

# **Report on the course of the Evaluation of the Research and Professional Activities of the Institutes of the Czech Academy of Sciences for 2010–2014**

## **Purpose of the evaluation**

One of the most important tasks of the management of the Czech Academy of Sciences (hereinafter “CAS”) and the institutes of the CAS is a permanent emphasis on increasing the quality of the scientific and professional activities, engaging the institutes in international scientific activities and the high-quality realization of the other functions of the CAS given by the relevant legislative regulations. To ascertain the level of the resolution of this task, the management of the CAS has organized regular evaluations of its institutes since the beginning of the existence of the CAS in 1993. These evaluations also serve for the differentiation of the institutional support of the institutes of the CAS.

The Academy Council of the CAS decided to conduct the evaluation of the research and professional activities of the institutes of the CAS for 2010–2014 on 6 October 2014 after broader discussions, including a discussion at the Council for Sciences of the CAS.

## **Evaluation Objectives**

The Academy Council of the CAS set three main objectives of this evaluation:

1. To acquire qualitative and quantitative information about the position of science in the CAS in the period 2010–2014 in a national, European and global context.
2. To acquire information for strategic management of the CAS as a whole, including the institutional support of the institutes as one of the component aspects of the management.
3. To mediate independent and comparable evaluation and feedback for the managements of the individual institutes and teams of the CAS.

## **Methodology of the Evaluation**

The method of the evaluation was selected in accord with Act No. 130/2002 Coll., on the Support of Research, Experimental Development and Innovation from Public Funds and on amendments to some related Acts (the Act on the Support of Research, Experimental Development and Innovation), as subsequently amended.

The implementation of the Evaluation of the Scientific and Professional Activities of the Institutes of the CAS for 2010–2014 is the basis for the fulfilment of the provision of Article 7, Paragraph 7 of this Act: *“The provider may adjust the amount of the support according to more detailed evaluation using internationally acknowledged methodologies, having published these along with the results of the more detailed*

*evaluation and the rules of the adjustment of the support before its provision.*” For the purposes of the evaluation, it was divided into fields, panels, main fields; the characteristics of the fields were taken from the Frascati Manual of the OECD and Journal Citation Reports (JCR) and adjusted to the structure of the research at the CAS (see Tab. 1).

Tab. 1: Concentration of the field panels and field commissions

<b>Panel/Commission</b>	<b>Fields and sub-fields</b>
<b>1</b>	Mathematics
<b>2</b>	Computer and information sciences
<b>3</b>	Physical sciences
<b>4</b>	Chemical sciences
<b>5</b>	Earth and related environmental sciences
<b>6</b>	Biochemistry and molecular cell biology, biophysics, virology...
<b>7</b>	Biol. sciences including biotechnology and agricultural sciences
<b>8</b>	Engineering and technology
<b>9</b>	Medical and health sciences
<b>10</b>	Social sciences
<b>11</b>	History and archaeology
<b>12</b>	Languages and literature
<b>13</b>	Humanities excluding 6.1 and 6.2

In accord with the above-mentioned legislative framework, a basic methodological conception was adopted for the evaluation of the institutes and their scientific teams, based on the following five principles:

1. a system of informed peer-review,
2. evaluation by individual fields and sub-fields, in order to respect their specifics,
3. evaluation in two subsequent phases,
4. separation of evaluation from financing,
5. transparency: provision of information about evaluation within the CAS and for the public.

### **Organization of the Evaluation**

For the steering of the preparations of the evaluation, the Academy Council of the CAS at its 6<sup>th</sup> session on 16 July 2013, or 15<sup>th</sup> session on 26 March 2014 appointed a nine-member working group. The result of its synergy with the working group of the Council for Sciences of the CAS was the approval of the document “Basic Principles of the Evaluation of the Research and Professional Activities of the Institutes of the CAS for 2010–2014” (hereinafter “Basic Principles”) by the Academy Council of the CAS at its 22<sup>nd</sup> session on 6 October 2014, including the timetable and detailed procedure of the activities. This document was subsequently specified and its

component amendments were approved at the 23th session on 4 November 2014, 24<sup>th</sup> session on 2 December 2014, 25<sup>th</sup> session on 20 January 2015, 26<sup>th</sup> session on 17 February 2015 and 31<sup>st</sup> session on 14 July 2015. For supervision of the course of the evaluation, the Academy Council of the CAS at its 23rd session on 4 November 2014 appointed the Coordination Board chaired by prof. RNDr. Eva Zažímalová, CSc., the members of which were three Vice-presidents of the CAS and three representatives of the Council for Sciences of the CAS.

