

Technical Session-III: Regulations

Regulations (Session Chair Vice Chairman, PEC, KPK, Engr. Zahid Arif, Rapporteur, Dr. Mahdi Zarghami)

Engr. Zahid Arif, Vice Chairman, PEC, and the Chair of the Technical Session-III announced that the General Assembly Meeting of FEIAP will be held in Islamabad and all International and Local relevant Participants are invited. He further announced that 4th FEIAP Convention

and 25th General Assembly Meeting venue will be at National University of Science and Technology (NUST), Islamabad, Pakistan and dates that needs to be blocked are 16-18 May 2017.

In the Technical Session-III, Professor Wu Qidi, Director, UNESCO International Engineering Education Centre Beijing, China presented her keynote address “One Belt One Road (OBOR) and Mobility of Engineers” She explained the concept of OBOR to strengthen maritime cooperation with ASEAN, making good use of fund to develop maritime partnership to build the "21st century Maritime Silk Road". OBOR potentially involves an area of 55% world GNP, 70% global population, and 75 % known energy reserves. OBOR will promote global market and regional economy. Build a transportation network in the neighboring area to promote trade and mobilization of resources. OBOR strategy requires a large number of investments from financial institutions including that from Asian Infrastructure Investment Bank. New strategies for industrial development have been introduced to accelerate the development of high-end manufacturing and emerging industries, and control the high ground of global manufacturing industry. She concluded her presentation by highlighting the role of International Centre for Engineering Education under auspices of UNESCO (ICEE). The core mission of the ICEE is to share China’s experience, focus on the cultivation of engineering technology talents to promote quality and equity in global engineering education, especially for the developing countries.

The second presentation of the Technical Session-III was in fact a video message as due to very heavy floods in Peru, Peregrina Morgan Lora, President SINEACE could not travel to Dushanbe. However, her video message was aired for the benefit of participants. Topic of her talk was “Lima Accord and Accreditation in Latin America and the Caribbean”.

Dr. Lazzat A Kussainova from Kazakhstan made a presentation on “Innovation Consulting Company, Astana, Kazakhstan”. She addressed and informed the audience on “The Experiences of Legislative Regulations of Controlled Scientific Research in the Republic of Kazakhstan”. She shared information on Managing the National Science System of Kazakhstan, where the Administrative, administrative and expert functions are divided between the Higher Scientific and Technical Commission (HSTC), the National Scientific Council (NSC), the State Scientific and Technical Expertise (SSTE). She explained the aspect of commercialization of R&D in engineering. She was of the view that the purpose of commercialization of the scientific and technical research outcome is critical to introduce new or improved products, processes and services in to the market and contributes to the economic development.

Technical Session-IV: Registration Professional System

(Session Chair Academician Dato Ir. Prof Dr Chuah Hean Teik, Rapporteur, Dr. Syed Ghazanfar Abbas)

Professor Liu Xila, President Elect, FEIAP presented his keynote address on "To Bridge the Gap between the East and the West". He started his presentation by narrating recent achievement in China especially in the urban areas. These include building of high rise building, high speed trains, bridges, dams, and road structures. Because of these developments, there are incremental demands of energy resources. The vision of Civil Engineering for 2030 is already developed and it is being implemented. However, new thinking is needed, as due to new technologies we need to educate and train our engineers and allied professional. He also announced an International Conference in Kummin, China in 2018. He also shared names of organizations that will support the event.

This keynote address by Prof. Xila Liu was followed by a presentation by Prof. Madam Akhrorova Alfiya Dadak Khonovna, Tajik Technical University, Tajikistan on "The accreditation of educational programs in the system guarantees the quality of engineering education in Central Asia". She first spoke of globalization with the importance of effective research and development work in education with particular emphasis on engineering education. She shared data as to how the number of enrollments in university education has risen. She explained strategic priorities for engineering education in Tajikistan include:

1. The compliance with the requirements of the modern economy – the knowledge economy;
2. Extending the links between engineering universities and the real economy;
3. Focus on new systems and methods of standardization, which would increase the chances of academic research and creativity;

4. Creation of research centers combining science and the commercialization of scientific achievements, and
5. Implementation of programs of training of the engineering staff, which are the demand of local industry and enterprises.

Prof. Dzhamanbaev Murataly, Rector of Kyrgyz State Technical University made a presentation on "Accreditation of Engineering Education programs in the Kyrgyz Republic". He shared the laws that pertain to education in Kyrgyz Republic. He informed the participants that:

1. In order to confirm the quality of educational services provided, educational organizations are accredited in accordance with the procedure established by the legislation of the Kyrgyz Republic;
2. Accreditation of educational organizations, regardless of the form of ownership and departmental affiliation, is carried out on the basis of their written application for a period of five years to accreditation agencies;
3. Educational organizations that have been accredited have the right to issue graduates with state-recognized documents.

