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REPORT*

"Development of National Innovation System in the BSEC Member States"

Rapporteur: Mr. Nikolay KOLOMEITSEV, member of the Committee (Russian Federation)

I. INTRODUCTION

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1. The present development of the world economy is characterized by high pace of scientific and technological progress and global intellectualization of research and development. Research based on the latest developments, their promotion to the world markets, organization of international cooperation in scientific and manufacturing sphere has formed a model for the development of modern economy. At present, the share of innovative technologies in developed countries is about 70-80% in gross domestic product (GDP) growth rate. These countries harbour about 90% of the scientific potential of the whole world. The high-tech production of the developed countries in the markets takes 80% totalling to 3-4 trillion dollars. According to the World Bank data, in the most developed region of the world (North America) human and related innovation factors determine 76% of the development level.
2. One of the key factors for sustainable growth for the countries and the world economy is national innovation system (NIS). Interaction of national innovation systems contributes not only to the development of the world economy but also leads to the enrichment of national innovation systems, production of new modern technologies with major task to ensure a higher level of competitiveness, improvement of business climate in the country and modernization of economy. The tendencies of the world economy require the creation and continuous improvement of the national innovation system.
3. The document **"The BSEC Economic Agenda - Towards an Enhanced BSEC Partnership" adopted in Istanbul on 26 June 2012** by the Heads of State and Government of the BSEC Member States emphasizes that the human resource development, the capacity building aimed at facilitating research and technology through innovation are priority areas of the BSEC Agenda.
4. **On 3 December 2014 in Baku** the Ministers of Science and Technology of the BSEC Member States adopted the **Declaration** stating that science and technology are major assets for sustainable social and economic development and that the BSEC Member States, based on their rich and long-lasting tradition, are willing to devote particular attention for the further development and strengthening of that field, both at national level and in the Organization as a whole.
5. The Forty-Eighth meeting of the Economic, Commercial, Technological and Environmental Affairs Committee held in Tbilisi on 11-12 April 2017 took the decision to discuss "Development of National Innovation System in the BSEC Member States" as the main issue of the agenda of the Forty-Ninth Meeting.
6. The Report uses information provided by the national delegations of Armenia, Azerbaijan, Bulgaria, Greece, Moldova, Romania, Russia, Serbia, Turkey and Ukraine. In addition, the reference material has been obtained by the PABSEC International Secretariat from the relevant Internet sources.

II. DEVELOPMENT OF NATIONAL INNOVATION SYSTEMS IN THE WORLD

7. At present innovation is the driving force of the world economy and thus the national welfare depends on the existing innovation strategy, which is based on an effective national innovation system. Innovation is a tool ensuring accumulation of wealth through the initiatives of individual subjects of innovative activities and develops the intellectual market ensuring the flow of national and foreign investment into the knowledge based economy.
8. Transition of the economy to an innovative type of development is impossible without establishment of a competitive national innovation system, which is the institutional basis for innovative development of national economy with necessary conditions for effective

scientific, technological and innovation activities in the country. At the same time an important role is assigned to economic, political and other social institutions that influence innovation - national financial system, legislation on registration of enterprises and protection of intellectual property, pre-university education system, labor markets, culture and special development institutions.

