



Science Diplomacy and S&T Collaboration in Serbia



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Development of S&T Capacity

In Serbia the first Ministry of Education was established in 1834. To meet its needs for teachers since 1839 Serbia had been sending teachers abroad for training. In 1946 primary schools for women were established. The developments in Europe in S&T had its impact on Serbia and

Period of rapid technological development on the world stage until the Second World War, and some of the well known Serbian researchers were, Mihajlo Pupin (1858-1935), Nikola Tesla (1856-1943), Milutin Milanković (1879-1958), Pavle Savić (1909-1994). State Universities in Serbia are located in major cities: Belgrade, Novi Sad, Kragujevac, Niš, Novi Pazar, Priština (Kosovska Mitrovica). Since 2007, a new concept of study has been introduced in Serbia, adhering to Bologna Declaration.

University of Belgrade is the oldest one in Serbia; it was founded by Dositej Obradović in 1908 as the Belgrade Higher School in Serbia. During the two centuries of its existence the University of Belgrade has served the country well and students from it had contributed to development of Serbia in all spheres. The University comprises 31 faculties, 11 research institutes, the university library, and 13 university centres. The faculties are organized into 4 groups: social sciences and humanities; medical sciences; natural sciences and mathematics; and technological sciences (The University of Belgrade, 2019). The University of Belgrade according to the Shanghai Ranking of World Universities, was positioned for the first time in 2012 between the 400th and 500th place, and it is currently ranked between the 200th and 300th place.

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The first research institute in Serbia Vinča Institute of Nuclear Sciences was founded in 1948, From its founding to the present day, Institute has been the most prominent multidisciplinary research institute in the Republic of Serbia. Today, the Institute employs 311 researchers, and 210 Ph.D. students working on over a hundred national and international projects, as well as in international scientific research collaborations in which the Republic of Serbia is a member (Vinča Institute of Nuclear Sciences, 2019).

S&T Planning in Serbia

Serbia in its ambitions to become a technologically developed country has taken various steps on the internal and external plan to achieve that goal. There are several key documents such as , Law on Scientific Research Activity (Official Gazette RS, No 110/2005, 50/2006-corr., 18/2010, 112/2015), Law on Innovation Activity (Official Gazette RS, No 110/2005, 18/2010, 55/2013), Law on Serbian Academy of Science and Arts (Official Gazette RS, No 18/2010) which give an idea about the plans for the university. The Strategy on Scientific and Technological Development of the Republic of Serbia for the period 2016-2020 - 'Research for innovation' (Official Gazette RS, No 25/2016) outlines the objectives and strategies. The strategy document includes information about the legal framework and other strategic documents, the current science and innovation system in Serbia, strategic objectives for the period 2016-2020, and the objectives include , to encourage excellence and relevance - in particular in relation to economic development, to improve human resources, to promote international cooperation and to increase investment in all sectors. The document provides guidelines for the implementation and an action plan, with a clear emphasis on the quality of education and research staff and competitive research for innovation. The Strategy relies inter alia, in part on the positive experiences of the Strategy on Scientific and Technological Development of the Republic of Serbia for the period 2010 - 2015, associated with regional EU programs and strategies

The scientific research system of the Republic of Serbia comprises the following institutions:

- A. Accredited scientific research organisations
 - Faculties which operate exclusively under the Universities
 - Scientific institutes and Research and Development institutes
 - Centers of Excellence
- B. Serbian Academy of Science and Arts - SASA
- C. Matica Srpska (the oldest cultural and scientific institution of Serbia)

Scientific-research institutions consist of: faculties which operate exclusively under the University, Scientific institutes and Research and Development institutes, and centres of excellence.

There are 129 faculties under the universities in Serbia . There are 28 accredited Scientific institutes and 32 Research and Development institutes in the Republic of Serbia. Two main centres of excellence are : Centre for Mathematical Research of Nonlinear Phenomena, Department of Mathematics and Informatics, Faculty of Science, Novi Sad and Centre for Solid State Physics and New Materials, Institute of Physics, Belgrade. The Serbian Academy of Science and Arts has 8 departments and 10 scientific institutes, while the Matica Srpska has 7 departments.

The Republic of Serbia invests in scientific programmes in the three main fields: basic research, technological development, and, integrated and interdisciplinary research and about 12,000 researches are working in R&D projects. In recent years, the Republic of Serbia has improved its scientific research output, in terms of publications , is ranked 54th among the 239 countries.

Bilateral cooperation agreements on scientific and technological cooperation have been signed with more than 70 countries, and among them active cooperation is with, Republic of Belarus (1996); Republic of Slovakia (2001); Republic of Slovenia (2002); Kingdom of Spain (2003); Republic of France - [Program of Integrated Activities - PAI 'Pavle Savić' (2003) and CNRS]

(2008); Republic of Hungary (2005); Republic of Croatia (2005); Germany –[DAAD] (2008); Republic of Portugal (2009); People’s Republic of China (2009); Austria (2010); Republic of Italy (2013); Montenegro (2014).

Serbia is actively involved in regional cooperation programmes of the European Union such as the EU Strategy for the Danube Region (EUSDR) and Steering platform on research and innovation for Western Balkans. Multilateral cooperation takes place through Central European Initiative – CEI (Central European Initiative, 2019) and Organization of the Black Sea Economic Cooperation – BSEC (Organization of the Black Sea Economic Cooperation, 2019). As for international association and cooperation since January 2007 Serbia was associated to the Seventh EU Research Framework Programme (FP7). Also, Serbia has joined in July 1, 2014 to the Horizon 2020 platform, Europe’s largest research and innovation program,. The EU has set the goal that total investments in science of member states should at least 3% of GDP by the end of 2020, and Serbia allocates 0.8% GDP for science. Three main pillars of H2020: Excellent Science, Industrial Leadership, Societal Challenges..

