

# ECO SCIENCE FOUNDATION (ECOSF)

A catalyst for promoting science technology and innovation in the eco region

## ABOUT ECOSF

In this era of the globalization and knowledge-based economy, the role of Science, Technology and Innovation (STI) is critical to achieve inclusive economic growth and sustainable development. Adequate investment in Science & Technology (S&T) builds strong foundation that helps sustain the economic growth, boost community well-being and integrated development for any nation. Although there seems to be a realization of a demand and supply gap for S&T workforce in the countries of the South but existing efforts are not enough, and there is a long way to bridge this gap. In order to fill this gap, we must consolidate our efforts by developing effective collaboration mechanisms and leverage our limited resources to make significantly large impact without duplication of efforts and wastage of resources. Economic Cooperation Organization Science Foundation (ECOSF) is an intergovernmental organization and a specialized agency of the Economic Cooperation Organization (ECO). Establishment of the Science Foundation was envisaged in the "Treaty of Izmir", the Charter of ECO, and the ECOSF Charter was signed in Islamabad in March 1995 by all the 10-member states, Afghanistan, Azerbaijan, Iran, Kazakhstan, Kyrgyz Republic, Pakistan, Tajikistan, Turkey, Turkmenistan and Uzbekistan. However, the Foundation was established in Islamabad, Pakistan on 20 December 2011,

with holding of the 1st meeting of its Board of Trustees (BOT), the highest decision-making body.

The ECOSF serves as a platform to contribute towards the promotion of research and development in Science, Technology, Engineering and Mathematics (STEM) as well as STEM education to strengthen the science base of future generations and the regional economy of ECO member states. The Foundation is at the cornerstone of Triangular Cooperation (South-South-North) based STI capacity building for development and transfer of technology to bring socio-economic benefits to its member countries.

Despite its relatively young age, the Foundation has established itself into a successful regional STI promotion organization with strong working collaboration with a number of key players with its focus on South-South and Triangular cooperation. ECOSF has undertaken several initiatives that supplement and complement its STI programs with help of its strategic partners to boost STI capacity building and contribute towards regional cooperation and economic integration. It strives to engage youth in all its activities and integrates gender perspective in policies, plans and actions directed towards socio-economic development in line with the ECO Vision 2025 and UN Sustainable Development Goals (SDGs).

## WHAT DO WE DO?

ECOSF aims to promote scientific and technological research with an end goal to raise socio-economic standing of 10 member states. The ECOSF serves as a platform to build a reservoir of highly skilled scientific and technical human resource to carry out scientific and technological research of applied nature and other related activities among its member states in collaboration with International, Regional and National Organizations.

ECOSF pursues the goal of promoting research and technological development for sustainable development and economic growth in the ECO region through the following key objectives:



Development of Human Resource Capacity for science, technology and innovation as well as science education in the ECO region



Strengthening Institutional Capacity in scientific research and technological development among its members.



Scientific, Technological and Research Collaboration and Cooperation among its member states and the developed world.



Exchange (Dissemination) of Information on Scientific and Technological Research and Development through workshops, conferences and meetings etc.

## ECOSF leverages strategic partnership with leading regional & international organizations for promotion of science, technology and innovation in the region

The Foundation believes in developing stronger working partnership with its collaborators and exercises this philosophy in its true spirit of South-South and as well as Triangular Cooperation. Since its establishment, the ECOSF has established strong working collaborations with international and regional organizations. The Foundation is proud to partner with many of most reputable organizations and development partners as listed below:

### 2013

Accreditation of ECOSF as Observer/  
Stakeholder of Intergovernmental Science-Policy  
Platform on Biodiversity and Ecosystem Services  
(IPBES)

### 2014

Asian STI Think Tanks Network (ASTN),  
KISTEP Republic of Korea

### 2015

Asian STI Think Tanks Network (ASTN),  
KISTEP Republic of Korea

### 2016

The Turkic World Educational and  
Scientific Cooperation Organization  
(TWESCO), better known as International  
Turkic Academy, Nur-Sultan, - Kazakhstan

