Slovak Academy of Sciences

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History and Mission

The Slovak Academy of Sciences is a self-governing scientific institution of the Slovak Republic; its activity is oriented on the advancement of science, scholarship, culture and economy.
Its primary mission is to acquire new knowledge of nature, society and technology, specifically targeted at ensuring scientific basis for the advancement in Slovakia.

The commencement of modern science in the 16th and 17th centuries resulted in the establishment of new institutions that supplemented classical universities and created a broader forum for fostering science communication. These institutions, which were built on the ancient Platonic traditions, became the starting point of our present day academies of sciences.

Matej Bel's project, submitted in 1735, marked the first attempt to establish such an institution on the territory of modern Slovakia. He suggested the founding of a *Societas litteraria* in Bratislava. His project, however, never materialized. In 1792, upon a proposal issued by a group of patriotic philologists, *Slovenske ucene tovarisstvo* [The Slovak Learned Society] was founded. In 1844, under the impetus of Ludovit Stur, the nation-wide cultural association, *Tatrin*, was instituted.

A few years later, in 1892, Andrej Kmet published in *Narodne noviny* [National News] his appeal to establish *Slovensky vedecky spolok* [Slovak Scientific Association], or *Slovenska akademia vied* [Slovak Academy of Sciences]. This idea led to the formation of *Muzealna spolocnost slovenska* [Slovak Association of Museums]. On 2 July 1942 the Parliament of the Slovak Republic instituted *Slovenska akademia vied a umeni* [Slovak Academy of Sciences and Arts], which developed into a representative and, concomitantly, working institution fostering scientific scholarly research. During the post-World War II period the SAVU was transformed into *Slovenska akademia vied* [Slovak Academy of Sciences (hereinafter the Academy or the SAS as an abbreviation)]. Its establishment was legally grounded in an act passed by the Slovak National Council on 18 June 1953. The arrangement of its operation was regulated further by appurtenant legislation.

17 November 1989 (the political and economical transition) introduced significant changes at the Academy. Since then, far–reaching transformations enabled the Academy to become similar to counterpart organisations of science and research in advanced countries abroad. Nowadays, the Slovak Academy of Sciences successfully presents itself nationally and worldwide through the results in basic and applied research.

Activities

The Academy conducts its research activity through units of the Academy.
The Organisations of the Academy are:

a) scientific units engaged in pursuance of research
b) specialized units,
c) service units.

The Slovak Academy of Sciences consists of 70 units, of which 46 are budgetary and 24 are subsidised. The Slovak Academy of Sciences runs 56 research institutes or research departments covering the earth and space sciences, mathematics, physics, chemistry, informatics, technical sciences, biology, medical sciences, agricultural and veterinary sciences, social sciences and humanities. As of December

2007, the total number of scientific and scholar research staff employed at the Academy Institutes equalled 1,590.

There are 49 scientific and scholarly associations, societies and unions affiliated with the SAS, which operate in accordance with the Law on Civic Associations. The Assembly, the Scientific Council, and the Presidium are the Academy's self-governing bodies.

The Assembly is the supreme self-governing Academy's body. Its members are elected by the academic staff of the respective scientific organisations from the academic staff of the SAS. The Scientific Council is a self-governing body of the Academy that deliberates upon scientific and conceptional tasks. It is composed of the President of the Academy and other members of the Academy's Presidium, representatives delegated from the higher education sector, and a representative from the sector of business enterprising engaged in scientific research and development. Membership of the Scientific Council also includes representatives from organisations and institutions engaged in scientific research and development outside the Academy, appointed by the Chair of the Academy's Assembly on the basis of elections of the members in the Scientific Council held by the Assembly.

The Presidium is an executive self-governing body of the Academy. The Presidium is composed of the President, vice-presidents, Scientific Secretary, and other members of the Presidium, appointed by the Chair of the Academy's Assembly on the basis of the electoral returns for the Academy's Presidium. The Academy is presided by the President, who is appointed and recalled by the President of the Slovak Republic. The Presidium of the Academy coordinates and supervises the activities of the Academy and the performance of its units via the sections for the respective groups of science branches.

