



AEA PROFILE



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Introduction

Afghanistan Engineers Association (AEA) is a social, cultural and academic entity, which provides technical, cultural and academic services for the people of Afghanistan. Afghanistan Engineers Association (AEA) was established in 2008 in Kabul, Afghanistan and registered with Ministry of Justice of Islamic Republic of Afghanistan in 2009 as an independent assembly. Fortunately, during short time, AEA was appreciated and developed by the Afghan engineers and now we have five agencies which are providing engineering and capacity building services in different provinces of Afghanistan. The members of AEA exceed 2500, from which comprises professionals and specialists and permanent members which are all registered at AEA.

We are providing engineering and capacity building services including conducting of technical and civil trainings and other technical services by Afghan professionals for Afghanistan people. In addition, we are striving to booster the rehabilitation process of our country's infrastructures. Moreover, we provide technical and professional trainings for the engineering university students and graduates. As well as AEA provides opportunity and facility for Engineering universities teachers and lecturers all around Afghanistan to pursue their researches at AEA.

AEA cooperates Afghan engineers in various aspects of their lives; we undertake job placement programs for them; booster them to have their rights not swept in the disputes that they may have; support them financially in case of unexpected injuries or accidents.

AEA is a 100% Afghan managed entity, which since its establishment works with Afghan engineers and Afghan engineering private and public entities. AEA with its mandates defined as raising the technical and managerial knowledge of Afghan engineers and entities so far have been capable of successfully contributing its part in terms the economic and social development of the Afghan society. Having its branches in Afghanistan and overseas, AEA has developed an interlinked community of Afghan engineers both inside Afghanistan and outside the country. AEA is committed to create capabilities, build and develop capacities.



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AFGHANISTAN ENGINEERS ASSOCIATION (AEA) PROFILE

AEA supports variety of areas as of engineering such as construction, contracting, designing, planning, scheduling, mining, and industrial engineering. We have situated offices regionally and internationally. With AEA, you will experience a friendly organizational culture that is strictly oriented toward making progress and achieving accomplishments. We welcome you to know further about AEA.

Years of dedicated services in engineering fields such as surveying, design, planning, construction, operation and maintenance, AEA is now a credible agency and with a record of accomplishment delivering projects on time and with quality to the clients. Particularly, AEA has now the human resources and expertise in consulting with regard to construction, master planning and site designing, water and electrical systems, security walls and fencing.

AEA offers a broad spectrum of expert engineering services ranging from conception to the completion and operation of the development projects. The scope of these services covers feasibility studies, surveying & mapping, designs tender & contract documents, construction/installation supervision, contract management, and post construction services as well as services in relation to monitoring, fire alarm, alarm systems & evaluation, social and integrated rural development sectors.

We provide our clients with one-stop-engineering solutions where all their engineering needs from A to Z like cutting, filling, grading, compaction, foundations, structures, roofing, finishing, electrical, plumbing, doors, and windows etc are gratified. AEA is a nationwide integrating agency. We find the developed engineering resources and quality services with affordable price and service for our clients and we conduct our services responsible to Achieve a superior return balanced with long term growth of our own and our clients.



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AFGHANISTAN ENGINEERS ASSOCIATION (AEA) PROFILE

History

AEA began back in 2008; it was a time that there was a normative need for such an organization as AEA. There were very few centers active in the engineering industry development and those few ones were operating only in training very basic trainings. Soon, AEA made it to stand as a well-known and authenticating academic and social center. AEA first started from conducting training programs which comprised of holding courses for Afghan engineers in the field of quality control management and surveying. At that time, only main branch was established and there were no other offices of AEA at provinces.

Very soon everything changed. AEA spread its operational fields and extended its activities from Kabul to provinces. In 2009, AEA opened its Jalalabad, Maidan Wardak, and Herat Branches. Subsequently, Mazar, Kandahar, Ghazni and Kunduz branches were opened. A well-integrated network of Afghan engineers was established. AEA organized registered members whom are all engineers into appropriate departments and committees. It was time that AEA was not only undertaking basic engineering trainings but authentic and extensive engineering subjects being taught by lecturers with advanced level of expertise.

Following its Article of Association, AEA embarked on achieving its mandates that is contributing in the rehabilitation of the country; conducting engineering researches; holding capacity building and development programs; integrating Afghan engineers inside and outside the country; job placement of Afghan engineers; cooperating Afghan engineers in terms of solving their social, security, or financial problems; over sighting the rehabilitation process of the country.

Getting eligible to oversight and conduct developmental projects and research projects, AEA gained credence to act as entity that the Afghan government would reckon with for the purpose of evaluating and monitoring of engineering initiatives and building and developing the capacity of Afghan engineers and military construction projects. Working with our strategic alliances, we have on the eve of getting contracts of fuel supply, mining, and healthcare services.

AEA is now running with particular departments for design, construction, planning, operation and maintenance services. Each department is managed by highly educated Afghan engineers. AEA has a track record of success from its previous experience and has a number of advantages that will enable us to take on any challenges.



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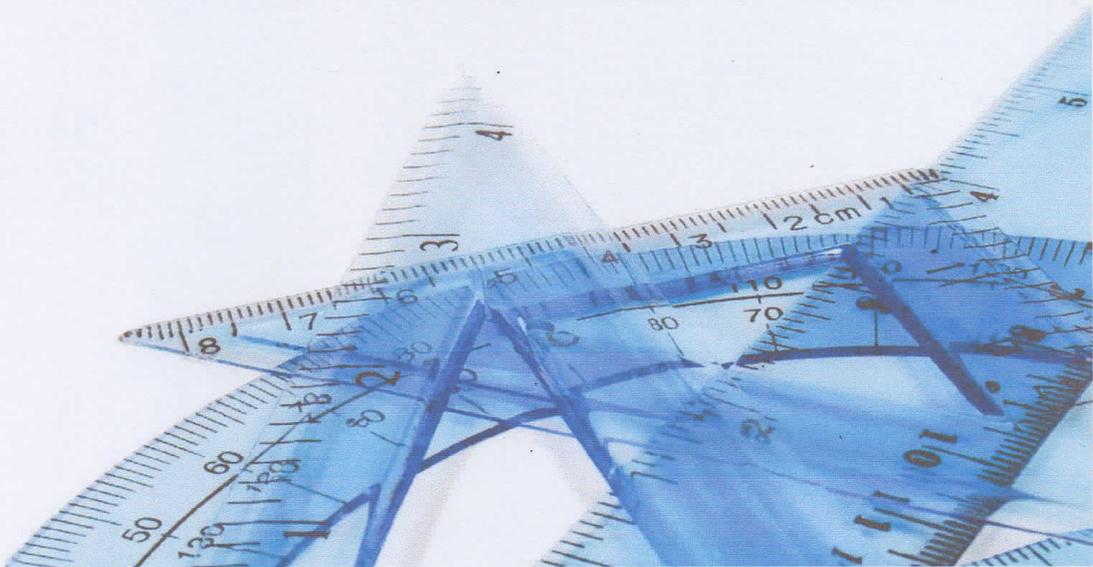
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Strategic Intent

Establishing the platform and standpoint for Afghan engineers, based on which development opportunities could be seized by Afghan engineers, shapes the framework of our strategic intent. An evaluation of regionally competitive engineering industry has led us to an end of focusing on developing human resources in the engineering industry of the country. In the race of sourcing human resources, our company is committed to run and win. Moreover, plenty of assets are in hand, which could support us financially. Despite the strengths, we need to struggle elaborately and in a progressive manner so that we could overcome the competitive forces, which naturally attack every organization. AEA strives for the excellence of Afghan engineers through gaining national and international expertise in an effective and efficient manner.