9. The basis for the creation of a national innovation system in the context of national innovation policy is formed with favorable legal, institutional and economic conditions for effective use of the latest scientific, technological and technical achievements in the production. The main tasks of the national innovation system are the creation, production and development of high-tech competitive products; creation of the necessary favorable conditions for the effective capital assets modernisation; creation of conditions for interaction between business, science and production with the aim to increase innovation capacity.
10. The existing in the world national innovation systems can be divided into four types: "Euro-Atlantic", "East Asian", "Alternative" and "Triple Helix".
11. ***"Euro-Atlantic"*** model is a model of a complete cycle of innovation - from the emergence of innovative ideas to the mass production of the final product. In the countries using this model, usually presented all components of the structure of the innovation system: fundamental and applied science, research and development, prototyping and launch them into mass production.
12. ***"East Asian"*** model is a model of innovative development in the innovation cycle that lacks the step of forming the fundamental ideas. The countries following the "East Asian" model are oriented on export of high-tech products. In order to ensure innovation development they tend to borrow technology from the countries that follow the "Euro-Atlantic" model. Financing of innovation is carried out mainly by the state. The access to other types of financing, including venture capital is limited (long-term high-risk private investments into the capital share of new promising small high-tech companies). Scientific personnel, similar to the innovative ideas, are attracted from all over the world. They are provided with necessary conditions for effective work and life.
13. ***"Alternative"*** model of innovation development predominantly used in agricultural countries that do not have significant potential in the field of fundamental and applied science, and do not have rich reserves of raw materials, processing technology, the sale of which could form the basis of national competitiveness. These countries in their innovation policies focus on training in the fields of economics, finance, management, sociology and psychology of labor, as well as the development of certain sectors of industry.
14. The model of the ***"Triple Helix"*** describes the interaction of the three institutions (science-state-business) at every stage of the creation of innovative products. In this model the leading role assigned to universities, which are converted into entrepreneurial universities or universities of industrial type, applying knowledge in practice and putting the results in new educational discipline.
15. Despite the dramatic differences, these models currently function as innovation activity rating indicators of the countries. The respective model is determined on the basis of the existing level of economic development and development of education system and science.
16. According to the **Global Innovation Index (GII) 2017** prepared jointly by the Cornell University, Business School and Research Institute INSEAD and the World Intellectual Property Organization (WIPO) (http://www.wipo.int/publications/en/details.jsp?id=4193&plang), the leading innovation countries are Switzerland, Sweden, the Netherlands, the United States and the United Kingdom. In this Index the BSEC Member States occupy the following places: Bulgaria-36, Romania-42, Turkey-43, Greece-44, Russia-45, Ukraine-50, Moldova-54, Armenia-59, Serbia-62, Georgia- 68, Azerbaijan-82, Albania-93.

17. The 2017 GII encompasses 127 countries, representing 98% of global GDP and 92% of the world's population. The Index uses 81 indicators of innovative activity, which are grouped into seven main pillars: 1) institutions, 2) human capital, 3) infrastructure, 4) market sophistication, 5) business sophistication; 6) knowledge and technology outputs; and 7) creative outputs.
18. Formation and development of a national innovation system for each particular economy is a long-term process, based on a business and state interaction, which fulfils their traditional and acquired functions. Leading positions are taken by countries with a high scientific and educational potential and are capable of introducing innovative production. This task is carried out through well-established ties between science and business and intensification of state innovation policy.
19. Investments in innovation are important precondition for increasing the pace of long-term economic growth in the countries throughout the world. Before the 2009 crisis, spending on **research and development (R & D)** grew by about 7% per year. The indicators of the GII show that in 2014 global R & D expenditures increased by only 4%. This was the result of slowdown of economic growth in emerging markets and reduction in R & D spending in high-income countries.
20. Innovation is key to achieving each of the Sustainable Development Goals. Therefore, it is essential to track R&D investment in the knowledge, technology and thinking that drives innovation in countries. SDG 9 calls on governments to promote sustainable industrialization and innovation by ramping up spending on R&D and increasing the number of researchers. Both indicators are featured in the new UNESCO Institute of Statistics (UIS) data tool entitled "How much does your country invest in R & D?"
21. The top five R&D performers in absolute terms (R&D expenditure) are: United States followed by China, Japan, Germany and South Korea. But the ranking changes dramatically according to the data that is used to monitor SDG 9 (R&D expenditure as a percentage of GDP): South Korea is the world leader followed by Israel, Japan, Finland and Sweden. The European Union (EU) targets to raise overall R&D investment to 3% of GDP by 2020.