Technical Session-V: Industry

Industry (Session Chair Dr. Manzoor H. Soomro, and Co-Chair Dato Ir. Prof Dr Chuah Hean Teik)

Ir. Tan Yean Chin, FEIAP Secretary General initiated the Session-V by presentation his keynote address on "FEIAP and its Global Reach".

Ir. Tan Yean Chin started his presentation with introduction of FEIAP. He explained day to day function of FEIAP that are operated from a Secretariat in Malaysia. FIEAP is constituted of several working groups, and standing committees. He also shared the governor's structure of FEIAP and introduced current Executive Committee of FEIAP. He explained FEIAP Role to audience as under:

1. To incorporated an Accreditation System Model Framework adaptive to Needs of Member Economies;
2. To provide Mentoring Assistance;
3. Educating its Member Economies on Evaluation and Reviewing Accreditation Agency procedure, and
4. To provide training and guidance to local universities, Assessors of its Member economy.

Prof. Vladimir Chekalin Tajik Technical University, Tajikistan presented his paper on "Practical Engineering Education in the Context of New Information Technologies". The presentation was very elaborative as far as the practical engineering education, in context of new information technologies was concerned. He gave several example based on his wide experience.

The last technical presentation was made by Mr. Sayakhat Nukeshev on Modular Academic Program jointly developed with University of California, Davis, USA.

Engr. Sayakhat Nukeshev, Saken Seifullin Kazakh Agrotechnical University, presented his views and shared his thoughts on "Modular Academic Program jointly developed with University of California, Davis USA". He shared with participants that based on the recommendations of UC Davis, 4 interdisciplinary technological platforms have been developed, that includes 9 laboratories and 5 experimental production units in Kazakhstan.

Sideline Activities during Day-2

As indicated in the opening paragraph for reporting the proceedings of Day-2 (Session-II), it may be mentioned that while Sessions II, III, IV, and V were in progress, two staff from UNESCO (Dr. Elmira and Mr. Raza Shah) interviewed some selected national and international participants and asked their point of view for a way forward during and after EQSAPS was over. Their feedback and recommendations were then placed on table for discussion with President, ASRT, Rector (Tajikistan Technical University, Dr. Shahbaz Khan, and Dr. Manzoor H Soomro. The summary of their findings is shared in this document while reporting the write-up of Session-VI.

Session-VI: The Way forward

Chair Prof. Dr. Shahbaz Khan, Co-Chair Prof. Manzoor H. Soomro, Academician Dato Ir. Prof Dr Chuah Hean Teik, Prof. Odinaev Haydar Odinaevich

The concluding session started with discussion on some agreed actions on the roadmap that was discussed during last two days of the workshop.

The workshop recommendations and the way forward were discussed. Closing remarks were conveyed by Dr. Shahbaz Khan.

Prof. Odinaev Haydar Odinaevich, Rector of Technical University of Tajikistan, President, ASRT, President, ECOSF, and Director (UNESCO) with other colleagues complied results of the participants' perception. Two presentations were made from these interviews and discussion with ASRT, TTU, and ECOSF. Mr. Raza Shah and Dr. Elmira did an excellent work during whole day by interacting with all participants.

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 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 with 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, FEAIP, 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

- Engineering educational road map should be updated.
- 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, thus we need updated program, that should be combination of Russian and European systems.
- China has many things to offer and Tajikistan has many things to share.