Particularly the long term goals of AEA are as follows:

- The Rehabilitation and establishment of infrastructures of Afghanistan
- Capacity development of Afghan engineers and as well as the workforce of Afghan government
- Job opportunities for the Afghan engineers and students
- Establish and maintain an effective organization for the achievement of our mission.
- To be responsible for employees needs and empower its employees to be productive contributors to our mission.
- Enhance and promote our image as the leader in the profession.
- Establish, promote and recognize standards of professional practice.
- Acquire, maintain and retain the best human resources to ensure premium services.
- Create a staff that is diverse, well trained, enthusiastic and team-oriented.
- Promote a positive relationship with the local community, its agencies and citizens.



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However, in a more narrowed way, the objectives of AEA incorporated in the Article of Association that is approved by the Ministry of Justice are as follows:

- 1) Finance and Administration of AEA
 - Daily finance activities of AEA
 - Daily administration activities of AEA
- 2) Afghan Engineers Relation Center

Afghanistan Engineers Relation Center cooperates Afghan engineers in various aspects of their lives; we undertake job placement programs for them; booster them to have their rights not swept in the disputes that they may have; support them financially in case of unexpected injuries or accidents.

Afghan Engineers Relation Center activates

- Supporting civil society and setting the role of Afghan engineers in society
- Working for the support of Afghan culture
- Making relations between all engineers inside Afghanistan
- Making relations between all engineers outside Afghanistan
- Defending for all Afghan Engineers rights inside Afghanistan or outside Afghanistan
- Finding job for all Afghan Engineers and providing secure work places
- Trying and cooperating for the resolving of economic, social, academic, professional and technical problems of all Afghan engineers.

- 3) Social and cultural activities of AEA
 - Supporting civil society and setting the role of Afghan engineers in society
 - Working for the support of Afghan culture
 - Making relations between all engineers inside Afghanistan
 - Making relations between all engineers outside Afghanistan
 - Defending for all Afghan Engineers rights inside Afghanistan or outside Afghanistan
 - Finding job for all Afghan Engineers and providing secure work places
 - Trying and cooperating for the resolving of economic, social, academic, professional and technical problems of all Afghan engineers
- 4) Educational and Professional activities of AEA
 - Educational, professional, technical, cooperation in rising the capacity of engineers and students
 - Holding educational courses and professional courses and technical courses for the rising of the knowledge status of engineers and students
 - Holding professional and academic programs for the rising and creating the capacities for personnel and governmental management and private companies and NGOs
 - Holding academic professional and technical workshops for engineers and students
 - Providing study materials for books articles of knowledgeable work for the public

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- awareness of engineers and students
 - Arrange, publishing and distributing of the academic work of teachers, individuals, and other personnel
 - Cooperation in the providing of the curriculum of schools and universities and other institutions
- 5) Research and Monitoring activities of AEA
- Research in the technology and knowledge for the growth of technology in Afghanistan
 - Research in the rising of the quality status of construction projects and also monitoring of the projects
 - Research in the social disputes, academic disputes and professional and technical disputes to the national level
 - Research about the curriculum of the country in regard of the educational organizations and also monitoring from the quality
 - Cooperation in the research and monitoring about programs of academic and technical that is program by the government and foreign NGOs and are implementing in the level of the country
- 6) Supporting engineering entities and coordinating them
- Supporting the coordination between construction companies, and providing plans for the rising of the quality of the construction projects
 - Supporting the coordination between internal NGOs and private consultancies and services companies that work in the engineering sector and also arranging their developmental programs
 - Supporting the coordination between the assemblies and engineering entities to bring them under the cover of AEA
 - Relating all engineering entities to each other and bring them to a same ceiling namely AEA and providing them plans and schemes for the bettering of the engineers and engineering industry standards of Afghanistan.

In short we:

- Take active part in reconstruction & infrastructure sector.
- Research and investigation in educational and technological aspects.
- Provide Educational and technical co-operation to afghan students and engineers by holding short term and long term courses.
- Make a relation between all afghan engineers who are inside or outside of the country.
- Attempt to find and make new job opportunity for afghan engineers with safe work sites.
- Attempt to solve security, economical, technical and educational problems for afghan engineers.
- Monitoring and research on engineering projects in standards ways.
- Research and investigate to find out the basic main reasons of educational, cultural, social and political problems and make necessary solving ways.

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Vision

Creating employments for Afghans and TCNs (Third Country Nationalities) such that they could work in a convergent arena of values and as well they could exchange technical and managerial experience.

Mission

Our mission is to create an environment for national and international professional engineers, trainers and mentors to share their knowledge and expertise with clients through application of modern management techniques and provision of high quality services that help them to boost capacity and improve organizational performance, specifically in the post-conflict development context of Afghanistan. We provide engineering enterprises with practical and effective engineering services and trainings that will meet the national and international standards, based on both traditional as well as innovative methods, matching on-the-ground realities.

Core Values

- **Integrity** - Maintain constant adherence to a strict moral and ethical code
- **Professionalism** - Conduct ourselves as dedicated professionals
- **Accountability** - Hold ourselves responsible for our daily craft
- **Excellence** - Strive to do better than ordinary
- **Commitment** - Pledge to meet the needs of our customers
- **Teamwork** - Cultivate a climate to encourage a cooperative multinational effort
- **Respect** - Appreciate and treat all individuals with courtesy and dignity
- **Honesty** - Uphold truthfulness and fairness in dealing with others
- **Time Concerned**-On time accomplishments
- **Quality**-Delivering quality jobs



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AFGHANISTAN ENGINEERS ASSOCIATION (AEA) PROFILE

CEO's Message

Taking the lead on behalf of AEA, I welcome you to your organization. I am grateful for your impression to know about AEA Multiple engineering enterprises have been involved in Afghan engineering industry. I was also a time back an employee in many of these organizations. My experience and knowledge have jointly contributed to raise the idea of accompanying these enterprises in a different way i.e. as an advocate for sustainable development. Working with USACE, USAID/SIKA, Tetra tech, PRTs, UNDP, UNOPS, and Afghan Ministries boosted my approach. It was back in 2010, which AEA got forward a new challenge of working with challenging clients.

A wide range of services in projects such as construction projects, and utility upgrades have been executed so far and it relives the hope of being a potential and pleasant nation so far. The opportunity through, which I could step forward in taking part for exceptional approaches of developing the engineering industry of Afghanistan and rebuilding the broken state of Afghanistan, has been seized to a great extent. Although I have overcome challenges of managing my the contribution of AEA in huge projects, the passion of taking the lead of huge social and economic developmental projects still remains to its emerging state. I tried my best to set records in the last 5 years and I have been successful to a great extent. Continuously, I have led my team to never quit and execute in security critical areas. However, we have been somehow involved with international partners in the last 5 years, but the focus was toward Afghanistan.

AEA has been treating the current problems in Afghanistan as opportunities and is eager to accompany huge and tremendous engineering setups in the country. At the end I want to address regional donors to accompany my positive and reliable approach so that I could feel more confident and comfortable in running a role model and huge engineering consulting and integrating set up in the country and develop it such that could be set as a memorable example. At the end, I would like to sincerely thank my clients for their trust and considerations.

