

**FOURTH BSEC ACTION PLAN ON COOPERATION
IN SCIENCE AND TECHNOLOGY
(2022 - 2026)**

I. Introduction

The impact of Science and Technology (S&T) on the sustainable economic development and prosperity is widely recognized. In this respect, the BSEC Member States, based on their rich, long-lasting and common traditions in S&T, are devoting particular attention for the further development and strengthening of that field, both at national level and in the Organization as a whole.

The purpose of the present fourth BSEC Action Plan is to:

- **Renew the commitment** of the BSEC Member States to cooperate in the development of S&T;
- **Reconfirm the policy orientations** for such cooperation, taking into consideration the developments in the policy landscape in the BSEC, but also building on the achievements of and lessons learned from the previous three Action Plans;
- **Propose a series of specific initiatives and tools** that will allow for tangible and result-oriented synergies, increasing at the same time the visibility and effectiveness of the BSEC activities in the field of S&T at national, transnational and international levels.

II. Broader landscape

Guided by the ‘*BSEC Economic Agenda: Towards an Enhanced BSEC Partnership*’, which makes explicit reference to the need to ‘Strengthen Regional Cooperation in Scientific Research and Technology’ (Goal 11), the fourth BSEC Action Plan on Cooperation in Science and Technology (2020-2024) pursues the third BSEC Action Plan on Cooperation in Science and Technology (2014-2018) which was adopted by the Ministers Responsible for Science and Technology of the BSEC Member States (Baku, 3 December 2014) and takes also into consideration the Reports on the implementation of the successive Plans of Action, presented by the Country-Coordinators of the BSEC Working Group on Cooperation in Science and Technology, as well as information provided by BSEC Member States on developments at national level addressing Action Plan recommendations.

Since the adoption of the third BSEC Action Plan on S&T (2014-2018) there have been a number of important developments in the policy and operational landscape in the BSEC region that have significant implications for cooperation in various fields including Science and Technology.

The COVID-19 outbreak has underscored the pressing need for countries to focus more on elevating science, technology and innovation (STI) in both policy and practical terms to strengthen regional cooperation to respond to, overcome and recover from the COVID-19 pandemic and to build preparedness for future similar crises.

The EU has released the third implementation report of the Black Sea Synergy Initiative (2007), the *Joint Staff Working Document “Black Sea Synergy: review of a regional cooperation initiative (2015 - 2018)”* that assesses the impact of the work done in the wider Black Sea region between 2015 and 2018. In the report, *Science, Technology and Innovation (beyond marine)* is identified as a priority field that *made some and/or potential progress, but receives interest from the partners in the region.*

In addition, focusing on blue growth, marine research and innovation, and the preservation of the marine environment, the *2018 Burgas Ministerial Declaration “Towards a Common Maritime Agenda for the Black Sea”* (31 May 2018) and the *2018 Vision Paper towards a Blue Growth Initiative for Research and Innovation in the Black Sea* are key policy documents for more structured and pragmatic cooperation based on mutual priorities.

In parallel to the aforementioned developments at policy level, at operational/project level significant initiatives have been or still are under implementation aiming at enhanced cooperation between the BSEC Member States and the EU Member States in the field of S&T.

i) H2020 Project ‘Black Sea Horizon – Bi-regional STI Dialogue’ (2015-2018)

The Black Sea Horizon Project involved a total of 19 partners, out of which 13 were from the BSEC Member States (Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Republic of Moldova, Romania, Russian Federation, Turkey, Ukraine), as well as the International Centre for Black Sea Studies (ICBSS). Through its various activities, events and publications, it aimed a) to sustainably enhance cooperation on science, technology and innovation (STI) focusing on the Black Sea region, and b) to contribute to the enhancement of research on STI in the Black Sea countries.

The BSH Project’s key deliverable is the *‘Black Sea Cooperation Programme in Science, Technology and Innovation (BSCP)’* which sets the basis for enhanced STI cooperation in a flexible and result-oriented way for the benefit of the Black Sea countries

ii) Strategic Research and Innovation Agenda for the Black Sea (SRIA) (Bucharest, 8 May 2019)

The SRIA aims to advance a shared vision for a productive, healthy, resilient and sustainable Black Sea by 2030, while considering the special and unique ecosystem characteristics of it; in particular, its unique biodiversity, cultural heritage sites and the new local, national and transboundary policy measures.

iii) Common Maritime Agenda for the Black Sea (CMA) (Bucharest, 21 May 2019)

The Common Maritime Agenda for the Black Sea (CMA) is a sea basin initiative that aims at supporting regional cooperation for a more sustainable Blue Economy in the Black Sea and it is developed in the broader framework of the Black Sea Strategy.