Other Suggestions

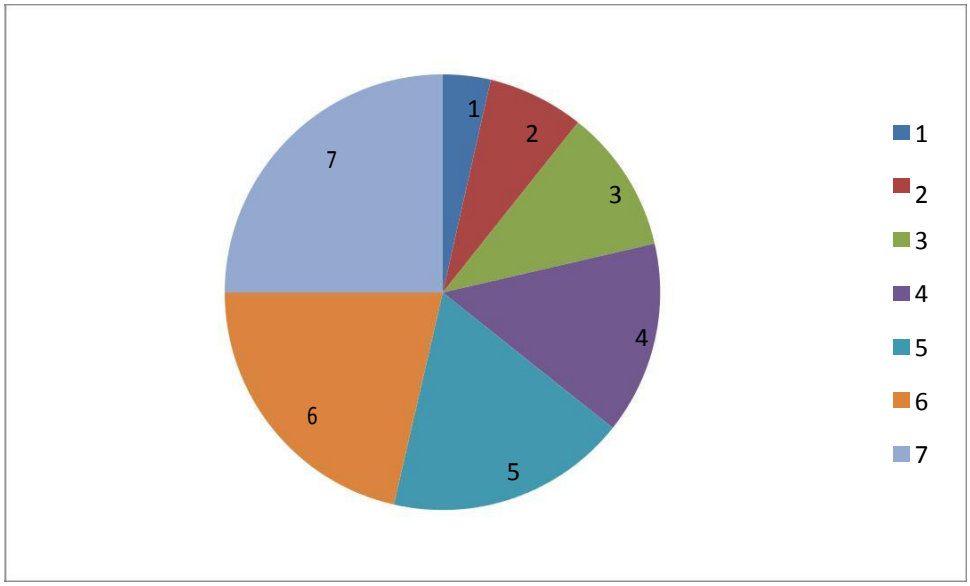
1. Institute of Engineers to be established in Tajikistan
2. Some CAR can become Member as country like Azerbaijan already has an Institute of Engineers.
3. UNESCO will sign some MoU with Tajikistan so that process gets initiated
4. Other organizations like FEIAP should start their own MoUs with CAR 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.

Information Based on Interviews with participants

Following information was obtained through interview with participants; results are shown after analysis

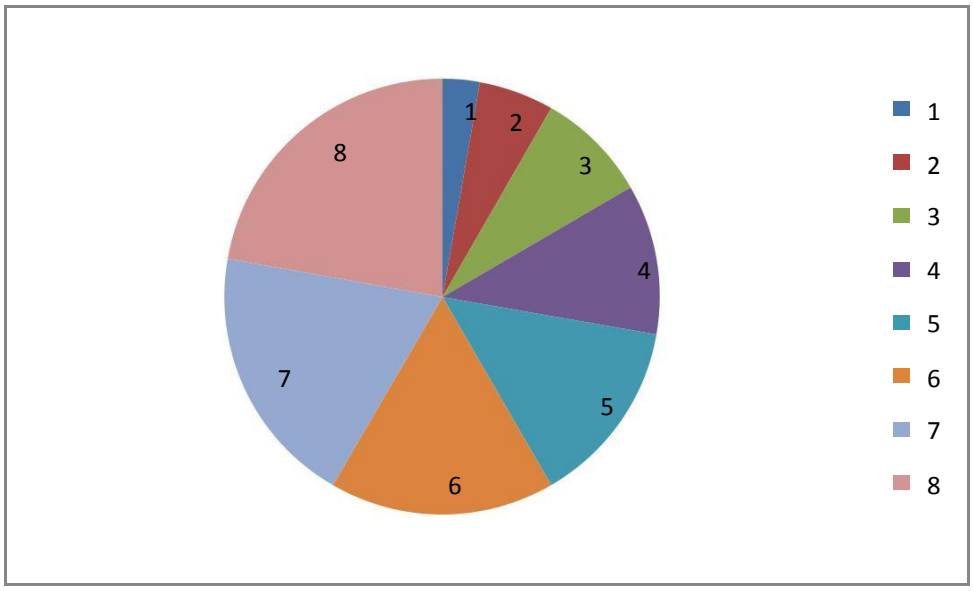
1) **Your opinion for current status of progress so far:**

System is working based on old system (Russia)	1
Roadmap in university applying is not including research, and not developed	2
Fast change of system to European one is not easy	3
System is changing slowly is better	4
Sustainable method is better , rate changing of system is not sufficient as amount of developing	5
Practical issue and facilities are not sufficient for all students	6
Standards should be based on worldwide to change students for better feedback	7