Sincerely

Eng. Aminullah Habiby, CEO/President of AEA

Major Clients

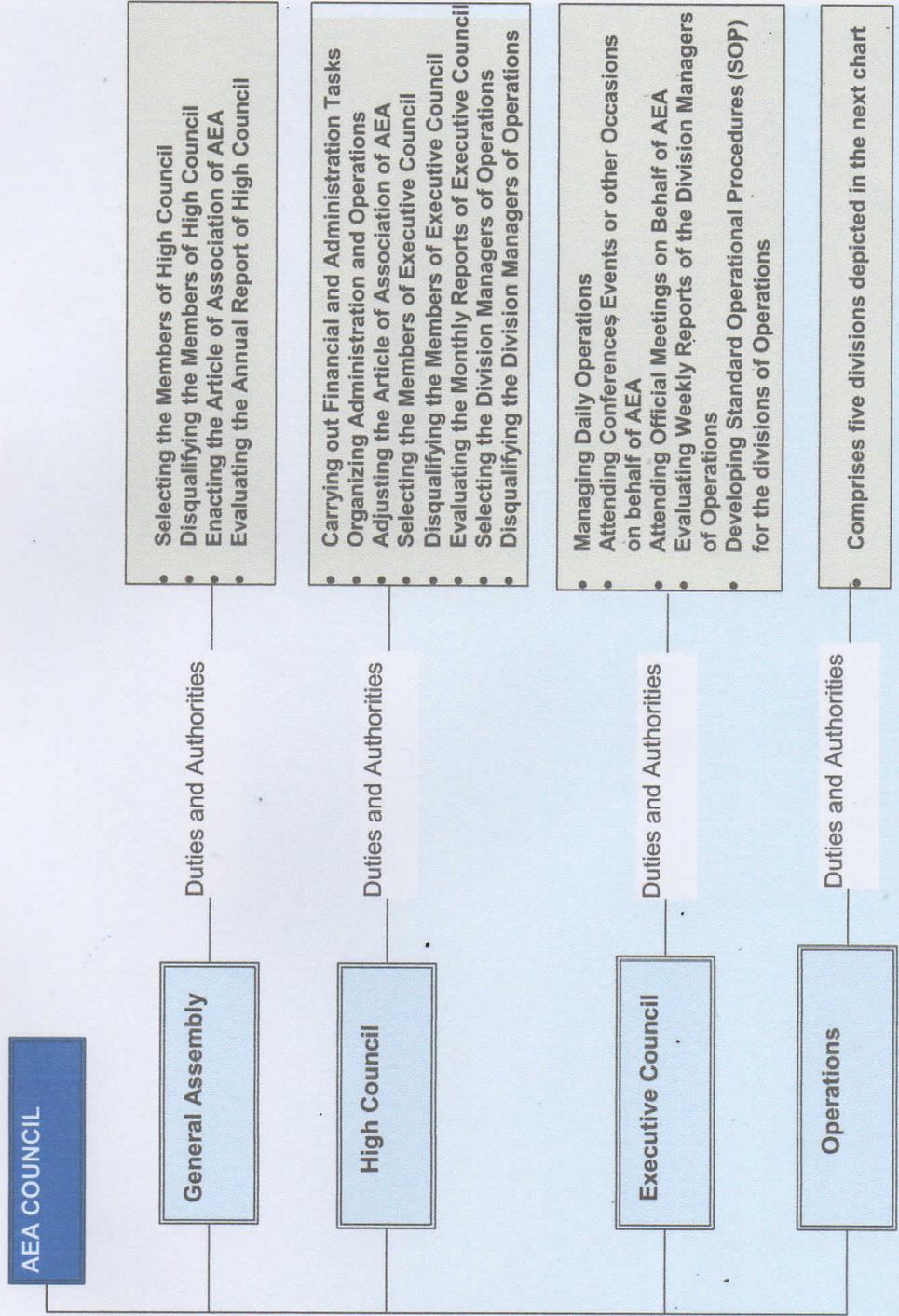


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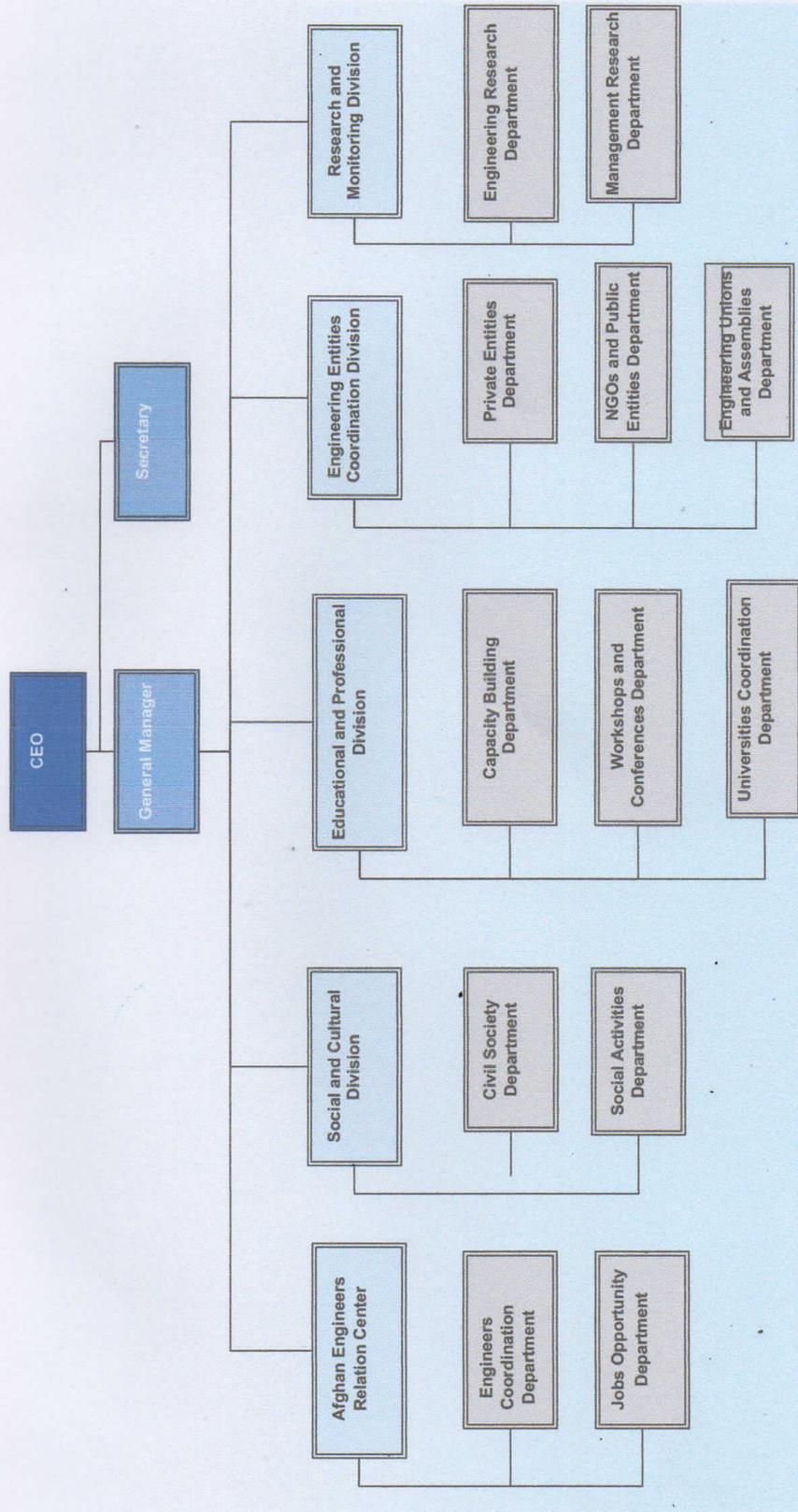
AFGHANISTAN ENGINEERS ASSOCIATION (AEA) PROFILE

Organizational Management Chart/Committees



AFGHANISTAN ENGINEERS ASSOCIATION (AEA) PROFILE

Organizational Management Chart/Operations



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AFGHANISTAN ENGINEERS ASSOCIATION (AEA) PROFILE

Financing

Funding:

AEA is a non-profit organization and doesn't operate in a business context for the purpose of profit making. However, it undertakes some approaches to financially support its programs. Although, we have been receiving funds and willing to receive funds from our donors, our training programs and engineering services activities are appropriate alternatives with regard to funding.