Financial resources from the state budget earmarked for the operation of the Organisation is specified by the President of the Academy on a proposal submitted by the Academy's Presidium; such proposal stems from the principles for allocation of the budget approved by the Assembly and from the results of periodic appraisal of the performance of the unit concerned.
Scientific units, which function as budgetary units may, in connection with performance of their core duties, carry out business activities.Scientific units are oriented on

a) undertaking and conducting research,
b) contributing to the utilisation and exploitation of research results,
c) acquiring, treating, processing and disseminating scientific information,
d) utilising and exploiting results of their own research in working out expert opinions, position papers, judgements, recommendations and in implementing diverse forms of disseminating scientific knowledge,
e) participating in pedagogical process at institutions of higher education, including doctorate studies, pursuant to a separate regulation
f) co-operating with institutions of higher education and other organisations and institutions engaged in scientific research and development in the Slovak Republic,
g) carrying out international co-operation in science and technology
h) taking care of editorial and publishing activity
i) discharging duties pursuant to specific regulations

List of scientific organisations (research institutes) of SAS
Section I - Physical, Space, Earth, and Engineering Sciences
Earth and Space Sciences
Astronomical Institute
Geological Institute
Geophysical Institute

Institute of Geography
Institute of Hydrology

Mathematical and Physical Sciences, and Computer Science
Institute of Experimental Physics
Institute of Informatics
Institute of Physics
Mathematical Institute

Engineering Sciences
Institute of Construction and Architecture
Institute of Electrical Engineering
Institute of Geotechnics
Institute of Materials and Machine Mechanics
Institute of Materials Research
Institute of Measurement Science

Section II – Life, Chemical, Medical, and Environmental Sciences
Medical Sciences
Cancer Research Institute
Institute for Heart Research
Institute of Experimental Endocrinology
Institute of Experimental Pharmacology
Institute of Molecular Physiology and Genetics
Institute of Neurobiology
Institute of Neuroimmunology
Institute of Normal and Pathological Physiology
Institute of Virology

Biological and Chemical Sciences
Institute of Botany
Institute of Chemistry
Institute of Inorganic Chemistry, Slovak Academy of Sciences
Institute of Molecular Biology
Institute of Plant Genetics and Biotechnology
Polymer Institute

Agricultural and Veterinary Sciences
Institute of Animal Biochemistry and Genetics,
Institute of Animal Physiology
Institute of Forest Ecology
Institute of Landscape Ecology
Institute of Zoology
Parasitological Institute

Section III – Social Sciences, Humanities, Arts, and Culture
Historical Sciences
Archaeological Institute
Institute of Ethnology
Institute of Historical Studies
Institute of Social Sciences

Humanities and Social Sciences
Department of Social and Biological Communication
Institute for Forecasting
Institute for Sociology
Institute of Economic Research
Institute of Experimental Psychology
Institute of Philosophy
Institute of Political Sciences
Institute of State and Law

Arts and Culture
Institute of Art History
Institute of Musicology
Institute of Oriental Studies
Institute of Slovak Literature
Institute of Theatre and Film
Institute of World Literature
Jan Stanislav Institute of Slavistics
Ludovit Stur Institute of Linguistics

The concept of pronouncing and supporting excellence was the main pillar for the Academy in the last decade and its remarkable outcomes appeared in last years. The excellence is expressed through the activities carried out by its centres of excellence. Having achieved good results, the operation of the first six centres was terminated by the end of 2006. The next five centres continue in their activity and eight new centres were established, in particular for the areas of low temperature physics, nanostructure materials, computational chemistry, endocrinology, research into cognition, modern Slovak history, cardiovascular research, and research into citizenship and participation. These centres interconnect the activities of the Academy with those of Slovak universities and collaborating institutes from abroad and they are opened for visiting scientists and doctoral students from EU Member States and also from other countries. Centres are supported from the central budget of the Academy and from various grants. Some examples of excellent results of the Academy from the last two years are quantum entanglement and interference, MOSFETs with high dielectric constant gates, novel signalling pathway for swelling-induced insulin secretion, diversity of the flora of Slovakia, Population Atlas of Slovakia and the first volume (a-g) of the Dictionary of Contemporary Slovak Language.
The year 2007 at the Academy was marked by accreditation of its research organisations for 2008-2011. Every institute was evaluated by three reviewers, two of them being from abroad, and by panel of specialists. Following the evaluation, the institutes are accredited in three categories. Institutes from the 1st and 2nd category now benefit from a more pronounced allocation of the Academy's budget, in accord with the results of quality assessments. The quality of research conducted at the Academy is shown in the published quality assessment results reported by an independent Academic Rating and Ranking Agency, which suggests that in the disciplines under review the Academy's institutes rank in the top position nationally with their research getting close to international standard.
The year 2006 was marked by the completion of many projects launched under the EU's 6th Framework Programme. The total number of projects in which the Academy participated or is participating is 92, with the highest number of projects in nanotechnologies, sustainable development, life sciences and information technologies. If calculated per head capacity, it was the highest participation rate in the Slovak Republic. The EU structural funds and projects launched by the EU 7th Framework Programme is becoming an important source for funding research. Following the National Strategic Reference Framework 2007–2013, the European Commission endorsed the operational programme Research and Development. Subsequently, timeframes for calls are worked out. For active participation in structural funds activities two new institutes – Institute for Technology and Molecular Medical Centre were