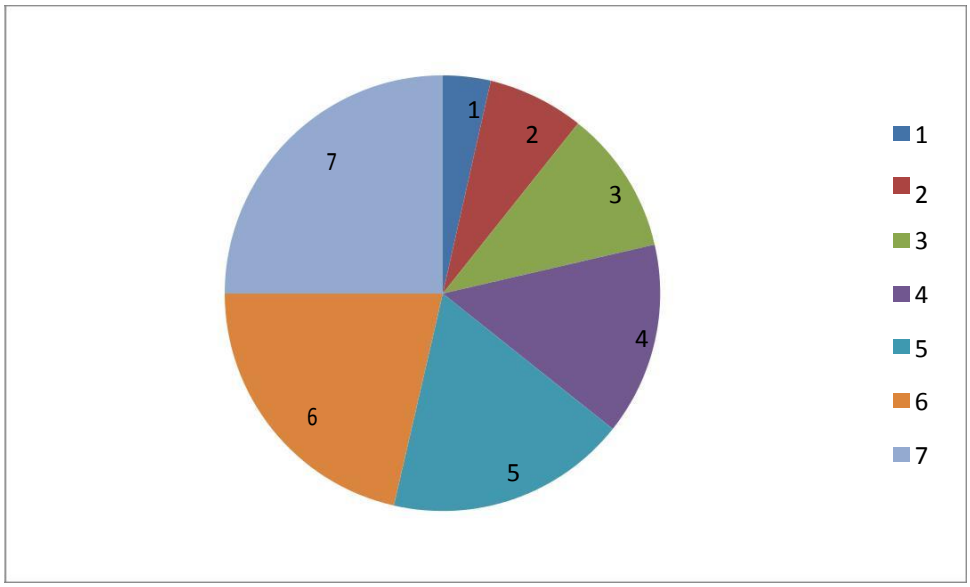
2) What more steps we need in Tajikistan?

More assistance from other countries , like whatever they did for previous decades	1
education program based on worldwide plans and programs	2
Deficiency for English language to better communication with European country	3
More facilities , modern one and laboratories	4
Training for lecturers	5
Experts coming back to Tajikistan after finishing their studies	6
Getting easy job for two field of engineering in comparison with others, so need to introduce other engineering field in society and improve them	7
Practical plan is needed in contrast with theory one	8



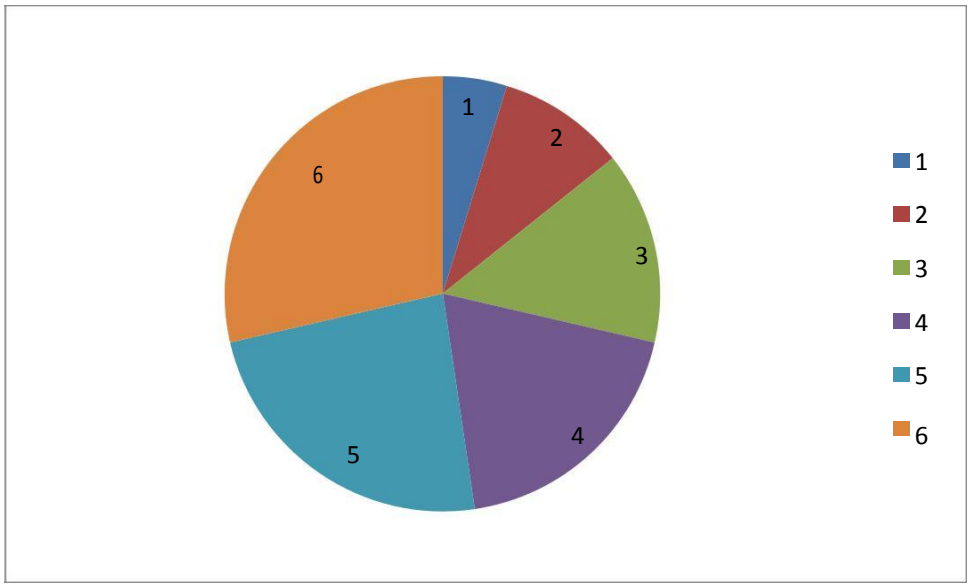
3) Which organization can contribute?

Preparing master and bachelor plan for special engineering field with contribution of Ministry	1
Building special center due to increase level of knowledge of engineer with institute Cooperation	2
communication between experts	3
Sharing project with otjer universities and countries	4
Send student for short term and long term to theother countries	5
Collaborate with other academic center , journals and online libraries	6
Cooperate with industries that produce productions	7



4) Q4 and Q5

Educational road map should update based on engineer perspective	1
Government help lecturers and experts in university for practical issues	2
Updating references and notes and equipment	3
System is growing in a globalized environment	4
Entrepreneur and training	5
Industries partnership	6



Annexure-I: Program of the Workshop

International High Level Policy Forum and Workshop on

Developing the Roadmap on Engineering Qualification Standardization, Accreditation and Professional System (EQSAPS)

(27 to 29 March 2017)