The CMA is a unique framework of regional cooperation on the Blue Economy and it was endorsed on 21 May 2019 at Ministerial level. It is complemented by its scientific pillar, the Strategic Research and Innovation Agenda for the Black Sea (SRIA).

The Organization of the Black Sea Economic Cooperation (BSEC) is a consultative body of the CMA Steering Group.

iv) Black Sea Virtual Knowledge Centre (BSVKC)

The Black Sea Virtual Knowledge Centre (BSVKC) is a project supported by the European Commission (DG Maritime Affairs and Fisheries) and managed by the Permanent International Secretariat of the Black Sea Economic Cooperation Organization (BSEC PERMIS) for a duration of 24 months. The objective of the BSVKC is to provide a centralized platform for information on the Blue Economy in the Black Sea and to improve synergies between stakeholders and Blue Economy related projects in the region.

Furthermore, there are possibilities for the BSEC Member States, for the Permanent International Secretariat of the BSEC (BSEC PERMIS) and the BSEC Related Bodies to participate in ongoing international programmes, such as the EU's research and innovation framework programme, 'HORIZON EUROPE' (2021 2027) .

The BSEC Member States, the BSEC PERMIS and the BSEC Related Bodies should promote the development of the synergies between the organization's own activities and the ones foreseen in the existing or future projects, including the formulation of proposals for mutually beneficial joint actions.

III. Reconfirmation of Policy Orientations

In the course of the past years, progress has been observed along the lines drawn in the third Action Plan (2014-2018). However, there is a need to reconfirm the most pertinent ones, taking into account the broader landscape and the achievements so far, in the fields of *Human resources, Capacity building, Research infrastructures* and *Innovation*.

Human resources

The BSEC Member States possess long tradition in the field of Science and Technology and their scientific communities can present notable accomplishments. There is a further need to stimulate and strengthen the scientific communities that constitute an essential element for a sustainable growth and economic development, in order to contribute to the reduction of isolation of the researchers and mitigate the negative effects of 'brain-drain'.

In this respect, the following policy orientations and activities should be addressed in priority:

1. Stimulation and enhancement of the performance of the local research personnel through intensive internationalization activities such as mobility schemes, participation in scientific events, promotion of international networking and participation in international projects. In that context, the use of the numerous bilateral cooperation schemes among the BSEC Member States, BSEC PERMIS and the BSEC Related Bodies constitutes a tool of paramount importance.
2. Support of formal and informal learning, education and training to allow for acquisition of new skills and the development of knowledge.

3. Promote digital literacy and the use of technologies benefiting from the fourth industrial revolution, to empower the future researchers and professionals, esp. the youth.
4. Increasing the recruitment of researchers, esp. of the youth and women, and introduction of incentives for pursuing careers in RTD locally in order to avoid further brain-drain. Past experience from apprenticeship schemes in private companies allowed for skills and knowledge acquisition and the development of entrepreneurial skills.
5. Promote STI consciousness and awareness, esp. for the youth, through the establishment of award winning programmes for young scientists and researchers. The award programmes could be combined with a ‘Black Sea Researchers Week’; similar to the ‘European Researchers Night’ that allows free access of students to research institutes. Such initiatives have already been proposed by the current Country – Coordinator (Republic of Turkey) and the previous Country-Coordinator (Russian Federation), that need to be further continued and strengthened.

Capacity building

The fourth BSEC Action Plan (2020-2024) envisages the development of targeted activities to contribute to STI capacity building with the aim to address any challenges and to improve the efficiency of STI systems in the Region, in order to accommodate the needs of a changing environment.

Capacity building activities should address national and regional priorities, included in national STI policies or other key documents. Actions promoting and strengthening education and capacity-building in Science and Technology should be targeted and tailor-made, to address different stakeholders active in the establishment of a knowledge-based society, such as national academies, policy-delivery and policy-making agencies (e.g. research councils), science foundations, research organizations and individual researchers.