III. EXPERIENCE OF THE EUROPEAN UNION

22. Although the formation of the European innovation system practically began in 1995 with the adoption of the document **"The Green Paper on Innovation"**, which emphasizes the need to shift the focus in the sphere of science and technology from creating knowledge to its application, the unification of the European national innovation systems as a single policy started with the program for creating knowledge infrastructure, fostering innovation and economic reform, modernizing social support systems and reforms stipulated and defined at the meeting of the European Council in 2000.
23. In recent years, the leading place among interstate innovation networks is taken by the **European Business Network**, created for coordination of the activities of national business centers, support of their participation in programs and projects, networking development, and the Independent Association of Professionals in the Field of Technology Transfer and Innovation, which provides services for finding European partners for technological cooperation, facilitating the implementation of projects, searching information on regional innovation development, organization of training programmes, conferences and seminars.
24. **The European Business Angel Network** plays an important role in financing innovations in the EU along with the European Investment Fund, which is the major financial institution supporting the development of small and medium-sized business. Business

Angel Network is independent funding group for early stage investments. An important issue is state support or private capital of so-called "start-up" projects that can turn into an important future tool for technological progress and thus helping developing economies.

25. The evaluation of the innovation potential of the EU countries is carried out on the basis of 29 indicators of the European scale of innovation and allows to determine the strong and weak sides of innovation policy and factors that stimulate innovation.
26. The European Commission defines the strategic objectives of innovation development and coordinates the activities of the EU countries in this respect. The European Union has made significant progress in creating an innovative economy, having consistently followed the main stages of the formation of national innovation system be means of strengthening the role of state regulation of innovative development. National governments and supranational executive bodies of the European Union elaborate legal, organizational and economic mechanisms conducive to the formation of a favorable innovation environment.
27. At present the European Union implements the strategy "Europe 2020", which declares the following ambitious goals: increasing employment rate of the population and innovative activity; improvement of the quality of education; social integration; solving problems related to climate change and the shortage of energy and other resources. Seven main initiatives have been put forward to achieve these goals including the scientific and technological initiative **"Innovation Union".**
28. The Innovation Union initiative aims to provide access to research funding sources in Europe, which creates the conditions for the transformation of innovative ideas into products and services leading to economic growth and creation of new jobs. It aims at elimination of factors that hamper attraction of private-sector investment in research, development and innovation, by creating a European Research Area. The pan-European framework program "Horizon 2020" which unites the EU framework programs for research and development, competitiveness and innovation and which was launched in 2014 is called upon to make significant contribution to the achievement of the goals of the "Innovation Union".

IV. DEVELOPMENT OF INNOVATION SISTEMS IN THE BSEC MEMBER STATES

29. In **Armenia** in 2006-2007 the Law "On State Support of Innovative Activities" and several government decisions were adopted that constitute the legal framework for innovation in the country. In 2011 the Government of the Republic of Armenia approved the Concept of the Initial Strategy for the Formation of Innovative Economy with the aim to turn Armenia into one of the global research and development centers through formation and development of individual components of the national innovation system. Within the framework of the strategy several projects are being implemented in various spheres: legal, education, physical and financial infrastructure, development of business skills.
30. At present a new strategy for the development of the innovation sector in Armenia is being elaborated, which will include all the main steps and measures for further development of the innovation sector in the country. This includes strengthening of ties between the scientific and educational bloc and business, development of new types of institutes for financing scientific and technical activities and innovative entrepreneurship and the internationalization of scientific and technological achievements of local engineers, programmers and other professionals and companies in high-tech sphere in Armenia.
31. The tasks of the country's technological development and promotion of innovative business are enshrined in the Government's Plan of Action in the period from 2017 to 2022, which envisages establishment of competitive advantages in the country, including increase of the potential of high technology production.