Day 1 - 27 March, 2017		
Time	**Opening session**	
0830-0945	Registration of Participants	
0945-1000	Arrival of the Chief Guest Deputy Prime Minister of the Republic of Tajikistan Dr. Azim Ibrohim Minister of Education and Science of the Republic of Tajikistan Dr.Said Nuriddin Said Minister of Culture of the Republic of Tajikistan Mr. Orumbekzoda Shamsiddin Shodibek ***Minister of Industry and New Technologies of the Republic of Tajikistan*** ***Mr. Bobozoda Shavkat*** Chairman of the State Committee on Investments and State Property Management of the Republic of Tajikistan Mr. Qahhorzoda Fayziddin Sattor	
1000-1020	Prof. Farhod Rahimi, President Academy of Science of Republic of Tajikistan	Welcome Address
1020 -1035	Dr. Azim Ibrohim Mr. Orumbekzoda Shamsiddin Shodibek	Opening speech by the Deputy Prime Minister of Republic of Tajikistan Remarks by the Minister of Culture of

		Tajikistan
1035-1050	Prof. Dr. Shahbaz Khan, Director, UNESCO Regional Science Bureau for Asia and the Pacific, Indonesia	Introduction to the Initiative
1050-1105	Professor Liu Xila, President, Elect FEIAP	Speech- Future Plans of FEIAP
1105-1115	Ir. Tan Yean Chin, Secretary General, FEIAP	Speech
1115-1125	Prof. Dr. Manzoor H. Soomro, President ECOSF	Vote of Thanks
1125-1155	Group Photograph & Coffee/Tea Break	
Session-I	**Engineering, Education, Accreditation and Professional System Case Studies (Session Chair Prof. Dr. Shahbaz Khan, Rapporteur, Dr. Elmira)**	
1200-1220	Academician Dato Ir. Prof Dr Chuah Hean Teik, FASc Immediate Past President, FEIAP	**Key Note Address:** Mobility of Engineers and International Benchmarking of Engineering Education vis-a-vis FEIAP Engineering Education Guideline
1220-1240	Engr. Dr. K.M. Nasir, Pakistan Engineering Council (PEC)	Pakistan's Engineering Education – Accreditation and Professional System
1240-1300	Dr. Charlie Than, President, Myanmar Engineering Council	Experience on Setting up of Accreditation systems in Myanmar
1300-1320	Dr. Yadullah Babayev Baku Engineering University, Azerbaijan	Engineering Qualification Standards in Azerbaijan
1320-1340	Prof. Dr. Tulkin Gayibov, Member of Attestation Commission on Engineering, Uzbekistan	The System of Higher Education in Engineering in the Republic of Uzbekistan
1340-1400	Q&A	
1400-1500	Lunch Break	
Session-I Contd.	**Case Studies (Session Chair Vice President of the AS RT Dr. H.H. Muminov, Rapporteur Engr. Dr. K.M. Nasir)**	
1500-1520	Dr. Yasunov Pulat Institute of Deputy Director, Institute of Geology, Earthquake Engineering and Seismology Academy of Sciences of the Republic of Tajikistan	Certification of the design and construction quality is the basis of seismic safety
1520-1540	Prof. Sadikov Khisrav Rizoevich Chairman of the Tajik Technical University Graduates - Tajik Polytechnic Institute	The role of the National Research and Education Network TARENA to improve the quality of engineering education at the level of international requirements

1540-1600	Q & A
1600-1620	Tea Break
1620-1700	Wrap up Session

Official Dinner & Cultural Program by ASRT: (1900 hours, Holiday House ASRT)

Day-2 Proceedings will be held in Tajik Technical University by name of M. Osimi,

Dushanbe National Dialogue – Central Asian Republic (CAR)

Day 2 – 28 March, 2017		
Time		
Session II	**Academia (Session Chair Professor Liu Xila, Rapporteur Dr. Yadullah Babayev)**	
0900-0910	Prof. Odinaev Haydar Odinaevich, Rector of Technical University of Tajikistan	Opening and Welcome Remarks for Day 2
0910-0925	Prof. Manzoor H. Soomro President, ECO Science Foundation	ECO Science Foundation and its Programmes with focus on Youth Engagement and Sustainable Development
0925-0945	Dr. Sohaib Qamar Sheikh	IEEE's role in Global Accreditation
0945-1005	Dr. Mahdi Zarghami	Water Security Needs Interdisciplinary Engineering; Iran's Experience
1005-1030	Q&A	
Session III	**Regulations(Session Chair Vice Chairman, PEC, KPK, Engr. Zahid Arif, Rapporteur, Dr. Mahdi Zarghami)**	
1030-1050	Professor Wu Qidi Director, UNESCO International Engineering Education Centre Beijing	**Key Note Address:** One Belt One Road and Mobility of Engineers
1050-1110	Peregrina Morgan Lora, President SINEACE Peru	Lima Accord and Accreditation in Latin America and the Caribbean
1110-1130	Dr. Lazzat A. Kussainova Innovation Consulting Company, Astana, Kazakhstan	The Experiences of Legislative Regulations of Controlled Scientific Research in the Republic of Kazakhstan
1130-1150	Q&A	
1150-1210	Tea Break	
Session IV	**Registration Professional System (Session Chair** Academician Dato Ir. Prof Dr Chuah Hean Teik, **Rapporteur, Dr. Ghazanfar Abbas)**	
1210-1230	Professor Liu Xila President Elect, FEIAP	**Key Note Address:** To Bridge the Gap between the East and the West
1230-1250	Prof. Akhrorova Alfiya Dadak Khonovna, Tajik Technical University Tajikistan	The accreditation of educational programs in the system guarantees the quality of engineering education in Central Asia