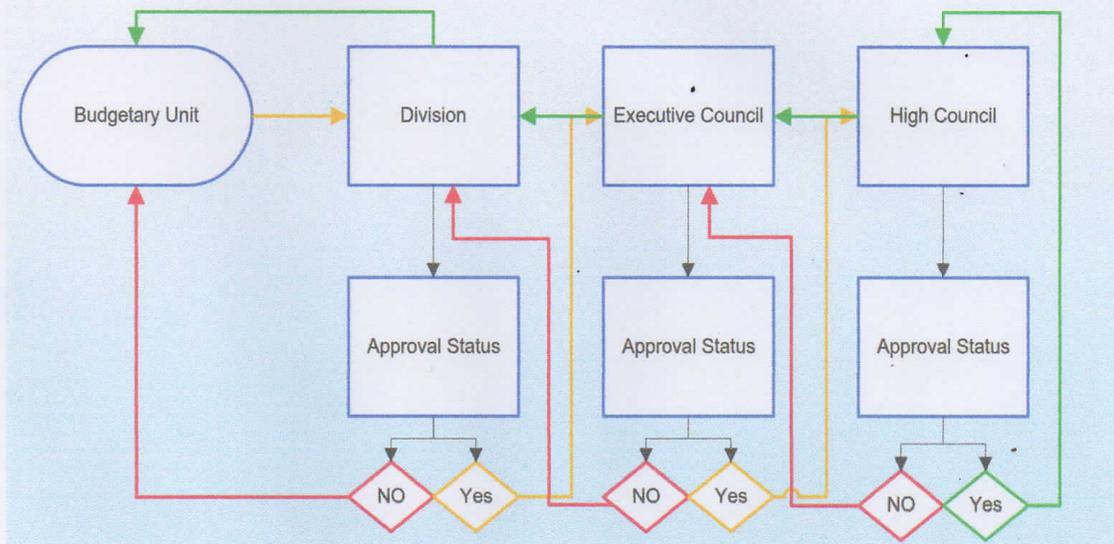
Besides, as authorized in the Article of Association, AEA receives membership fees from individuals and entities active in the engineering industry of Afghanistan. Moreover, the researches that we have been undertaking here has been as well a good source of financial support for AEA. The research team of the Afghan Engineers covers a wide range of engineering issues. Generally, the refining of the principles and practices applied in engineering initiatives are the core of the objectives we have been striving for.

Expending:

Prior to the start of every financial year, the high council enacts annual budget. As a part of the annual budget plan, the council defines all the budgetary units and their allocated budgets according to their plans. The budgetary units so far at AEA are the departments operating under one of the five divisions, general assembly, high council, and executive council.

The general flow of the annual budget enacting process is depicted as below:

Annual Budget Enacting Flow



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Operations

Finance and Administration Division

Finance and Administration Division supervises and manages the progress of Finance Department, HR Department, and Administration Department in terms of their alignment of activities with their mandates. The mentioned departments prepare their weekly reports and monthly plans to the Finance and Administration Division; the division evaluates the reports and plans and provide them with the appropriate guidance to streamline their efforts.

The division acts as a supporting body of the operations of AEA. From daily record keeping to the development of annual financial reports and statements it provides the required details to the clients, and oversight committees in terms of ensuring the accountability and transparency in the occurring expenditures.

Social and Cultural Division

This division is concerned with the integration of the Afghan engineers and involving them in different levels of decision making. The division comprises Civil Society Department which is mostly concerned with cultural activities and Social Activities Department. The Civil Society Department coordinates the approaches of Afghan Engineers and Afghan Engineering Entities in terms of contributing to the development of civilized Afghan community. Particularly, at AEA we have organized voluntary groups of engineers backing several sectors of civil society. In the last 13 years' brutal murders of Afghan engineers have been recorded in almost all provinces of Afghanistan. AEA regularly holds conferences in support of the families of the murdered engineers. In addition, in close cooperation with the other civil society advocating entities, AEA represents Afghan engineers to lead the Afghan society toward a bright and free of violence future.

The Social Activities Department organizes gatherings of the Afghan engineers beyond the context of the technical fields of engineering. It paves the way for Afghan engineers to exchange ideas and share their problems so that with they could help one another to overcome challenges they face in personal life. So far, AEA has donated hundreds of engineers for the cause of supporting their families. Moreover, AEA has treated mentally, some of the engineers who have recovered from accidents that have affected psychologically their life.

The division also runs a magazine that has its Article of Association registered approved by the Ministry of Information and Culture of the Islamic Republic of Afghanistan. The magazine publishes research papers and social papers developed by individuals or entities that are concerned with the engineering industry of Afghanistan. In addition, the magazine is a good source of financial support to AEA; advertisements from engineering entities are published and they are charged according. Moreover, the magazine incorporates the ads of our training programs and particular research approaches that our engineering teams undertake.

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Educational and Professional Division

In this division we design and implement capacity building and development programs, hold conferences and occasions concerned with the equipping of engineers with cotemporary professional trainings. We offer the trainings to individuals that are eager to enrich their understandings and expertise. Moreover, we undertake extensive training programs for companies who are in need of such kind of trainings for their staffs.

The trainings we are providing are certified by credible academic agencies. The materials being taught at AEA are compatible to the market demands; the trainings we offer equip a trainee to be well accepted in engineering entities.

Due to the lack of coordination, cooperation and to an extent conflict of interests among engineering universities, colleges, and institutes, these entities teach a variety of subjects; the engineering codes being taught are different; the methods undertaken varies; and eventually the donors supporting these entities are not streamlining them to act in alignment with the academic goals in a national level.

The universities coordination department at AEA works for the integrating and communicating of Afghan engineering universities. In this department efforts are toward the development of the engineering universities to a direction of market demand and toward an alignment of the national needs to the engineering human resources. The curriculums of every university is evaluated by the educational and professional division the department of universities coordination. In comparison to the prevalent trends in terms of the practicing skills of an engineer required in engineering projects, proper suggestions are made for the universities.

Here, at AEA the department of engineering universities coordination has developed our training materials that have to the possible extent eliminated the conflicts of interests. For instance, a reinforced concrete structural design course is taught by the instructor who is well knows about the details of the materials being taught in various colleges and universities. Accordingly, he has prepared his handouts, references and other supplementary materials so that students could not be confused with the contents of the course that they will take.

Engineering students, technicians on their own behalf or being introduced through their employers are given the chance to be trained. Holding that there is an expressed need for the distinguishing of potential engineering experts, AEA in coordination with other relevant bodies has developed a plan based on which, engineers would be rated.