32. Starting with 2013 in Armenia operates the venture fund, which finances innovative ideas of technology start-ups in the fields of healthcare, information and telecommunication technologies, engineering, materials science and environmentally friendly technologies. The competitions are regularly organized and the respective innovative start-ups receive grants to implement innovative ideas.
33. The main challenges for the further development of this sphere are: strengthening ties between the scientific and educational bloc and business, developing new types of institutes for financing scientific and technical activities and innovative entrepreneurship, and internationalizing scientific and technological achievements of local engineers, programmers and other professionals and companies in high-tech sphere in Armenia.
34. In **Azerbaijan** the State Agency for the Provision of Services to Citizens and Social Innovations under the President of the Republic of Azerbaijan, which was established on the basis of the Decree of the President of the Republic of Azerbaijan No 665 of 13 July 2012, provides integrated management of the centers named "ASAN Xidmət" (accessible services) and ensures coordination, monitoring and evaluation of the activities of government employees engaged in the service center activities, provides mutual integration of information networks of government agencies, accelerating the organization of e-services and improving the respective management system.
35. At present, there are 11 "ASAN Xidmət" service centers, 5 of which are established in Baku, and the remaining 6 in the regions. Regional services provide assistance to the population in 54 regions. The "ASAN Xidmət" service centers provide 112 state services by 10 state agencies and 138 functional services from 29 private structures thus 312 services in total are provided to the citizens in every center.
36. With the aim to provide services rendered by the "ASAN Xidmət" service centers to the citizens without leaving their location at residence, work or stay, as well as to the population of the regions without such centers, from 1 June 2013 the mobile "ASAN Xidmət" services are provided by buses equipped with the necessary modern technologies.
37. In conformity with the Decree of the President of the Republic of Azerbaijan No 1047 of 23 September 2016 "On the establishment of the public legal entity "ABAD" within the State Agency for the Provision of Services to Citizens and Social Innovations under the President of the Republic of Azerbaijan" and with the aim to implement socially-oriented projects for active participation of citizens in the socio-economic development of the Republic of Azerbaijan, the development of small and medium-sized businesses, increasing the employment rate of the population and the formation of competitive family enterprises the "Easy Support for Family Business" centre (ABAD) was established. The main function of ABAD is to support families in the production of agricultural products and art objects.
38. With the aim of collecting and systematizing information on public services in a single source, eliminating duplication in the provision of services and ensuring expediency in management in this area through creation of new services and improving the possibilities in the sphere of analysis and forecasting, the State Agency created the "Register of Public Services".
39. The main activities directed towards development of innovation system in **Bulgaria** are related to the development and implementation of the "Innovation Strategy for Smart Specialization of the Republic of Bulgaria in 2014-2020" (ISSS). The goal of the strategy is to create an integral working framework for the promotion of research, technological development, innovation and entrepreneurship in the country in the period 2014-2020.
40. A common mechanism has already been established for coordinating priorities and objectives of innovation policy and application of financial support mechanisms for projects at all stages of the innovation cycle. The approved strategy places great emphasis

on the innovative capacity of companies constituting links in the national innovation system, small and medium-sized enterprises generating more than 60% of added value, 67% of turnover and 75% of employment among all enterprises, as well as investments in research, through which new knowledge is disseminated to the public and business sectors.

41. The change will be realized by focusing investments to develop innovative capacity in identified thematic areas (for the creation and development of new technologies that lead to competitive advantages and increase the added value of national products and services) and through supporting the accelerated development of technologies, methods, etc. that improve efficiency of resources and application of information and communication technologies at the industrial enterprises.
42. The ISSS is a mandatory precondition of the Regulations of the European Parliament and the Council for the definition of generally applicable regulations of the European Regional Development Fund, the European Social Fund, the Cohesion Fund, the European Agricultural Fund for Rural Development and the European Fund for Marine Affairs and Fisheries, which provides funds for scientific support research and innovation activities in the country. The strategy envisages that until 2020 Bulgaria will make qualitative progress in innovative development at EU level through its contribution to a holistic development policy, particularly in the areas of demography, sustainable development, intellectual capital and national healthcare.
43. **Greece** has set a target, in the context of the Medium Term Financial Strategy and the National Reform Program, that investments in research will reach 1.2% of GDP in 2020 from the current (2015) 0.97%.
44. The current policy plan adopted by the Government has been designed to support applied research related to the needs of the market today. In Programming Period 2014-20, core strategy in the RD&I sector is the National Research & Innovation Strategy for Smart Specialization (RIS3), complemented by 13 Regional Strategies, one for each of the 13 regions of the country. The Strategy is currently implemented by several Measures and Actions including schemes to support industrial research, SMEs in particular, collaborative research projects between academia and business, as well as implementation of research results by industry.
45. A new element recently introduced in the Greek innovation landscape, is the creation in 2016 of the Hellenic Foundation for Research and Innovation (HFRI), established by law 4429/2016, based on a loan agreement between the Greek government and the European Investment Bank. This initiative creates significant opportunities and prospects for young scientists since it provides additional resources amounting to 240m€ for the next three years in order to support more than 4,000 young scientists through doctoral and post-doctoral fellowships.
46. In the framework of policies to enrich and strengthen the National Innovation System a Directorate of Entrepreneurial Innovation and new Technologies has been established and is operational as of 2014 at the General Secretariat for Industrial Affairs - Ministry of Economy and Development. The composition of this Directorate is covering the long-time gap at the country's National Innovation System in the field of linking production with entrepreneurial innovation.
47. One of the main ambitions and responsibilities of the Directorate is to provide support for the development of innovative entrepreneurship with a focus on SMEs. The Directorate is the natural follow-up and complementary partner of the Services of the General Secretariat for Research and Technology since to a great extent it is the research and technological results that propel its actions.
48. Some of the prominent directions are the improvement of the business activity environment, the promotion of sustainable cooperative added value formations and chains,