1250-1310	Prof. Dzhamanbaev Murataly Rector of Kyrgyz State Technical University	Accreditation of Engineering Education programs in the Kyrgyz Republic
1310-1330	Q&A	
1330-1430	Lunch Break	
Session V	**Industry (Session Chair Dr. Manzoor H. Soomro, Rapporteur, Mr. Raza Shah)**	
1430-1450	Ir. Tan Yean Chin, FEIAP Secretary General	**Key Note Address:** FEIAP and its Global Reach
1450-1510	Prof. Vladimir Chekalin Tajik Technical University Tajikistan	Practical Engineering Education in the Context of New Information Technologies
1510-1530	Engr. Sayakhat Nukeshev Kazakhstan Saken Seifullin Kazakh Agrotechnical University	Modular Academic Program jointly developed with University of California, Davis USA
1530-1550	Q&A	
1550-1610	Tea Break	
Session VI	**Concluding Session, Way forward, Chair Prof. Dr. Shahbaz Khan, Co-Chair Prof. Manzoor H. Soomro, Academician Dato Ir. Prof Dr Chuah Hean Teik, Prof. Odinaev Haydar Odinaevich**	
1630-1650	Open Discussion	
1650-1710	Finalization of discussion with agreed actions on the road map	
1710-1730	Summary of the workshop recommendations & way forward	
1730-1740	Closing Remarks by Partners	

Day 3 – 29 March, 2017

0900 to 1730 hrs:

Program for 29 March 2017

Time	Description
9:00	Leave from Hotel to Tajik Technical University
9:00 to 11:00	Visit of Tajik Technical University
11:00 to 12:00	Visit to the Historical Museum of ASRT
12:00 to 13:00	Lunch Break
13:00 to 17:00	Visit to Hissar Fortress
17:00 to 17:30	Back to Hotel

Annexure-II: List of the Participants

International Participants

1- **Ir. Prof. Academician Dato' Dr. ChuahHeanTeik**
President,
Federation of Engineering Institutions of Asia and the Pacific
Lots 60 & 62, BangunanIngenieur, Jalan 52/4, P.O Box 223
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66	Deputy Minister for Culture Republic of Tajikistan
67	Deputy Minister of Foreign Affairs

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Annexure-III: Welcome Address by the President, ASRT

Welcome Address

by

Prof. Dr. Farhod Rahimi, President, Academy of Science

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

For the Opening Session on 27th March, 2017

Mr. Orumbekzoda Shamsiddin Shodibek, Minister of Culture,

Deputy Minister of Education and Science

Deputy Minister of Foreign Affairs

Rector of Tajik Technical University

Excellences and Ambassadors,

Prof. Dr. Shahbaz Khan, Director, UNESCO,

Prof. Dr. Liu Xila, President Elect, FEIAP,

Prof. Dr. Manzoor Hussain Soomro, President, ECOSF

Rectors and Colleagues from within Tajikistan

Excellences and Ambassadors,

Ladies and Gentlemen,

It gives me a great pleasure in welcoming all distinguished International and national guests in Dushanbe for participation in this High Level Policy Forum and Workshop on Developing the Roadmap on Engineering Qualification Standardization, Accreditation and Professional System.

There is no doubt that engineers play a key role in the planning, design, construction and maintenance of infrastructure, products, equipment and systems for the development of nations and wellbeing of mankind at large. Engineers also 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. In this context,

engineers can benefit from gaining work experiences in different countries; but it is a reality that in many cases engineers from one country are not accepted or recognized by their qualification in other countries of the region or the world at large. Thus, there was always a need for more standardization of engineering qualifications within at least ECO Member countries.