### 2017

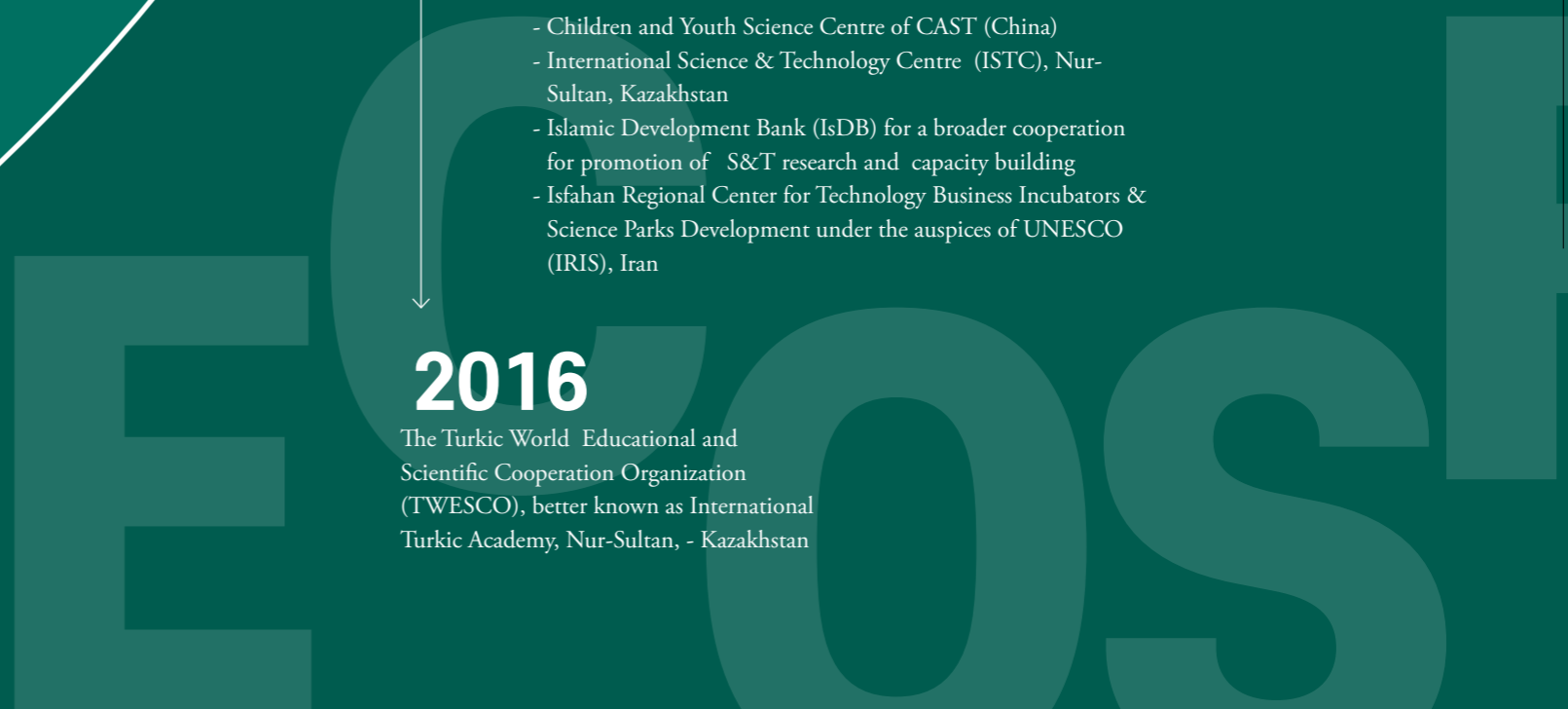
- Children and Youth Science Centre of CAST (China)
- International Science & Technology Centre (ISTC), Nur-Sultan, Kazakhstan
- Islamic Development Bank (IsDB) for a broader cooperation for promotion of S&T research and capacity building
- Isfahan Regional Center for Technology Business Incubators & Science Parks Development under the auspices of UNESCO (IRIS), Iran

### 2018

- Pakistan Science Foundation (PSF), Pakistan
- Tashkent State Agrarian University, Uzbekistan
- Ferdowsi University of Mashhad, Iran

### 2020

- Beijing Technology and Business University (BTBU)
- Sukkur IBA University
- Belt and Road Science, Technology and Innovation (STI) Think Tank Cooperation Network under the auspices Chinese Academy of Science and Technology for Development (CASTED).