the incorporation and good use of the cyclical economy and the digital industry at the production base, such as the development of modern entrepreneurial innovation and entrepreneurial activity choices in line with the new production model.

49. The Innovation and Science Code of the **Republic of Moldova** approved by Law no. 259-XV of 15 July 2014. The Code regulates legal relations concerning the drafting and promoting of the state policy in the field of science and innovation, scientific research, innovation and technology transfer activity, science and technology information, the accreditation of organisations in the field of science and innovation, the attestation of highly qualified scientific and science teaching staff, the protection of intellectual property, the legal status of the subjects in the field of science and innovation.
50. A draft Law on the amendment and supplementation of the prenoted Code is being, currently promoted. Thus, the goal of the abovementioned draft law is the removal of these deficiencies; the adjustment of the administration system of RD and ITT to the requirements of the European research area, as well as the improvement of the scientific achievements of the country, including through the maintaining and consolidation of physical, intellectual, human and technological capacities of the national system of research, development and innovation; the better use of budget allocations destined to the fields of RD and ITT and the increase of the number of projects in these fields that are implemented in the national economy.
51. The 2013-2020 Innovations Strategy of the Republic of Moldova "Innovations for competitiveness" approved by Government decision no.952 of 27 November 2013. The goal of the strategy is to ensure a comprehensive horizontal policies framework that will contribute to raising the international competitiveness of the country and the building of an economy based on knowledge through the development of human capital, the consolidation of the capacity of Moldovan businesses to absorb, generate and disseminate innovations and through their stronger interconnection with university and research centres.
52. The strategy is based on a set of 5 general objectives: adopting an open governance model in the innovations and science field, Empowering people with competences in the field of innovations, Orienting businesses towards innovations, applying knowledge in order to solve global and social issues, encouraging the demand for innovation products and services.
53. The Government Decision 929/2014 approved the National Strategy for Research and Development of National Strategy for Research, Development and Innovation (NSRDI) 2014-2020 in **Romania,** which targets the following types of priorities:
54. Intelligent specialization priorities imply defining and strengthening areas of high competence with real or potential comparative advantages that can make a significant contribution to GDP. By concentrating resources and mobilizing a critical mass of researchers, these areas can also ensure regional competitiveness on regional and / or global added value chains.
55. Priorities of public relevance aim at allocating resources in areas where research and technological development respond to certain concrete and pressing social needs. These priorities imply developing the capacity of the public sector to oversee the emerging technologies space and to demand innovative solutions from public and private RDI operators.
56. Fundamental research remains a priority within the RDI Strategy 2014-2020 - including humanities and socio-economic disciplines - as a source for frontier and interdisciplinary research.
57. The tools for implementing the national RDI Strategy are: a) for the Ministry of Research and Innovation - National RDI Plan 2015-2020 - NPRDI III, Operational Program for Competitiveness 2015-2020/Axis 1 – RDI, Kernel programs and specific programs for

NIRDs, Sectoral Development Research Plans. b) For other ministries -Sectoral RDI Plans, Sectoral Operational Plans /RDI Sections. c) The Romanian Academy- Scientific Programs.