Cooperation and coordination at regional and international level will be essential and to this end, synergies should be explored. In this respect the following activities could be considered:

1. Further promoting the implementation of Policy Mix Peer reviews assessing the performance and potential of the national research systems, often opening the way for structural STI reforms.
2. Implementation of evaluation procedures such as Benchmarking exercises, international evaluations, etc. for research centres and institutes based on internationally accepted standards. Such exercises have already been implemented in certain countries with positive outcomes.
3. Promotion of lifelong learning and thematic training schemes for policy makers, researchers and other interested stakeholders on the state-of-the-art STI policies, recent developments and methods, new instruments for modern STI policies etc.
4. Strengthening mobility of researchers, esp. the youth, through grants and twinning activities, to stimulate networking and synergies, to contribute to new knowledge and to facilitate access to advanced research infrastructures.

Research Infrastructures

The research infrastructures in the BSEC Member States are gradually improving as a result of national investments and/or grants from national and international donors. However, there is still a lot to be done in order to reach a competitive level that will support the internationalization of the research systems.

At the same time, due to the complexity and the continuously increasing costs for both high- and mid- level research infrastructures, innovative type of infrastructures are under development worldwide including ‘distributed/multi-site’ research infrastructures, ‘virtual’ research infrastructures, etc. In that respect, issues such as interoperability, data sharing, open access, etc. are becoming essential when managing and operating research infrastructures.

The *e*-infrastructures constitute a specific type of infrastructure providing a generic ICT platform for contemporary research, which increasingly requires handling large volumes of data (storing, transferring, analyzing, processing, etc.) for a wide range of scientific disciplines. In that respect, the national research and education systems in the BSEC countries play a key role and their availability and constant upgrading, as well as the provisioning of computing and storage resources for manipulating the generated data is of paramount importance. Where relevant, coordination and synergies among the BSEC Member States should be created and the *e*-infrastructure resources should be pooled at national and regional levels.

In that context the BSEC Member States should:

1. Further promote the development or renewal of national research infrastructures. In doing that, in-depth consultation processes need to take place in order to prioritize the national needs, possibly through the development of national research infrastructure roadmaps;
2. Coordinate their efforts at BSEC level, possibly through the elaboration of a regional research infrastructure roadmap, for the development of research infrastructures of regional importance, in order to avoid duplications and unnecessary spending;
3. Ensuring the coherent development of research infrastructures in the BSEC with major international initiatives such as the ESFRI Roadmap, in order to constitute the BSEC an integral part of major international developments;
4. Promote the adoption of state-of-the art approaches in research infrastructures management and operation. In that respect, awareness campaigns and trainings on issues such interoperability, data sharing, open access, etc. should be envisaged;
5. Enlarging, strengthening and ensuring the sustainability of the national and regional computing infrastructures including Grid and High-Performance Computing, as well as emerging Cloud Computing and Data Infrastructures paradigms, and their relationship with pan-European initiatives.

Innovation

The optimum exploitation of the research results and in particular their transformation into innovative products and processes remains a key priority in all the BSEC Member States due to its direct positive impact on employment, economic growth and prosperity. In addressing this priority, all the BSEC Member States already devoted particular efforts to the development of innovation-related structures such as science and technology parks and incubators.

In addition to that the international experience shows that several other factors are decisively influencing the innovation capacity. These factors (‘Innovation framework conditions’) include legal barriers, such as IPR and industry – academia relations, innovation financing, such as venture capitals and business angels. In this context, sharing experiences and good practices within the BSEC and close cooperation with innovation forerunners in the EU and beyond, is essential. Activities to support innovation should be cross-sectoral, and not limited

to technological innovation; social, marketing and process innovation are very important as well. To this end there is a need for:

1. Assessment of the performance of the national innovation systems and of the innovation-related structures.
2. Networking of innovation units at a regional level and with similar international structures, including those in the EU, to intensify the exchange of information and best practices.
3. Creation of mechanisms to support and promote start-ups and innovative businesses.
4. Support activities for cross-border clustering to stimulate the setting-up of clusters among companies with similar or complementary needs to promote research-based innovation.
5. Organization of training activities for specialists and managerial personnel involved in innovation structures.
6. Support of students, graduates and young researchers to gain practice and knowledge through work placements and trainings.

IV. Specific initiatives and tools

In addition to the aforementioned objectives in terms of Human resources, Capacity Building Research Infrastructures and Innovation that need to be pursued and implemented at either national or regional level, there is a need to implement a series of initiatives that will provide stronger visibility to the scientific and technological cooperation among the BSEC countries.

Among such initiatives the following could attract particular attention:

- BSEC S&T Webpage

In order to make more visible and further promote the cooperation among the BSEC Member States in the field of S&T there is a need to establish a dedicated information point in the form of a BSEC S&T Webpage. Such an S&T specific Webpage will significantly contribute to the dissemination of the activities and potential of the BSEC region in the field of STI.