created. Following the first calls, excellent research units and laboratories are expected to be built in six basic branches: materials and technologies including nanomaterials; information and communication technologies including grid structures; biodiversity, environment and ecology; health and quality of life; preservation of cultural heritage and management of human potential.
Under the new administration at the Ministry of Education of the SR, applications into the sphere of enterprises are accentuated, in which the centres of excellence are also involved. The Academy considers the application of research results to be very important, however, with output not only in the corporate sphere, but also into health, environment, culture and education. Some examples of innovative results that are already applied or that are prepared for application are as follows: fast algorithms for gas dynamics simulation in pipelines used for transport predictions; maps of water balance elements of the Danube River Basin; impact prevention made of aluminium foam for the increase of passive safety of car crew; carbon derived in-situ reinforced silicon nitride - silicon carbide micro/nanocomposites for high temperature applications; RET gene mutation – a genetic marker in the diagnosis and prevention of thyroid gland tumours; detection of tick-borne pathogens and development of DNA chip; application of the mixture of hyaluronan derivatives forming inclusion complexes in the treatment of arthritic diseases; production of dense silicon carbide ceramics; nanostructural surface modification of fibres and textile materials; environmental monitoring of the surroundings of the aluminium producing plants.
The Academy is involved in orders commissioned by the State, which are financially supported by the Ministry of Education of the SR, Ministry of Culture of the SR, or directly by the Government Office. They include, for example, Encyclopaedia Beliana, Library of Slovak Literature, National Language Corpus, Strategy and Vision for Slovakia, Archaeological Research in the locality of Bojná and of Poprad. In 2006, a centre for cryogenic research was open; its creation was supported by government priority funds. It is a joint research establishment of the Academy and P J Šafárik University in Košice and it is opened for participation of co-workers from abroad.
In the doctorate study programme, the system of which was transformed in 2005/2006, the institutes of Academy were granted accreditation in collaboration with the Slovak universities for one, two or more programmes. The highest number of agreements is concluded with the Comenius University and the Slovak University of Technology. The total number of programmes is 110. All in all, the total number of doctorate candidates at the Academy under this new system oscillates between 700 and 900. At least 100 new positions were opened in the year 2008, in the case of interest of students from Slovakia and/or foreign countries.
From among accomplishments achieved in the year 2006, of note is the finalisation of formal acceptance of Slovakia into the European Molecular Biology Conference. The Academy hosted a total of 310 international scientific events in 2006 and 2007. Many of these meetings are convened into our congress centres in Smolenice and High Tatras.
The Academy's staff is actively involved in pedagogical activity carried out at higher education institutions. The overall number of taught hours has increased, amounting to over 50,000 per year. The total number of supervised diploma thesis stood at 850. There are 36 joint research establishments with universities and industry.

Publications

The extent of the Academy´s publishing activity and citation rate to its output is remarkable. At present, the number of publications in most prestigious journals is 1,800 per year, the number of published monographs, both nationally and abroad, is 130, and number of citations per year is 22,000. From among 55 journals published and/or edited at the Academy, 70% are currently included in Current Contents database as well as others.