The trainers at AEA are distinguished credible national universities lecturers. They have higher education from national universities inside the country and abroad. We have trainers in the level of Bachelor, Masters, and Doctorate. The materials that they have prepared for the purpose of teaching is both developed in a manual manner and through the usage of software. Alongside the theory, that has been being taught in our classes, our trainers are taking the students on site to equip them with the practical knowledge of some subjects that are really crucial to be learned.

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AFGHANISTAN ENGINEERS ASSOCIATION (AEA) PROFILE

AEA Generally has two focus points first training program & second designing. For both parts AEA Engineering team has complete knowledge and plenty of experiences. This paper contains only training programs, for the design part refer to design concept paper. So Completion of the Trainings will have a valued result that prepare the engineers to have complete influence on their profession. For short the following paragraph indicates the main parts of training and designing programs

Training Program is generally categorized as:

- 1- General Management & Teaching methodology
- 2- Horizontal and Infra-Structure System Training Programs
- 3- Vertical Structure Analysis and design Programs
- 4- Hydrology/Hydraulics Training programs

Let's know

General Management: In this part of the program the main focus is on Project Management, Quality Control Management and Scheduling. For all these parts AEA technical team will train the trainee with advanced theoretical and practical tips in accordance to international standards.

Horizontal [Highways/Roads and infra-structure system]: Horizontal structures are ones of the most important section that the ministry of urban development daily deal with. Fortunately, AEA Engineering Team have designed the most challenging projects with advanced methods and newly developed software which are fully recorded. Finally, you will find them the updated designer and trainer group in Afghanistan. For more detailed information about the programs please refer to the next pages

Vertical/Horizontal Structures: Besides of common design software such as SAP, ETABS, SAFE, STAAD Pro & STAAD Foundation, CSI Bridge and PGSuper which are the most applicable software's for analysis and designing of Bridges are include in training program that would be a unique training for bridge designers

Hydrology and Hydraulics: Watershed management, Surface water, ground water, urban hydrology, bridge hydrology and hydraulics, Culverts H/H, open canal H/H and updated software's (TR20, TR55, HEC-RAS, HEC-HMS and ArcGIS) are one of Issues that will include in the trainings.

For Short the AEA Want to Hold the Following Programs besides of other Technical Works that You Can Chose from the List.

For more Information Refer to Detail Description in the Next Pages

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AFGHANISTAN ENGINEERS ASSOCIATION (AEA) PROFILE

AEA Capacity Building Programs

1) Building Design:

A) Manually

RCC Project design
Structure Design
Timber Design
Steel Design

B) Software

SAP, SAFE, E-TABS
Staad Pro & Staad Foundation
Robot & Prokon Structure
Revit Structure

2) Road Design

C) Manually

Geometric Design
Pavement Design
Structure Design
(Culvert, Bridge, Retaining Walls, Supper passage)

D) Software

Auto CAD Civil 3D
Eagle Point & Mx Road
Auto CAD Lund

3) Architecture Design

E) Software

Revit Architecture
Staad for CAD
Google Sketch up

F) Software

Auto CAD (2D & 3D)
3D Max (model & animation)
Archi CAD, Lis CAD

4) Survey & Estimation

G) Topographic Survey

Total Station
Theodolite
Level & GPS
Arc GIS (V9 - V10)

H) Cost Estimation

Estimation by Hand
Estimation in Excel
Estimation in Take Off
preparing of (BoQ)

5) Water Supply & Electrical Design

I) Water Supply

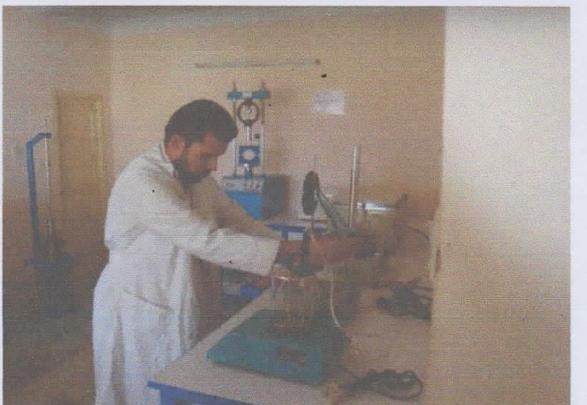
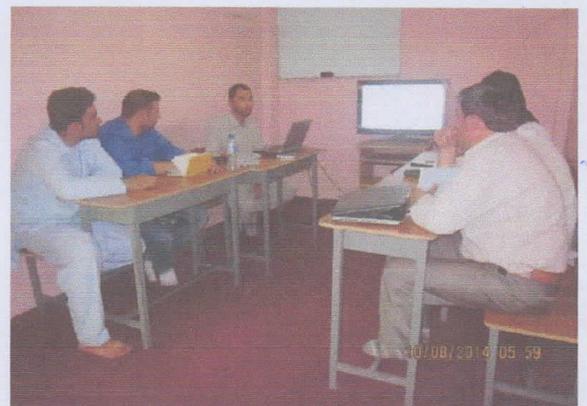
Water CAD
EPenet

J) Electrical Design

Dialux, Power
Etap, Pspice

7) Construction Management

Construction Quality Management (CQM)
Construction Materials Testing (CMT)
Construction Safety Training Program
Engineering Projects Proposal Writing
Site Engineering Training Program
Quality Assurance and Quality Control
Quality Control System (QCS, RMS)
Construction Scheduling (Primavera p3 and P6)



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Teaching Methodologies and General Managements

1- Teaching Methodology Program

Teaching Methodology is the Most Effective Program Developed by USAID for All Governmental and Private Sectors to be considered in Teaching Systems to fulfill the students' needs and to improve them in their professions So AEA Engineering Want to Apply the System by the Professional Team in Advanced Manner. For Any Volunteers the Program Content will be submitted in a sprit Proposal. For More Questions about Please Refer to the Main Office

2- Quality Control Management Training Program

This Course is intended to Improve Engineers Skills and information in Required Quality and Standards for Completion of Projects According to Plans and Specifications, on Time, Within a Defined Budget and Safely. For Short,

While Completing the Program the Trainee Will be able to:

- ✚ State the Purpose of Construction Quality Control Management.
- ✚ Discuss various characteristics that are peculiar to the construction industry
- ✚ Define Contractor Quality Control (CQC).
- ✚ Define Government Quality Assurance (QA)
- ✚ To State Various Reviews, Plans, Conference, Report and Managements
- ✚ State the Purpose of Resident Management Systems (RMS)
- ✚ State the Purpose Quality Control System (QCS)

Quality Control Management has abroad Aspects So Besides of other information the Following Points Will be Included in the Training:

- ✚ Broad Aspects of CQC Components
- ✚ Control and Inspections
- ✚ Organizations and Their
- ✚ Responsibilities Government and
- ✚ Contractor Responsibilities QC
- ✚ Organizations and Responsibilities
- ✚ Documentations
- ✚ Quality Control Planning
- ✚ Definable Feature of Works
- ✚ Testing
- ✚ Submittal Process
- ✚ QC/QA Progress Meetings
- ✚ Progress Schedule and Progress Payments
- ✚ Tracking
- ✚ RMS and QCS Review

3- SCHEDULING

This Program Contains all Important Aspects of Software based Project Management in Advanced Manner, for short the Important Parts of this Program are.