- Registry of BSEC Research Infrastructures

In view of the importance of the coordination among the BSEC countries in terms of research infrastructure renewal and development, the introduction of such a Registry will:

- Provide an overview in order to promote the capabilities of the BSEC as a whole;
- Promote the optimal use of the available infrastructures by all the scientific community in the BSEC;
- Facilitate the identification of needs for new infrastructure development, paving the way for the development of a research infrastructure Roadmap at regional level and in a compatible/complementary way with the ESFRI Roadmap and other international initiatives;

- Registry of BSEC innovation related structures

The development of such a Registry has already been initiated and needs to be further continued and strengthened.

Such a Registry will support the efforts undertaken at the BSEC level for the promotion and strengthening of innovation in the region. More specifically, the Registry will:

- Provide an overview of the innovation related structures in the region;
- Promote contacts, networking and exchange of good practices among these structures;
- Facilitate the organization of training and other capacity building activities at regional level;
- Facilitate the identification of needs for additional innovation related infrastructures at both national and regional levels.

The development of such a Registry has already been initiated by the previous Country-Coordinator (Russian Federation) and needs to be further continued and strengthened.

- Support to projects

a) Project Development Fund

The rehabilitation and the successful operation of the Project Development Fund (PDF) will constitute a tangible evidence of the willingness of the BSEC Member States to jointly fund and implement concrete research projects. It is however obvious that in a period of scarce public funding the research projects the Fund could support will decrease and as a result its impact will be limited. Additional efforts are needed to find a solution for the replenishment of the PDF.

b) Project Management Unit

The creation of the Project Management Unit (PMU) is considered to be an important step to support BSEC's endeavour to improve its project output and to promote good practices in project management. Its establishment was evaluated as a necessary step to close the gap between the organization's focus on projects and the limited internal project management capacities. The PMU was also defined as an important tool to improve the organization's position in the competition for funding and to attract donor and partner organizations for joint project activities.

The Council of Ministers of Foreign Affairs of the BSEC Member States (Varna, 19 June 2014) "welcomed the creation of a Project Management Unit (PMU) within the BSEC PERMIS and agreed to the Guidelines of the PMU. The Council reiterated the project-oriented dimension of the BSEC activities and invited the Member States and BSEC PERMIS to implement the Guidelines with a result-oriented approach." The Member States are invited to submit projects in S&T in compliance with the PMU Guidelines.

c) Black Sea Project Promotion Facility

The launch of the "Black Sea Project Promotion Facility" is considered to be an important step towards the project-oriented cooperation envisaged by the BSEC Members States.

The BSPPF was established through a voluntary contribution of 1 million US Dollars by the Russian Federation to the BSEC PERMIS, following the signing of a Donor Agreement between the Donor, the BSEC PERMIS and the BSTDB and of a Cooperation Agreement between the BSEC PERMIS and the BSTDB. The creation of this facility is an important contribution to the project management capacity of the BSEC Organization and is open to contributions by additional donors.

d) Joint Research Calls

Joint Research calls have been well developed among the BSEC Member States, as well as with EU/MS, either on bilateral or on multilateral levels. The fourth BSEC Action Plan proposes to further pursue and enhance such practice among the BSEC MS and EU/MS focusing on regional research priorities that are partially covered or not covered at all by past or existing cooperation schemes. Such practice will allow for greater visibility and cooperation among the BSEC research and scientific communities. The Member States are invited to consider such practice in the future, for the promotion of a project-oriented cooperation with tangible results.

- Synergies and support to multilateral projects and initiatives

Several multilateral projects and other relevant initiatives are under implementation supported by external funding sources, such as the Black Sea CONNECT Project, and involving many BSEC Member States, BSEC PERMIS and the BSEC Related Bodies. These actions are highlighting on one hand the dynamics of the research community in the BSEC Member States and, on the other hand, the interest of external funding institutions for the region.

BSEC should seek to maximize the synergies with them and should provide the necessary support in terms of e.g. sharing of data and good practices, participation in relevant events, etc. in a mutually beneficial way. More specifically such multilateral horizontal actions should be considered as a tool for BSEC for the identification of strategic partnerships in selected fields of S&T resulting in an increased participation of scientists from the region in funded projects and national programmes of science and technology.