58. The Romanian Strategy will support, through the implementation tools (in particular the National Plan for Research, Development and Innovation 2014-2020 (NPRDI III) and the Competitiveness Operational Program – Priority Axe RDTI) - the development of public-public and public-private partnerships
59. At present economic growth through enhancement of national innovation system and investments in human capital is one of the priorities for sustainable development of the **Russian Federation**, which is stated in the 2015 National Security Strategy of the Russian Federation.
60. In conformity with the Strategy for Innovation Development of the Russian Federation till 2020 Russia sets the goals of long-term development though improving well-being of population and strengthening the geopolitical role of the country as one of the leaders in the global political agenda. This is best achieved through the transition of the economy to innovative socially-oriented model of development.
61. The main legislation in the sphere of national innovation system in Russia is composed of the following federal laws: the Law “On Innovative Scientific and Technological Centres” of 29 July 2017, the Law “On the Innovation Centre “Skolkovo” (2010), the Law “On Industrial Policy in the Russian Federation" (2014), the Law “On Education in the Russian Federation” (2012), the Law “On Investment Partnerships” (2011), the Law “On Protection of Competition” (2006), etc.
62. The sphere of innovative activity is regulated by the Federal Law No 127-FZ “On Science and the State Scientific and Technological Policy” (1996). It governs the relations between the subjects of scientific and (or) research activities, public authority bodies and consumers of the products of scientific and (or) research activities (works and services), including the granting state support for innovation. The Law determines the structure of state mechanism for establishing the Russian innovation system.
63. Goals and main directions of state support of innovation activities are defined in the Strategy for Innovation Development of the Russian Federation till 2020, which was approved on 8 December 2011.
64. In addition, since 2012, the Ministry of Economic Development of the Russian Federation implements the programme for 27 innovative regional clusters selected through the contest. These programmes are aimed at strengthening the cooperation between enterprises, scientific and educational establishments, as well as mobilising the state support to the development of regions with highest scientific, technological and production potential.
65. Ministry of Economy of the **Republic of Serbia** participates in the “The Western Balkans Enterprise Development and Innovation Facility” (WBEDIF). This is a regional project, funded and implemented by the European Commission, the European Bank for Reconstruction and Development (EBRD), the European Investment Bank and the European Investment Fund at the initiative of the Republic of Serbia. The goal of the project is to improve access to finance for SMEs in the region, as well as to improve the conditions for the development and creation of new innovative enterprises, which have high potential for growth, by stimulating the creation of risk capital funds.
66. The Facility represents a platform that uses financial instruments in the form of direct investment of risk capital funds into the capital of the company, thus contributing to the creation and development of the regional risk capital market. The total budget of the project is 141,200,000.00 EUR with the envisaged extension of the budget.
67. The Facility consists of four components:Enterprise Innovation Fund (ENIF) – this will finance innovative SMEs at different stages of business development – from the start-up to

the development stage, Enterprise Expansion Fund (ENEF) – a risk capital fund that will provide equity and quasi-equity as convertible bonds for the growth of dynamic enterprises in the Balkans, Guarantee Facility (GF) – this instrument is set up to improve access to finance for start-ups, young companies and SMEs lacking security to access commercial loans, Support Services Facility – set up to provide support to users of the platform for improving regulatory frameworks for innovative and fast-growing SMEs to stimulate the advancement of the risk capital ecosystem.