- ✚ General Scheduling
- ✚ Budget Analysis
- ✚ S-Curve Analysis
- ✚ Risk Analysis

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PART-2

Horizontal Structures Training Program

The Structure that are based on linearly or Station by Station Study is Called Horizontal Structure. Horizontal Structures Includes Many Types of Structures like Highways, Roads, Rail Roads, Tunnels and Many Other Structures. To Have Advanced and Updated Information about Planning, Analyzing, Designing and Construction of Horizontal Structures the Following Parts Will Serve Engineers the best. This Program Contains Detailed Information about Horizontal Structures Planning, Advanced Analysis and Design Methods. The Program is categorized for Different Categories to give Chance for Volunteers for a Specific Part Selection. Let's Introduce the Program Training Categories.

While Completing the Program the Trainee Will be able to:

- ✦ Advanced Traffic Loading for Highway and Road Analysis and Design
- ✦ Analysis and Design of All Highway Geometric Types by Advanced Methods
- ✦ Analysis and Design of All Pavements Types by Advanced Methods
- ✦ Efficient and Advanced Methods for Highways and Roads Maintenance
- ✦ General Hydrology/Hydraulic Analysis and Design for All Structures. Manually and Software based Methods
- ✦ Full Application of GIS Versions for Planning, Analysis and Design of Structures
- ✦ Advance Surveying for Horizontal and Vertical Structures.

1- HIGHWAY GEOMETRIC DESIGN

This part of Program Includes the Design of Highway Geometric with all Related Parts in Advanced Manner that Will Includes Manually and Software Based Methods. The Major Items of This Parts are:

- ✦ Highway Geometric Design According to AASHTO (American Association of State Highway and Transportation Officials) Standards
- ✦ Rural Highway and Roads Standards. Basic & Advanced Method. Software (Civil 3D)
- ✦ Urban Highway and Roads Standards. Basic & Advanced Method. Software (Civil 3D)

2- Highway Pavements and Material Design

This part of Program Includes the Analysis and Design of Pavements and Road Materials with all Related Parts in Advanced Manner that Will Includes Manually and Software Based Methods. The Major Items of This Parts are

- ✦ Highway Pavements Analysis and Design (Rigid and Flexible) According to [AASHTO Pavement Structure Design 1993 Manual for Pavement Design]
- ✦ Highway Flexible Pavements Analysis and Design According to [MS-1 Asphalt Institute of America]
- ✦ Highway Pavement Analysis and Design According to [USACE-United State Army Corps of Engineer] Method.
- ✦ Highway Pavement Structural Design for Special Conditions Using Geotextiles and Geomembranes
- ✦ Unpaved Pavements Analysis and Design According to [AASHTO 1993 Design Manual]

3- ROAD AND HIGHWAY OPERATION AND MAINTENANCE (STRUCTURE AND PAVEMENTS)

Highway Operation and Maintenance is an Important Process the Roads and Highways Serviceability and their Effective Live Period. Operation and Maintenance Methodologies will be Trained basically (Manually) and by ArcGIS or Software based Method.

- ✦ Highway and Road Pavements
- ✦ Highway and Road Structures

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4- Hydrology and Hydraulics Design

Hydrology/Hydraulics Analysis and Design is a vital part of Horizontal Structures Because Determining of Peak Flood, Net Runoff, Time of Concentration, Flow Rate and Final Cross Section Required for Flow Rate Transportation is the Main Focus Point of H&H Analysis and Design so this Result is the first

Necessity for Horizontal Structures to be Determined. In this Program Besides of the Mentioned Points

Determination the Following Points Are Also will be Included.

- ✚ Bridges Hydrology and Hydraulic Analysis and Design. Basic (Manually) and Software based [ArcGIS, HEC-HMS, HEC-RAS]
- ✚ Culverts Hydrology and Hydraulics Analysis and Design. Basic (Manually) and Software based [ArcGIS, HEC-HMS, HEC-RAS]
- ✚ Open and Irrigation Canals Hydrology and Hydraulics Analysis and Design. Basic (Manually) and Software based [ArcGIS, HEC-HMS, HEC-RAS]
- ✚ Open and Irrigation Canals Networks Hydrology and Hydraulics Analysis and Design. Basic (Manually) and Software based [Civil 3D]
- ✚ Road Drainage H&H Analysis and Design Basic (Manually) and Software based [ArcGIS, HEC-HMS, HEC-RAS, TR-20 and TR-55]
- ✚ Watershed

5- GIS PROGRAMS

This part of Program Includes GIS Application for Specific and General Uses in Engineering. In This Program besides of General Version of GIS the New Developed Version [QGIS] which is the Easiest, Fastest and Most Accurate Version Also Will Include for Usage in All Mentioned Items which are:

- ✚ General Uses
- ✚ Civil Engineering uses
- ✚ Urban Planning
- ✚ Network Analysis
- ✚ Highway and Road Design
- ✚ Highway and Road Maintenance
- ✚ Site Plan Preparations
- ✚ Storm Water Canal Analysis
- ✚ Hydrological Analysis of Road Drainages
- ✚ Analysis of Open Canals and Irrigation Canals Network
- ✚ Preliminary Surveying for Design and Construction Projects

6- SURVEY PROGRAM

Survey Program Includes the Following Points, it is Extendible for the rest Parts

- ✚ Control Surveying [Total Station & GPS]
- ✚ Topographic Surveying [Total Station & GPS]
- ✚ Hydrograph Surveying [Spatial Analysis, GIS, Global AEAper, Google Earth, Civil 3D, Total Station & GPS]
- ✚ Alignment Surveying [GIS, Total Station & GPS]
- ✚ Condition Surveying for Road Maintenance [GPS, Areal Images & RoboGEO Software]
- ✚ Implementation of Construction Surveying. [Level Machine, Total Station & GPS]

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PART-3

Structure Analysis and Design Training Program

Course Objective

This Course is intended to Improve Engineers Skill in Structure Analysis and Design and to serve them to Know Better about Structure Linear and Non-Linear Behaviors under External Loadings and Local Conditions. Finally Designing of Structures Exactly What is it. The Programs Those Will Include in Training are:

While Completing the Program the Trainee Will be able to:

- ✚ Advanced Loading for Structure Analysis and Design
- ✚ Analysis of All Structure Types (Members, Slab, Stair, Shear Walls, Septic Tank...)
- ✚ Exact Design of Structure Categories
- ✚ Detailing and General Drawings Preparations (Software Based)
- ✚ Advanced Connection Design
- ✚ Advanced Foundations Design
- ✚ Structure Take Off (Software Based)

1- SAP (STRUCTURAL ANALYSIS PROGRAM)

This Software is Actually Designed for Analysis of Some Types of Structures Like Beams, 2D Trusses, 2D Frame, 3D Frame, Wall, Flat Slab, Shells, Staircase Storage Structure, Underground Concrete, Solid Model, Cable Bridge, Caltrans-BAG, Quick Bridge, Pipes and Plate but Also Can Design Beams, 2D Frames and Trusses, for Rest of Structures It Shows Analysis Result as Color Code that We Can Then Design Structure Basically According of Strength Analysis of RCC Books Manner.