Ladies and Gentlemen,

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. Therefore I very much welcome the initiative of ECO Science Foundation, UNESCO, FEIAP and ISTIC. Professor Manzoor tells me that Professor Yee Cheong Lee and Professor Shahbaz Khan have played a key role in this initiative, but unfortunately Professor Lee could not join us for some visa issues, which I believe happened due to Nouruz Holidays and very much regretted. We would very much hope to welcome him in future. Anyway, on behalf of Republic of Tajikistan and Academy of Sciences, I am very grateful to you all.

We in Academy of Sciences and National Technical University realize that there is a strong need for developing engineering curriculum that may fulfill needs of industries and trade requirements compatible with local Tajikistan job market and regional trends. We completely understand that the engineering inputs are indispensable for sustainable and long-term development of any country. The conduct of this forum and workshop in Tajikistan is a step forward for the advancement of engineering in all its manifestations. The occasion would provide momentum to the Tajikistan's efforts for the acquisition of modern knowledge and advance skills.

In these circumstances, I am particularly indebted to ECOSF and UNESCO along with the support from FEIAP for organizing this forum in Dushanbe. These Institutes have facilitated in bringing the International delegates from ECO countries and from other parts of the world including our neighbours China, and I thank you all once again.

I wish to thank my team in the Academy of Sciences and the National Technical University who have worked day and night, closely with the ECOSF Staff in Islamabad, Pakistan in organizing this event in a befitting manner.

In the end, I thank you all for attending this opening session and desire that the technical sessions that will follow in the afternoon and in next two days shall bring fruitful recommendations. As President of the Academy of Sciences, Republic of Tajikistan, I assure you that we shall follow all

practicable recommendations at the earliest and will not hesitate to seek guidance as and where needed in coming days.

Before I end, I wish all International participants to have a very comfortable stay in Dushanbe and I request you to please do not hesitate to share your feedback with us so that we ensure more comfort for you in future meetings.

Thank you.

Annexure-IV: Address by Minister of Culture of the Republic of Tajikistan

Speech of Honourable Mr. Orumbekzoda Shamsiddin Shodibek, Minister of Culture of the Republic of Tajikistan

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

For the Opening Session on 27th March, 2017

Excellencies the Ambassadors,

Deputy Ministers of Education and Foregn Affairs

Prof. Dr. Shahbaz Khan, Director, UNESCO,

Prof. Dr. Liu Xila, President Elect, FEIAP,

Prof. Dr. Manzoor Hussain Soomro, President, ECOSF

Prof. Dr. Farhod Rahimi, President, Academy of Science,

The Rector of Tajik National Technical University,

Ladies and Gentlemen,

HAPPY NOURUZ!

I am honoured to welcome all International and National participants in Republic of Tajikistan. The Government of Tajikistan is committed to UN and other international bodies including UNESCO and ECO Science Foundation for improving education standards in general, and the engineering education standards in particular.

As Minister of Culture of Tajikistan, responsible for UNESCO Affairs, specially welcomes you all in Dushanbe. I hope that this event will lead to subsequent efforts by Tajik Institutions for development of a Capacity Building and Regulatory System for Engineering in the country.

Due to very limited time of the International participants in Dushanbe, I urge the organizers to take our honourable guests from abroad to at least visit National Museum of Antiquities of Tajikistan, and Botanical Gardens besides other approachable sites including the Statue of Ismoil Somoni.

In line with the concept of the workshop, I have noted that on Day-3 the participants will go on a field visit covering Engineering Universities, Hissor Fortress and the Museum of History in the Academy of Science.

The cultural show tonight arranged by Academy of Sciences may help our International participants who have traveled long distances to recover from jet-lag and enjoy the local music and dance along with the traditional Tajik cuisine.

Coming back to the concept of organizing the High Level Policy Forum and Workshop on Developing the Roadmap on Engineering Qualification Standardization, Accreditation and Professional System, I really appreciate the initiative taken by the Presidents of the Academy of Sciences, National Technical University and ECO Science Foundation to organize this event in Dushanbe and bring UNESCO, FEIAP and friends from other ECO Countries- Azerbaijan, Iran, Kazakhstan, Kyrgyzstan, Pakistan, Uzbekistan and our great neighbours China. I am sure that the recommendations coming out of this workshop shall help improve our engineering curriculum that shall ultimately bring our graduate engineers at par with engineers of other counties. This will also help our fresh graduates to find jobs in local and in the regional industrial set-ups. Therefore, I fully support the cause of this workshop and seminar and wish all the best to organizers, particularly, Academy of Sciences, ECOSF, UNESCO, FEIAP, ISTIC, PEC, IEEE, and the Malaysian Trust Fund for partially funding this activity.