68. **Turkey** has the objectives of, in 2023, being among the first 10 economies in the world, reaching export volume with 500 billion dollars and becoming a country producing and exporting the domestic car, aircraft, helicopter, ship and satellite. In addition to this, it is aimed to raise R&D expenditure share within Gross Domestic Product (GDP) to 3% in total as 2% in private sector and to increase a total number of researchers to 300.000 as 180.000 in the private sector in order to contribute to attaining such objectives with the innovative and technology-based development process. Thanks to recent STI based advancements, substantial improvements in respect with R&D and innovation ecosystem have been achieved in line with the objectives of the 2023, and it is observed that this case has been positively reflected in STI indicators.
69. R&D expenditures of Turkey have a tendency to increase as of the years. According to the results of Survey Research and Development Survey announced by TÜİK (Turkish Statistical Institute-TSI) on 18 November 2016, the R&D expenditure of country with 15.3 billion TL in 2011 together with 2016 fixed prices has reached approximately 22.2 billion TL with 45% increase in 2015.
70. Considering the number of TZE R&D personnel and researchers in Turkey as of the years, a regular increase has been observed in parallel with the tendency in R&D expenditure. According to the results of Research and Development Survey announced by TSI, the number of TZE R&D personnel in 2015 in Turkey increased at the rate of 32% when compared to 2011 and surpassed 122.000.
71. The rate of total education expenditures in 2015 within GDP realized as 5.8%. The investment of information communication technologies (ICT) of public sector education field surpassed 2 billion TL as of 2016.
72. According to the data announced by TPE, it is observed that there is an increase tendency in the number of patent applications and registrations. The number of domestic patent applications per one thousand TZE researchers reached 58 in 2015 and the number of domestic patent registration per one thousand TZE researchers reached 18.
73. Considering the export data announced by TSI according to technology intensity, in 2016 the exportation amount of; approximately 11.3 billion TL was realized in high technology sector and more than 107.3 billion TL was realized in the medium-high technology sector.
74. The goal of the Law of **Ukraine** "On Priorities of Innovative Activity in Ukraine" is to provide innovative models for the development of economy through concentration of the state resources on the priority directions of scientific and technological renewal of production, increase of competitiveness of national production at domestic and external markets.
75. This law determines the strategic priorities for innovation activities for 2011-2021:
    1) development of new technologies for energy transport, introduction of energy-efficient, resource-saving technologies, development of alternative energy sources; 2) development of new technologies for high-technology development of the transport system, rocket and space industry, aircraft and shipbuilding, armaments and military technologies; 3) development of new technologies for the production of materials, their processing and bonding, creation of the industry of nanomaterials and nanotechnologies; 4) technological renewal and development of the agricultural sector; 5) introduction of new technologies

and equipment for quality health care, medical treatment, pharmaceuticals; 6) wider application of cleaner technologies in production and environmental protection; 7) development of modern information, communication technologies and robotics.

76. In the framework of the implementation of the EU- Ukraine Association Agreement, the Verkhovna Rada of Ukraine ratified the agreement between Ukraine and the European Union on Ukraine's participation in the EU Framework Program for Research and Innovation "Horizon 2020".
77. The development of innovation is one of the main components of the Program of Activities of the Cabinet of Ministers of Ukraine, as well as the Priority Action Plan of the Government approved in 2016. In particular, in the field of industrial policy it is envisaged to develop high-tech industry, industrial and innovation infrastructures, as well as to introduce the mechanisms for the commercialization of scientific research results and the technology transfer with the aim to develop national scientific centres.
78. The objectives of innovative development, according to the Priority Action Plan of the Government: Endorsement of the draft Strategy for the Development of High-Tech Industries until 2025; Creation and launching of the High Tech Office; Ukraine's accession to the European Innovation Union Scoreboard.

V. BSEC POLICY IN INNOVATION SPHERE

79. Possessing a significant economic, scientific and technical potential, today the BSEC Member States have the opportunities for more intensive development of a fully fledged national innovation system.
80. Optimal use of research results and, in particular, their transformation into innovative products and processes remains a key area of economic policy in all BSEC Member States, due to its direct positive impact on employment, economic growth and prosperity.
81. Taking into account that modern technologies determine successful implementation of regional projects, development of national innovation systems, the cooperation in this area among the BSEC Member States is an important sphere of activity.
82. The **Joint Statement adopted by the Ministers for Science and Technology of the BSEC Member States in Istanbul on 31 October 2007** became a road map for the cooperation in this field.
83. **On 3 December 2014, the Declaration** of the Ministers in charge of Science and Technology of the BSEC Member States **was adopted in Baku**. The Ministers declared their commitment to focusing on human resources, capacity building, research infrastructure and innovation as priority areas of action. They also reviewed the progress achieved in the implementation of the Plan of Action of the BSEC Working Group on Cooperation in Science and Technology and endorsed a new roadmap for further deepening cooperation in this area, which could also have an impact on intra-regional cooperation.
84. BSEC is considering the issue of innovation within the framework of the Working Group on Cooperation in Science and Technology. Among the priorities of the Working Group for the current period are the following: a) developing a registry of national innovation related structures of the BSEC member states and creating the conditions for their effective interaction, b) encouraging the joint research and training programs among the scientific institutions and universities in the Member States in line with their priorities, c) identifying innovative ways for combining public and private funds, including through public-private partnerships, (d) facilitating closer cooperation in the field of science and technology among the BSEC Member States, the BSEC Related Bodies and with other partners and international organizations in order to encourage co-funding schemes for formulating and

implementing regional research projects. At present, the Working Group is implementing the Third Action Plan for 2014-2018.