In parallel, information from all actions of this type addressing the region could be uploaded in the BSEC S&T Webpage and, vice-versa, important BSEC developments in the field of S&T should be disseminated through the actions' communication channels (websites, newsletter, etc.).

- Bilateral cooperation programmes

The numerous bilateral cooperation programmes constitute an undeniable capital of the BSEC Member States and of the BSEC as a whole. Despite the incontestable national prerogatives on their strategy and content, such programmes should be further promoted and an increasing awareness on their functioning should be encouraged. Wherever possible, mobility towards BSEC research infrastructures and BSEC Innovation related structures should be supported through these programmes.

In that respect, information on new calls for proposals, on scientific events (conferences, workshops, fora, etc.) organized under these programmes could be communicated through the BSEC contact persons, through the forthcoming online BSEC Newsletter, and uploaded to the BSEC S&T Webpage.

- Horizontal issues

STI cooperation in the Black Sea Region should be addressed in a cross-sectoral, interdisciplinary approach, with a view to achieving optimum results in scientific research, innovation and cooperation.

Consequently, the following horizontal issues should be taken into consideration when developing targeted actions and policy recommendations:

- Necessity for interdisciplinary approach: The apparent sectoral interconnection in STI cannot be left out of any existing or future cooperation patterns, as scientific research and results of one discipline may contribute significantly to the progress of another and/or the technological evolution in one field might be dependent on current research in a different one.
- Increase of coordinated action among the BSEC Member States: The coordination of STI initiatives already developed or under development by the Member States is imperative in order to avoid the time- and resource- consuming duplication and overlapping of activities with similar objectives.
- Gender balance: Women scientists constitute a valuable human resource for the region that remains untapped. Any future cooperation schemes, actions or policies, should ensure the sustainable development of human resources by promoting gender equality and equal opportunities for all.

V. Sources of Funding

It is not envisaged at this stage to have a dedicated budget at the BSEC level allocated to the implementation of the fourth BSEC Action Plan. The funding for relevant activities will be provided on a project-by-project basis from the currently available national and international financing schemes or a combination of them. It should also be noted that the participation in the foreseen initiatives should always be on a voluntary and variable geometry basis for the BSEC Member States, reflecting their national views and priorities.

In order to facilitate the access to, and rational use of, the available sources of funding, the following measures are recommended:

- i) Promoting the dissemination of relevant information concerning the operation of the BSEC Project Development Fund and the Guidelines for the BSEC Project Management Unit, including the technical requirements for accessing various sources of funding (the European Union Programmes, national programmes in science and technologies, other financial instruments for sub-regional and bilateral activities under EU programmes, development aid programmes administrated by various United Nations agencies, the World Bank and other IFIs, bilateral assistance schemes, private foundations, etc.), with the support of the BSEC contact persons and information multipliers, to prospective users throughout the BSEC region;
- ii) Encouraging co-funding schemes for joint programs and projects by partner countries, allocating funds to virtual or real common pots;
- iii) Promoting modes of funding combining national, regional, EU and other international funds and exploring PPP models especially in the field of research infrastructures.

VI. Implementation, Monitoring and Evaluation

The BSEC Working Group on Cooperation in S&T, as a permanent subsidiary body of BSEC, shall monitor the implementation of the fourth Action Plan and submit regular progress reports to the BSEC Committee of Senior Officials, the Council of Ministers of Foreign Affairs and to the Ministers responsible for Science and Technology of the BSEC Member States. The practical steps envisaged to that end could include the following:

- i) The Working Group will engage, on a regular basis, in exchange of information and practical cooperation with other BSEC Working Groups in related spheres of activity in order to provide better coordination and to create new synergies for the implementation of the fourth Action Plan;
- ii) The Working Group, at the initiative of the Country-Coordinator or the Chairmanship-in-Office of BSEC, should prepare an evaluation report with a view to convening a mid-term meeting of the Ministers in charge of Science and Technology of the BSEC Member States to review progress in the implementation of the fourth Action Plan and to chart the way forward;
- iii) The European Commission in its capacity as Observer to the BSEC shall be invited to attend the meetings of the Working Group on Science and Technology in order to exchange views and identify synergies between the fourth Action Plan and the EU Research and Development Programmes and initiatives.

VII. Duration and Revision of the Action Plan

The duration of the fourth BSEC Action Plan shall be four years. It is subject to revision by the Meetings of the Ministers in charge of Science and Technology, to be endorsed by the Council of Ministers of Foreign Affairs of the BSEC Member States.