As Minister of Culture, I urge you to share your experiences of visiting Dushanbe with your family and friends and ensure they visit this beautiful city & country and enjoy the warmth of our culture and people.
I wish you all a very pleasant stay in
Dushanbe. Thank you!

Annexure-V: Vote of Thanks by President, ECOSF

Vote of Thanks

Dr. Manzoor Hussain Soomro, President, ECOSF

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

For the Opening Session on 27th March, 2017

Deputy Minister Ministry of Foreign Affairs-Tajikistan,
Deputy Minister for Education and Science,
Prof. Dr. Shahbaz Khan, Director, UNESCO,
Prof. Dr. Liu Xila, President Elect, FEIAP,
Prof. Wu Qidi,
Prof. Hean Teik Chuah,
Prof. Dr. Farhod Rahimi, President Academy of Sciences,
The Rector of Tajik National Technical University,
Excellencies the Ambassadors,
Participants from within Tajikistan and other ECO member Countries and beyond,
Ladies and Gentlemen,

HAPPY NOURUZ!

On behalf of all the organizers, it is my pleasant duty to thank you all for being with us today in pleasant and beautiful Dushanbe. I am very indebted to the Deputy Prime Minister for gracing the occasion and opening this high level forum on Engineering along with his team of Ministers.

I am grateful to all the Partners; UNESCO, FEIAP, ISTIC, PEC, Technical University of Tajikistan and the Academy of Sciences for making this event possible. This shows the strength of cooperation and collaboration for a common cause!

My special thanks to Prof. Farhod Rahimi and his team as well as the teams of Technical University and of course the team of ECOSF and UNESCO for their hard work for making this event a success and they do deserve an applaud.

Ladies and Gentlemen, I would like to acknowledge the financial support of Malaysia Fund in Trust with UNESCO and the leadership of Dr. Shahbaz khan for the initiative.

The consistent support and partnership of FEIAP and its Past President Prof. Hein Teik Chuah, the President Elect Prof. Liu Xila and very senior Academician Prof. Wu Qidi from China is very much acknowledged.

I badly miss today a key person, a great Mover and Shaker in Asia and the Pacific Region from Malaysia, Academician Dato Lee Yee Cheong, the honorary Chairman of ISTIC Governing Board. I hope we get him here next time.

Excellency, the Deputy Prime Minister and the Ministers of Tajikistan, you know very well that ECO Science Foundation is a Specialized Agency of Economic Cooperation Organization of 10 Countries with Tajikistan as a full ratifying member. We are promoting Science, Engineering, Technology and Innovation for Economic Development in collaboration among member countries.

ECOSF also running a programme of IBSE in the region and next Capacity Building Workshop is due in Dushanbe in collaboration with ASRT and University of Pedagogy; I hope the Minister of Education & Science will support us.

However, Mr. Deputy Prime Minister and the Ministers of Education & Science and Economy, Sir, if Tajikistan also contributes financially to the annual budget of ECOSF, I assure you, that it will allow us to bring more activities to Tajikistan for a stronger programme of S&T based economic development and job creation in the country.

We have quite a few programmes of youth engagement, Excellencies but I cannot go in details due to time constraints, but I can discuss separately.

I thank you again all Ladies and Gentlemen!

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Annexure-VI: Financial Report
(IPA # 4500309504-A2)

Economic Cooperation Organization Science Foundation
(ECOSF)

International High Level Policy Forum and Workshop on Develping the Roadmap on Engineering Qualification Standardization, Accreditation and Professional System (EQSAPS)
held in Dushanbe, Tajikistan 27 - 29 March 2017

Financial Report
(IPA # 4500309504-A2)

Sr #	Particulars	UNESCO Approved Budget US$	Actual Expenditure US$
1	Air Travel International Participants	8,000	8,000
2	Hotel Accomodation - International Participants	9900	9,900
3	Hotel Accomodation - Local Participants	4500	4,500
4	DSA - International Participants	2250	2,250
5	DSA - Local Participants	2,250	2,250
6	Catering	3000	3,000
7	Stationery	200	200
8	Printing and Publishing	500	500
9	Local Travel	2000	2,000
10	Logistics	1000	1,000
	Total	**33,600**	**33,600**

Adnan Ali Abbasi
(Accounts Officer)

Selected Photographs of the EQSAPS Event

ECOSF

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ECOSF
ECO Science Foundation

ECOSF

ECOSF

ECOSF

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