## ECOSF SERVES AS THE MEMBER OF PRESTIGIOUS INTERNATIONAL SCIENTIFIC BODIES AND ASSOCIATION

- Intergovernmental Science Policy Platform for Biodiversity and Ecosystem Services (IPBES) based in Bonn, Germany
- Founder member of Asian STI Think Tanks Network (ASTN) and the Asian Innovation Forum in South Korea.
- Member Institute of the Asian Research Policy (ARP) Journal editorial board in 2020, which is hosted by KISTEP
- UNESCO Man and Biosphere (MAB) Founding Member – Belt and Road STI Think Tank Cooperation Network



## ECOSF AUGMENTS HUMAN RESOURCE CAPACITY IN SCIENCE, TECHNOLOGY AND INNOVATION (STI) SECTORS

### ECOSF PROMOTES STI AS A KEY INGREDIENT TO SUSTAINABLE ECONOMIC GROWTH IN THE REGION

The ECOSF fully realizes that there is an interactive relationship between the development of STI and economic growth. Thus, the Foundation has undertaken several initiatives that supplement and complement its STI programmes with the help of strategic partners to boost regional cooperation, socio-economic potential and cultural integration through promotion of STI, science education and literacy in the region.

ECOSF is making efforts to boost science literacy through the exchange of scientists of its Member States in and out of the ECO region and participation in various scientific and technological events. ECOSF puts especial emphasis on

promoting science education and literacy among young students and children of the ECO region. states in collaboration with International, Regional and National Organizations.

Program	Key Milestones	Impact
<b>Inquiry Based STEM Education</b>	Trained over 1,000 Science Teachers in the ECO region – around 650 of Pakistani Teachers, 200 in Iran and 150 in Kazakhstan.	Enhanced interests in science subjects and learning outcomes – over 200 K students benefited
<b>Capacity Building Program</b> ECOSF Priority Areas – Climate Change, Energy, Water, Health and Food Security	Organized over 200 conferences, workshops and training programs. Provided training opportunities to over 2,000 S&T workforces in the ECO Region. Around 1470 of Pakistani workforce	Strengthened S&T workforce and enhanced capacity to address and contribute to the critical and emerging challenges of the ECO region.
<b>Engineering Qualification Standardization, Accreditation and Professional System (EQSAPS)</b>	Improved and developed Standards of Engineering Qualifications in the Central Asian states with help of UNESCO and Pakistan Engineering Council (PEC) in conformity with FEIAP and WA guidelines	Rallied mobility of Engineers of the Central Asian States with other ECO Member Countries.
<b>Belt &amp; Road Science Education Program</b>	Enabled participation of the Students of the ECO region in Belt and Road (B&R) Teenager Maker Camps   CASTIC   Developed Science Curriculum based on Fusion of Civilizations	Expanded exchange, network and value-added capacity of young student in core scientific areas: Artificial Intelligence, Machine Learning, Climate Change, & Food Security
<b>BTBU-ECOSF Joint Training Center</b> on Science, Technology and Innovation	Developed cross-industry and trans-disciplinary international training program to build essential human resource capital relating to infrastructural development among participating countries.	Trained Workforce in Critical Areas of Infrastructure Development, Special Economic Zones, Low Carbon Development and Electric Mobility

The Foundation has organized heaps of international workshops, conferences, science cultural festivals and science summer camps to inculcate the urge among children and the public at large for learning science around us and in the universe.

The Foundation regularly contributes to key thematic areas of agriculture, clean energy, sustainable transport, water and climate change and industrial development amongst the ECO

Member Countries with its technical and scientific advice to the respective Governments.