Academy´s Journals published with issues in 2009 / 2008

Earth an Space Sciences

Acta Hydrologica Slovaca
Acta Montanistica Slovaca
Contributions of the Astronomical Observatory Skalnate Pleso
Contributions to Geophysics and Geodesy
Geograficky casopis
Geographia Slovaca
Geologica Carpathica
Geologica Carpathica Clays
Journal of Hydrology and Hydromechanics
Kartograficke listy

Mathematical and Physical Sciences, and Computer Science

Acta Physica Slovaca
Computing and Informatics
Mathematica Slovaca
Tatra Mountains Mathematical Publications

Engineering Sciences

Architektura & urbanizmus
Building Research Journal
Journal of Electrical Engineering
Kovove materialy - Metallic Materials
Measurement Science Review
Powder Metallurgy Progress
Strojnicky casopis (Journal of Mechanical Engineering)

Medical Sciences

Acta Virologica
Endocrine Regulations
General Physiology and Biophysics
Interdisciplinary Toxicology
Neoplasma

Biological and Chemical Sciences

Biologia - section Botany
Biologia - section Cellular and Molecular Biology
Bulletin Slovenskej botanickej spolocnosti
Chemical Papers

Agricultural and Veterinary Sciences

Biologia - section Zoology
Ekologia
Entomological problems
Folia oecologica
Helminthologia
Zivotne prostredie

Historical Sciences

ARS

Asian and African Studies
AVANS
Etnologicke rozpravy
Historia
Historicky casopis
Slavisticka folkloristika
Slovenska archeologia
Slovenska numizmatika
Slovenske divadlo
Slovensky narodopis
Studijne zvesti
Vychodoslovensky pravek

Humanities and Social Sciences
Clovek a spolocnost
Ekonomicky casopis/Journal of Economics
Filozofia
Human Affairs
Organon F
Pravny obzor
Sociologia - Slovak Sociological Review
Studia psychologica

Arts and Culture
Jazykovedny casopis
Kultura slova
Musicologica Slovaca et Europaea
Slavica Slovaca
Slovak Review
Slovenska literatura
Slovenska rec
Studia ethnomusicologica

International activities

International scientific cooperation of the Academy follows the following principles:

- Active participation in the creation of the European Research Area (ERA);
- Support for mobility;
- Multilateral cooperation associated with the participation in activities within the European Framework Programmes, NATO, COST, ESF, and CERN;
- Membership of the Academy in non-governmental international scientific organizations and panels such as ICSU, ALLEA, IAP, IAMP, EASAC, EASA;
- Targeted efforts to secure accession of the SR to international governmental scientific agenciesand laboratories such as ESRF or ESA;
- Participation in international scientific events held abroad and hosting international scientific conferences in the Slovak Republic.

The Academy's bilateral international cooperation was realised on the grounds of the bilateral inter-academic agreements on scientific cooperation (ASC). In 2007, the Academy shared 68 bilateral agreements on scientific cooperation with scientific institutions in 44 countries. They provided for visits of the Academy's staff abroad in total amount of 5,500 persons/day a year. These Agreements supported participation at conferences as well as diversed types of events including establishing of new

contacts or preparation of joint projects. The list of the inter-academic agreements is given in Centrally coordinated bilateral mobility is the principal instrument for the implementation of inter-academic agreements. On the basis of contracted exchange quotas for 2007, the number of outgoing research scientist from the Academy stood at 372; the total length of stay abroad was 3,635 days. Individual Academy's Institutes hosted 347 research scientists from abroad.

The multilateral international cooperation is expressed by participation of SAS research teams mainly in projects of Framework Programmes of Research and Technology Developments of European Communities (FP6 and FP7).

In 2007, the teams of the SAS participated in 86 EU FP6 projects. The Academy's share, as far as the number of participations in EU FP6 projects for the Slovak Republic is concerned, was about 30% (ranking at the second position). In the volume of acquired financial means per one research scientist, the Academy ranks at the first position with 38% share in the all-Slovakian profit. It is an important result, as the share of the SAS in the overall research capacity of the Slovak Republic is only around 18%.

The Academy recorded higher participation in other programmes of the international scientific cooperation such as COST, UNESCO and NATO . The Academy's Institutes have been also represented in other important international programmes including ESF, INTAS, IAEA (International Atomic Energy Agency), IEA (International Energy Agency), EUREKA, UNIDO, CERN, Inter-reg, Culture 2000, Leonardo, and Socrates. All in all, the Academy joined 218 projects of international multilateral cooperation and many researchers of the SAS acted as evaluators of projects involved in international research programmes.