For short in this Program the Following Points Are Supposed to be covered in SAP Training:

- ✚ Basic Information about Structure Analysis and Design
- ✚ Loading Introduction, and Load Combinations According to ACI 318 and ASCE 7-10
- ✚ Seismic Load Application and Introduction of All Criteriaions
- ✚ Linear and Nin-Linear Behavior Systems
- ✚ Single and Multiple Spans Beam Analysis and Design
- ✚ Analysis of 2D Trusses
- ✚ Analysis of Bridge Truss
- ✚ Analysis of Roof Trusses
- ✚ Telephone Stations
- ✚ 2D Frame Analysis and Design
- ✚ 3D Frame Analysis and Design
- ✚ Wall Analysis
- ✚ Slab Analysis
- ✚ Staircase Analysis Including its Manual Designing
- ✚ Other Related Software Information Including Menus

2- ETABS (Extended Three Dimensional Analysis of Building Systems)

This Software is an Advanced Version of CSI Software that Besides of Items Mentioned in SAP Paragraph It Can Design Multiple Types of 3D Structures and Multi-Stories Buildings Including Shear Walls.

For short in this Course the Following Points Are Supposed to be covered in ETAB Training Course:

- ✚ 2D Frames
- ✚ 3D Frames
- ✚ Multi Stories Structures Frame Resisting Systems
- ✚ Multi-Stories Structures Shear Walls (Dual) Resisting Systems
- ✚ Other Related Software Information Including Menus

3- SAFE (SLAB ANALYSIS BY THE FINITE ELEMENT METHOD)

This Software is Actually Designed for Analysis of Some Types of Structures like Two Ways Slab, Flat Slab, Flat Slab Perimeter Beams, Base Mat, Waffle Slab, Ribbed Slab, Single Footing, Combined Footing Mat Foundation but Also Can Design Beams and Other Structures Those Are in Contact with Soil or Other Spring Response Material.

For short in this Course the Following Points Are Supposed to be covered in SAFE Training Course:

- ✚ Two Way Slab Analysis and Design
- ✚ Slab On Grade Analysis and Design
- ✚ Waffle Slab Analysis and Design
- ✚ Single Footing Analysis and Design
- ✚ Combined Footing.
- ✚ Mat Foundation
- ✚ Other Related Software Information Including Menus

4- CSI Bridge

This Software is Actually Designed for of Almost All Bridges Types, So in This Program Most Types of

Bridges Will Be Designed, for Short We Can Summarize as

- ✚ General Overview of CSI Bridges Software
- ✚ Dynamic Vehicle Loading
- ✚ Load Rating Factors
- ✚ Concrete Box Section Bridge Model
- ✚ Design of Steel Girder Bridges
- ✚ Design of Precast Composite Girder Bridges
- ✚ Design of Pre-Stressed Concrete Box Girder Bridges
- ✚ Design of Stage Types Bridges

5- STAAD PRO AND STAAD FOUNDATIONS

This Software is a Complete Set of Design Software that Could Design Almost All Structures Types Including Advanced Foundation Designing, Detailed Steel Connections Design, Reporting and Take off or (Bill of Quantities). For short we can summarize that.

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Engineering Entities Coordination Division

This division operates for the institutional capacity building in the engineering industry of the country. It comprises three departments namely Private Entities Department, NGOs and Public Entities Department and Engineering Unions and Assemblies Department. The Private Entities Department provides consulting services to private engineering entities and as well as acts as a coordinator unit. In coordination with other active bodies this department integrates private engineering entities to:

- Analyze, and rate their capacity Categorize them to carry out specialized tasks
- Assess their internal non-conformities and their problems with the governmental or private setups
- Build their capacities in an institutional context
- Consult them for undertaking healthy competition means while attending competitive tenders
- Introducing their potential to donors whatever government or NGOs

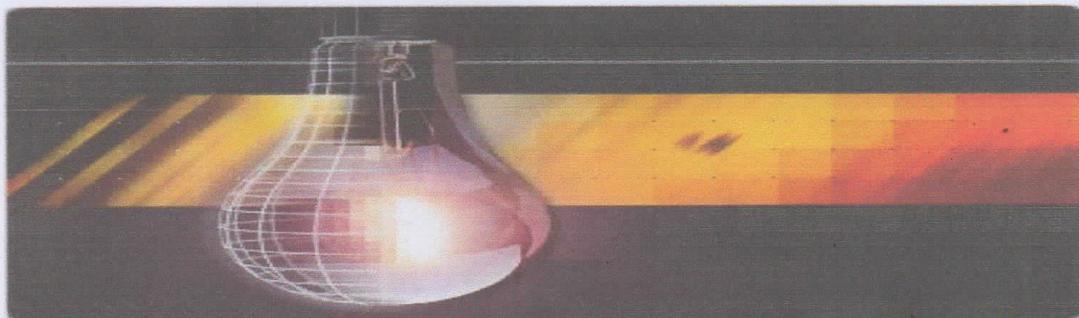
Entities Membership

At a first step we are registering private engineering entities at AEA. This step is crucial because it develops the network of engineers and connects them in a national level. Particularly the membership benefits that the entities will achieve are:

Gold Membership

Benefits:

1. Five individuals from entities will be able to attend conferences and events that are going to be held by or at AEA inside the country.
2. Two individuals from entities are able to attend conferences and events that are going to be held by or at AEA outside the country.
3. Entities have the privileges to register their employees with 50% discount for the capacity building programs that are going to be held by or at AEA.
4. AEA offers 50% discount to the entities in terms of the engineering services that AEA provides.
5. AEA offers 35% discount to the entities in terms of marketing their products and services throughout the website, magazine, and other marketing mediums of AEA.
6. One individual of the entity have the right to nominate himself/herself for the committees that may be structured by the High Council at AEA.
7. Entities have the privileges to receive AEA's free legal and technical consulting services in terms of resolving their claims and disputes
8. Entities have the privileges to receive AEA's free business opportunities seeking services in terms of registering and representing them to credible donor agencies and private business enterprises.



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Silver Membership

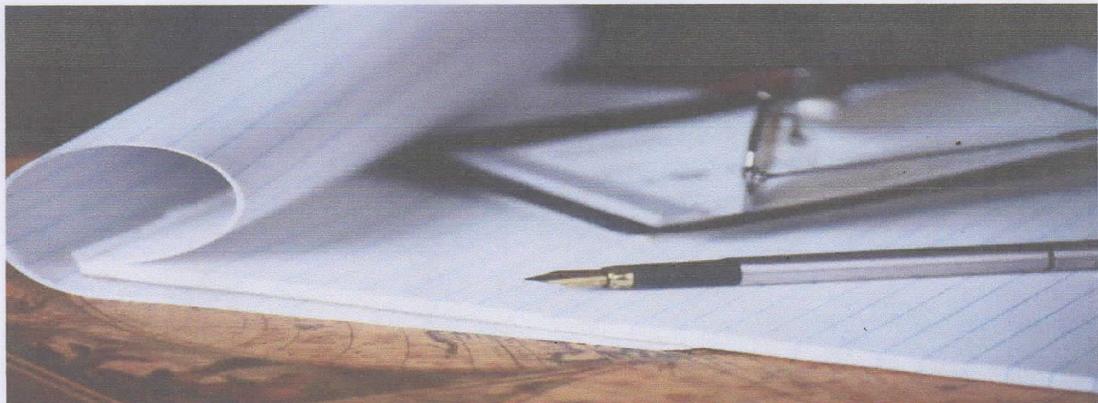
Benefits

1. Three individuals from entities will be able to attend conferences and events that are going to be held by or at AEA inside the country.
2. One individual from entities are able to attend conferences and events that are going to be held by or at AEA outside the country.
3. Entities have the privileges to register their employees with 25% discount for the capacity building programs that are going to be held by or at AEA.
4. AEA offers 30% discount to the entities in terms of the engineering services that AEA provides.
5. AEA offers 20% discount to the entities in terms of marketing their products and services throughout the website, magazine, and other marketing mediums of AEA.
6. Entity has the right to play a significant role in the selection of members of the committees that may be structured by the High Council of AEA
7. Entities have the privileges to receive AEA's free legal and technical consulting services in terms of resolving their claims and disputes
8. Entities have the privileges to receive AEA's free business opportunities seeking services in terms of registering and representing them to credible donor agencies and private business enterprises.