85. On 26 November 2010, **The Memorandum of Intent between the BSEC and the Government of the United States of America on Science and Technology Cooperation** was signed in Thessaloniki with a view to develop cooperation between the parties in the fields of science, technology and innovation.
86. The cooperation between the BSEC and the UN, the EU, and other international organizations is carried out within the framework of the so-called **"Framework Program-7" (FP-7)**, which includes several programs (EU International Strategy for Research and Innovation, International Cooperation Network in the field of science and technology for the countries of Eastern Europe and Central Asia, etc.). Today, new opportunities are opening up for the BSEC Member States to participate in ongoing international programs, such as the EU Framework Program for Scientific Research and Innovation "Horizon 2020" (2014 - 2020).
87. The BSEC Member States consider the possibility of cooperation in science and technology between the BSEC and the UNESCO, as well as the practical participation of young scientists in strengthening cooperation in this field. Also, a proposal was made on the possibility of creating a special fund for young scientists.
88. Upon the initiative of the **International Center for Black Sea Studies (ICBSS)** the International Black Sea Symposium "Science, Technology and Innovation in the Black Sea: Moving Forward" was organized **on 19-20 November 2015 in Athens**.

VI. CONCLUSIONS

89. In contemporary world, the creation of an effective national innovation system is one of the main strategic priorities of a country's development, as well as an important step towards structural diversification of the economy based on innovative technological development.
90. At present the ongoing trends in the world economy require creation and continuous improvement of the national innovation system. The considered models of national innovation system show that one of the main actors in innovation process is a state, which takes measures to create necessary conditions for the implementation of innovation activities.
91. An effective national innovation system is to be based on the interaction of functional elements, namely the state, business, science and education. The state policy in the sphere of innovation should be aimed at creating favorable conditions for updating and creating a new innovative infrastructure through budget, tax, credit instruments and through reforming the education system, strengthening international relations, developing legislative framework for innovation and creating a market for innovative ideas.
92. The experience of the BSEC countries proves that they are seeking to shift their economic development towards the knowledge based economy and are selecting models of national innovation system suitable to their national peculiarities.
93. The BSEC Member States have the basic prerequisites for developing national innovation systems, which should be based on a high level of education and strong positions in some areas of science. The policy decisions in the sphere of innovation can create favorable conditions for updating and establishing new innovative infrastructure. Expenditure of budgetary funds on a competitive basis in priority areas of research should motivate researchers to qualitative development of innovative projects.
94. The innovative development of the BSEC Member States should be linked to the implementation of consistent innovation that contributes to the continuous development and improvement of effective activities in this field. Innovative activities in the countries of

the Black Sea region should be realized within the framework of effective national innovation systems, the main elements of which should be: subjects and consumers of innovation activity, investment resources, innovative infrastructure, regulatory support and market mechanism for the commercialization of developments.

95. In order to enhance the effectiveness of cooperation in the field of strengthening national innovation systems and innovative structures among the BSEC Member States it is necessary to unify innovation networks at the regional level, as well as with similar international structures, including the EU, the activation of the exchange of information and best practices, the organization of training for specialists and management personnel working in innovative structures.
96. The main attention should be attributed to solving priority tasks of social and economic development, ensuring the effective use of national competitive advantages and concentrating efforts on the implementation of the most effective innovative technologies.
97. Taking into account the experience of the European Union in the field of science and technology, the EU principles in the field of innovation policy and related activities can become a good opportunity for elaboration of joint policy in the BSEC region.
98. The innovative system in the BSEC Member States can become an effective tool for developing and implementing innovative policies, promoting harmonization of the legislation of the BSEC Member States, accelerating the transfer of the economy to an innovative development direction, and contributing to the formation of a single innovation area in the region.