ECOSF has developed an extensive outreach on SDGs, non-formal science education, science museums, women in science, role of media in promoting science education and linkages between science & sustainable development and the STEM education at various levels from preschool through primary, secondary and tertiary/higher education to lifelong learning

## ECOSF PROMOTES INQUIRY BASED SCIENCE EDUCATION (IBSE) IN THE ECO REGION

Realizing the significant potential of Inquiry Based Science Education– IBSE pedagogy, ECOSF in collaboration with La main à la pâte Foundation of France, the International Science, Technology and Innovation Center for South–South Cooperation under the auspices of UNESCO (ISTIC) Malaysia, the InterAcademy Partnership Science Education Programme (IAP SEP) and the

Islamic Development Bank (IsDB) launched its Capacity Building Programme to promote IBSE pedagogy at schools in the ECO Region. ECOSF launched this Programme in June 2015 from Nur Sultan (Astana), Kazakhstan as one of its flagship programmes in the ECO region This program has been continuing in Pakistan and Iran.

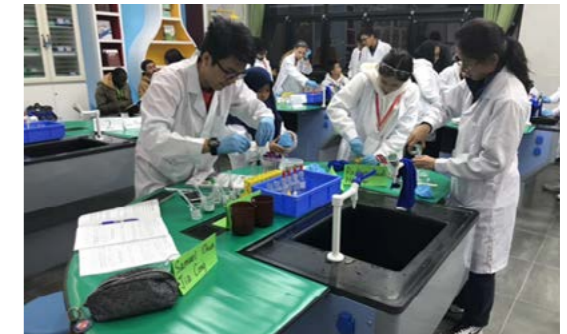


## ECOSF HAS ESTABLISHED COLLABORATION WITH CHINESE S&T INSTITUTIONS UNDER THE BELT AND ROAD INITIATIVE (BRI) OF CHINA FOR PROMOTION OF STI IN THE ECO REGION

The Belt and Road Initiative (BRI) of China is an ambitious effort to improve regional cooperation; and connectivity which is the core determinant to this entire initiative. Thus, the ECO region holds great potential and significance as an important gateway to connect China with the Middle East, South West Asia and Europe and beyond.

ECOSF is bringing its Member States on board under BRI programs of China and helping them to benefit from the expertise and capacity of

Chinese STI institutions, for infrastructure and industrial development in the region.



The ECOSF has developed robust partnership with Children and Youth Science Centre (CYSC) of China Association for Science & Technology (CAST) since December 2017. Under this partnership, the ECOSF has been designated as a Coordinating Center for promotion of STI and Science Education under BRI in the ECO Member States.



Under this initiative, ECOSF has collaborated with CYSC–CAST in organizing a number of mega science events, including four annual Belt and Road (B&R) Teenager Maker Camps, B&R Science Camps, China Adolescent Science and Technology Innovation Contest (CASTIC) and China Adolescent Robotics Competitions (CARC).

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ECOSF in collaboration with the IAP SEP is also contributing to the development of Fusion of One Belt One Road (OBOR) Civilizations Curriculum Design (FoCEd). The curriculum aims to highlight the different aspects of ancient scientific discoveries along the BRI countries.

ECOSF is collaborating with CAST on Science Literacy and Engineering Qualification Standardization & Mobility of Engineers; and with Chinese Academy of Science and Technology for Development (CASTED) for promotion of Innovation under BRI.

## BTBU-ECOSF JOINT TRAINING CENTER ON SCIENTIFIC, TECHNOLOGICAL AND ECONOMIC COOPERATION UNDER BELT AND ROAD INITIATIVE

The Belt and Road Initiative (BRI) is a massive global initiative aimed at connecting international trading partners in the east and the west. The BRI offers a tremendous potential to spur a new era of trade, economic and industrial growth for the countries in the Asia and beyond.



In order to maximize the benefits of BRI, the participating countries require to develop adequate technological workforce and engage in an alliance for promotion of cross-border cooperation in the Science, Technology and Innovation (STI) sectors.