Platinum Membership

Benefits

1. Entities have the privileges to register their employees with 10% discount for the capacity building programs that are going to be held by or at AEA.
2. AEA offers 20% discount to the entities in terms of the engineering services that AEA provides.
3. AEA offers 10% discount to the entities in terms of marketing their products and services throughout the website, magazine, and other marketing mediums of AEA.
4. Entity has the right to play a significant role in the selection of members of the High Council of AEA.
5. Entities have the privileges to receive AEA's free legal and technical consulting services in terms of resolving their claims and disputes
6. Entities have the privileges to receive AEA's free business opportunities seeking services in terms of registering and representing them to credible donor agencies and private business enterprises.



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The NGOs and Public Entities Department cooperates with organizations that are active in governmental context and are concerned with the engineering industry of Afghanistan. Moreover, the contribution of international community in the social and economic development of the country has yet been in accordance to the particular interests of the donor agencies; a significant aim of AEA's Public Entities Department of the Engineering Entities Coordination Division is to bring the approaches of the funding bodies in alignment to the millennium developmental goals that are incorporated in the Afghanistan National Development Strategy's recent draft. Furthermore, AEA has been contributing its part to streamline the efforts of public entities that are active in the development of the legal framework of engineering initiatives; we have organized committees of specialized engineers that take part in the refinement of legal framework development from a technical point of view.

One recently added department in this division is the department for the coordination of activities of the engineering unions and assemblies. This department is concerned with the integration of these unions and assemblies under the cover of AEA so that we could have a unique approach toward the development of the engineering industry of the country.

Particularly, AEA:

- Accompanies Developmental projects organization in terms of over sighting and in this regard we have signed Memorandum of Agreements with many governmental setups
- Advises various Afghan Ministries and independent bodies with regard to the development of National Programs
- Develops services quality improvement programs



Research and Monitoring Division

Other nations may not have the most applicable engineering techniques for rebuilding infrastructure in other countries. Afghanistan, for example, does not have well-documented engineering design and construction standards. Both U.S. and international construction standards may appear logical to use for this purpose. However, it is often difficult, and many times impossible, to meet traditional U.S. engineering design and construction standards in post-conflict areas owing to limitations that include: a scarcity of high-quality materials and construction equipment, a lack of understanding of the terrain and environment, a lack of awareness of available local skills, a lack of skilled labor, and poor socio-economic conditions. A more deliberate and holistic approach is needed in which we consider and integrate the host nation's capabilities and understand their limitations. The majority of infrastructure projects in post-conflict countries are mission-specific. In most cases, once constructed and operational, very little

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emphasis is given addressing maintenance issues. Site-specific and culturally sustainable guidance for maintenance must be implemented as a part of the design process and incorporated into training programs to ensure sustainable, long-term performance or service life of the infrastructure.

The core problems in Afghanistan are poorly documented engineering particularly design and construction standards, as well as a short supply of fundamental engineering knowledge among Afghans. Helping the new Afghan engineers and practitioners in the development of their engineering standards, transferring and sharing with them the fundamental engineering knowledge, and teaching them how to maintain the infrastructure will begin a positive process to rebuild of their region and the entire country. Thus, the Afghans will acquire engineering capability and ownership in their infrastructure.

This division operates in a context of specialized research activities to develop solutions for the core problems mentioned above. The division comprises the Engineering Research and Monitoring Department and the Management Research and Monitoring Department. The two departments have well experienced engineers and practicing managers that are active together design, implement, monitor, and evaluated researches. The researchers undertake research and monitoring activities in the design, construction, planning, quality control, and management process improvement areas of engineering.

The division particularly:

- Accompanies the bodies of huge developmental projects to better off the standards of quality that the outcome of the projects will have
- Gathers local engineering knowledge and existing indigenous examples of sustainable engineering researches by collaborating with local experts and Afghan universities.
- Compiles current in-theater best engineering practices and "lessons learned" by acquiring information on engineering projects
- Undertakes approaches that would refine and develop the engineering codes and standards being practiced in the engineering industry of Afghanistan
- Works with the management committees of national programs to develop approaches that would ensure the quality of work from the view of an engineer
- Assess the core roots of the problems that Afghan engineers have been facing in social, economic and professional aspects of their lives

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Engineering Services

AEA's engineering services are comprehensive in terms of the contemporary engineering disciplines; we offer services through the life cycle of a project, program or other engineering initiative. Besides, AEA offers services in terms of administering the engineering projects or programs.

1. Vertical and Horizontal Structures Surveying
 - ✓ Land Surveying
 - ✓ Hydrographic Surveying
 - ✓ Engineering Survey
 - ✓ Surveying by GPS
 - ✓ GIS Surveying and Mapping
2. Vertical and Horizontal Structures Designing (Architecture, MEP, Civil, and Structure)
 - ✓ Performing the Calculations
 - ✓ Drafting
 - ✓ Development of Shop Drawings
 - ✓ Development of as Built Drawings
3. Projects Budget Management
 - ✓ Cost Estimation
 - ✓ Pricing
 - ✓ Maintenance
4. Projects Planning and Scheduling
 - ✓ Developing Projects Baselines
 - ✓ Developing Projects Bid Schedules
 - ✓ Project Update Schedules
 - ✓ Developing Projects Recovery Schedules
5. Contracts Administration
6. Projects Quality Control and Assurance
 - ✓ Quality Control
 - ✓ Material Testing
 - ✓ Quality Assurance
7. Project Management
8. Program Management
9. Evaluation and Monitoring

Distinguished Engineering Level Program

The distinguishing program of the engineering professionals and practitioners is being undertaken at AEA. In this approach, Afghan engineering professors inside and outside the country are accompanying us. So far since a year we have established all the formalities required in terms of the standard operating procedures. AEA approach for such a national process is based on the need in the Afghan engineering industry and related private and public enterprises. Such an approach that other countries have been undertaking, has not been yet seen in Afghanistan.

So AEA is going to lead this process and elaborate it successfully. Thousands of engineers are being graduated every year from various universities at large cities of Afghanistan and as well as remote provinces. Although, all the universities offer B.Sc degrees to the graduates, but obviously the professional and practical level of understanding of the graduates differ.

To distinguish the interfaces that pin point the levels, we are planning to analyze the potential of each individual in terms, high educations, experience, scientific work, and the results of the written, practical tests and the presentation he/she is going to have.

The Afghan engineers attending this process will have the following benefits:

- According to his/her distinguished level, he/she will have the understanding of his/her privileges he/she deserves in the organization where he is employed
- Distinguished engineers will easily have the opportunity to be placed as an employee
- Shortcomings in terms of his/her knowledge of his particular area of interest of engineering will be explored and he/she will take capacity development courses at AEA so that he/she could eliminate the problem

This approach will definitely affect as a whole the academic credibility of the Afghan professional and academic family, specially the Engineering Industry Family of Afghanistan.



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