Horizon 2020 successful stories for Serbia

Births, mothers and babies: prehistoric fertility in the Balkans between 10000-5000 cal BC - BIRTH is the first project supported by the European Research Council in Serbia started in 2014. As the European Commission’s science and knowledge service, the Joint Research Centre (JRC) supports EU policies with independent scientific evidence throughout the whole policy cycle. JRS holds the S3 Platform that provides advice to EU countries and regions for the design and implementation of their Smart Specialisation Strategy (S3). Through its partnership and bottom-up approach, smart specialisation brings together local authorities, academia, business spheres and the civil society, working for the implementation of long-term growth strategies supported by EU funds. The JRC, co-financed, enables researchers from Serbia to participate in working meetings organized within projects that are being implemented by JRC institutes. Also, researchers from Serbia have the

opportunity to be engaged in JRC institutes (The Joint Research Centre, 2019).

At December 13, 2018 at CERN 191st Session the Council passed the Resolution admitting Serbia as a Member State of CERN. Serbian scientists have an involvement with CERN activities from the beginning, that goes back to 1954 when Yugoslavia was a founder Member State. Serbian physicists were active in the DELPHI, ISOLDE, ATLAS, CMS, ACE and NA61 experiments at CERN.

Throughout the history, Serbia was involved in many wars, defending its territory independence and the security of its citizens. In Serbia, the main aim of science is its use for peaceful purpose, taking that in mind, Serbia is a member of International Atomic Energy Agency (IAEA), Organisation for the Prohibition of Chemical Weapons (OPCW), and NATO Science for Peace and Security (SPS) participant.

Although Serbia has been a party to many collaborative endeavors and research programs, these are not sufficient. Serbia has to expand and diversify its S&T co-operation. It should look for new opportunities and alliances instead of limiting it to the current ones. Serbia should also increase its spending in S&T. To begin with Serbia should explore the possibility of co-operating with large developing countries in Asia, South America and Africa. It should use the experience in multi-lateral projects to develop mutually beneficial collaborations and create synergies in bi-lateral programs.

India-Serbia S&T Cooperation

In the recent years there has been significant developments in bi-lateral relations as evident from the flurry of visits and agreements in both sides in different fields. Regarding S&T

“Joint Committee on S&T: Established under Agreement on S&T Cooperation signed in October 2004, the first meeting of of India-Serbia Joint Committee on Science & Technology was held through DVC on 6th December 2016. The 2nd Session was held in Belgrade in October 2017. A new Programme of Cooperation (POC) was

signed with increased fields of cooperation. It was agreed to hold two workshops – in the scientific domains of (a) biotechnology & human health and (b) ICT in India and Serbia, respectively. Both sides agreed to announce joint calls after the workshops in accordance with priority fields as incorporated in the POC”

This is a good beginning and should be followed up with concrete plans for co-operation. Biotechnology and health is a key area that can be used to conduct joint R&D. In case of ICT, India’s expertise in software, application of ICT for development purposes offers immense scope for co-operation. Such co-operation obviously will have to involve private sector also.

As Serbia has recognized Ayurveda and Yoga, there is enormous scope for co-operation in traditional medicine. The current level of engagement should be expanded and diversified.

Conclusion

In modern time, the development of a country and society in general, depends on the knowledge obtained as a result of research in science and technology. Serbia takes various steps on the internal and external plan to become a technologically developed country. In order for the best use of scientific potential it is necessary to establish a relevant interaction between links of the research triangle: knowledge dissemination (education) knowledge creation (scientific research), and knowledge application (transfer of technology and innovation). In this moment,

the most important document for scientific developing in Serbia is: Strategy on Scientific and Technological Development of the Republic of Serbia for the period 2016-2020 - ‘Research for innovation’. Also Serbian Ministry of education, science and technology development works intensively on the adoption of a new law on science. International partnership through science diplomacy, with the goal for better science, Serbia realized through bilateral; regional/ macro regional and multilateral cooperation. The enormous scope for bi-lateral co-operation in S&T with India should be explored and harnessed.

Reference

- Central European Initiative. 2019. Retrieved on January 11, 2019 from <https://www.cei.int/>
- Danube Region Strategy. 2019. ‘priority area’. Retrieved on January 10, 2019 from <https://www.danubeknowledgesociety.eu/priority-area-7>
- Organization of the Black Sea Economic Cooperation. 2019. ‘Introduction’. Retrieved on January 11, 2019 from <http://www.bsec-organization.org/>
- The Joint Research Centre, 2019. ‘About Joint Research Centre (JRC)’. Retrieved on January 12, 2019 from <https://ec.europa.eu/jrc/en>
- The University of Belgrade. 2019. ‘About University’. Retrieved on January 14, 2019 from <http://bg.ac.rs/en/university/university.php>
- Vinča Institute of Nuclear Sciences, 2019. Retrieved on January 10, 2019 from <https://www.vin.bg.ac.rs/en/>
- Western Balkan Countries Research Technology Innovation. 2019. ‘General Information’. Retrieved on January 9, 2019 from <https://wbc-rti.info/>