Appreciating the need for skill development and capacity building in key economic sectors, the Beijing Technology and Business University (BTBU) and the Economic Cooperation Organization Science Foundation (ECOSF) launched the BTBU-ECOSF Joint Training Center on Scientific, Technological and Economic Cooperation under Belt and Road Initiative in September 2020. The Center has won the financial support of China Association for Science and Technology (CAST) Program of International Collaboration Platform for Science and Technology Organizations in Belt and Road Countries.

BTBU-ECOSF Joint Training Center aims to promote the sustainable economic and social



development of BRI countries through training in the fields of technology application, industrial economics, S&T standards and science communication. The Center would serve as a strategic training platform, which is deemed to be critical for infrastructure development and socio-economic growth for B&R countries, including the 10 ECOSF member countries.



The Joint Training Center organized its 1st training program on Development and Management of Economic Zones in December 2020 and its second training program on Low Carbon Development and New Energy Vehicles in July 2021.

## ECOSF IS PROVIDING TECHNICAL ASSISTANCE TO THE GOVERNMENT OF PAKISTAN ON DEVELOPMENT OF FRAMEWORK FOR STANDARDIZATION AND COMPLIANCE OF ELECTRIC VEHICLE CHARGING STATIONS

ECOSF has partnered with the UNDP to provide technical support to the Government of Pakistan through Ministry of Energy in the formulation of National Electric Vehicle Policy and its associated Charging Infrastructure. Under this initiative, ECOSF serves as key technical resource for Government of Pakistan to provide strategic insights into market adoption of electric vehicles and development of National Standards and Framework for Electric Vehicles and associated Charging Stations.

In this space, the Foundation has been assisting various National Bodies, including Ministry of Climate Change, National Energy Efficiency Conservation Authority (NEECA), Engineering Development Board (EDB), Pakistan Standards Quality and Control Authority (PSQCA), National Electric Power Regulatory Authority (NEPRA) and Power Distribution Companies (DISCOs) in quantifying benefits, trade-offs, evaluating need assessment, tariff determination with a goal to address key challenges towards electric mobility transition in Pakistan.



## ECOSF AND ISDB PARTNERSHIP - REVERSE LINKAGE DEVELOPMENT PROGRAMME THROUGH SOUTH-SOUTH COOPERATION

IsDB have supported the International Centre for Chemical and Biological Sciences (ICCBS) of the University of Karachi, Pakistan to provide scientific support and capacity building to Al-Farabi Kazakh National University, Kazakhstan in the field of Phytochemical Drug Development.

Likewise, ECOSF also collaborated with IsDB and provided financial and technical assistance to the Government of Pakistan to enhance the capabilities of the Pakistan Meteorological Department (PMD) for better risk assessment and preparedness for natural disasters.

Under this project, ECOSF brought in the technical expertise of Turkey by facilitating Marmara Research Center (MRC) and Turkish Cooperation and Coordination Agency (TIKA) of Turkey to deliver technical support to



PMD for capacity building and human resource development for better disaster risk assessment and preparedness.

## ENGINEERING QUALIFICATION STANDARDIZATION, ACCREDITATION AND PROFESSIONAL SYSTEM (EQSAPS)

Engineers play a lead role in ensuring sustainable development by improving the efficient use of energy, transportation systems and natural resources as well as by improving health and use of data. Engineers can benefit from gaining work experience in different countries; however, the host country often does not recognize their qualification.

Realizing that there is a need for standardization of engineering qualifications in Central Asia, ECOSF is partnering with UNESCO, Pakistan Engineering Council (PEC), Federation of Engineering Institutions of Asia and the Pacific (FEIAP) and the Chinese Academy of Engineering

and Technology of the Developing World (AETDEW) based in Malaysia. Under this program, ECOSF is assisting the ECO Economies particularly those who lack a national accreditation body, to improve and develop the Standards of Engineering Qualifications in those member states, particularly in the Central Asia with its launch in Tajikistan.

This initiative is aimed at harmonization and standardization of the engineering curricula within the region in line with the FEIAP qualification guidelines with technical support of PEC and overall support of UNESCO.

### ECOSF's Scientific Outreach and Publications