The implementation of the evaluation was divided into two blocks separate in time, where evaluation first takes place of the research activities of the 52 institutes oriented mainly or entirely on research activity and a separate evaluation of the professional activities of the two institutes with a focus on the infrastructure of research and development.

For the evaluation of the research-oriented institutes, the Academy Council of the CAS at its 25<sup>th</sup> session on 20 January 2015 (updated several times at the following sessions) appointed 13 field panels and 13 field commissions. In the first phase of the evaluation, 148 renowned foreign experts in positions as chairs or members of the field panels and 1,230 remote evaluators of the outputs from 50 countries of the world (including 24 evaluators from the Czech Republic) took part. In the second phase of the evaluation, 117 members of field commissions from 17 countries of the world (including 25 experts from the Czech Republic) took part. Each commission was comprised of a foreign chair, a deputy chair who knew the Czech language and other, predominantly foreign renowned experts. The number of members from the Czech Republic was usually in the range of 20-30 % in the individual field commissions.

For the evaluation of the infrastructure-oriented institutes, the Academy Council of the CAS at its 33<sup>rd</sup> session on 6 October 2015 and 34<sup>th</sup> session on 3 November 2015 appointed two evaluation commissions, one for each infrastructure institution. These commissions had a total of 14 members, where the rule applied that at most one-third of the members of each of the commissions could be employed at institutes of the CAS.

The institutes of the CAS were informed on the preparations and course of the evaluation through the sessions of the Academy Assembly of the CAS, meetings of the directors of the institutes of the CAS with the Academy Council of the CAS, consultation days for the preparation of the applications for evaluation, collective mailings by members of the Academy Council of the CAS and the internal web portal of the CAS.

## **Materials for the Evaluation**

### **1. Evaluation of the research-oriented institutes of the CAS**

In compliance with the Basic Principles, the institutes of the CAS prepared electronic applications for the evaluation according to a unified content structure:

Part 1: General data concerning the institute and the individual teams.

Part 2: Materials for Phase 1 of the evaluation prepared for each scientific team of the institute.

Part 3: Materials for Phase 2 of the evaluation prepared:

- a) for the institute as a whole;
- b) for each scientific team of the institute.

The materials for the evaluation were uploaded into the electronic information system KIS in the period from 1 January to 30 April 2015. Independent deadlines were set for the component submissions of the materials for the first and second phases. The aim was to provide the institutes with the longest possible period for the preparation of the documents and at the same time to accumulate all of the necessary materials for the field panels before commencing their work within the first phase of the evaluation on 1 April 2015.

The lists of the research employees were submitted by 31 January 2015, the data on the scientific teams and their selected outputs for the first phase of the evaluation by 19 February 2015 and brief comments on the submitted outputs by 15 March 2015. In the period 10–20 March 2015, the institutes had the opportunity to check the bibliometric data prepared by the Library of the CAS, and send prospective remarks. Relevant comments were then worked into an amended version of the bibliometric materials by 31 March 2015. The institutes assured access to the full texts of the outputs by 31 March 2015. In the exceptional cases, when it was not possible to ensure the evaluators access to the full text of the output (typically monographs) electronically, the institutes submitted physical prints or copies of these outputs. These possibilities were utilized by eight institutes with a total of 54 outputs. The remaining materials for the second phase, including the written applications of the institutes for evaluation, were submitted by 30 April 2015. Besides the mentioned written applications, all of the other background materials were gathered only in electronic form.

## 2. Evaluation of the infrastructure-oriented institutes of the CAS

Based on the “Methodological Instructions for Processing of the Materials of the Institutes of the CAS within the Evaluation of the Professional Activities of the Infrastructure Institutes of the CAS for the Period 2010–2014” approved by the Academy Council of the CAS at its 31<sup>st</sup> session on 14 July 2015, the infrastructure institutes of the CAS – Library of the CAS (LCAS) and the Centre for Administration and Operations of the CAS (CAO) – prepared by 23 November 2015 the materials, the structure of which was divided into the following thematic areas:

The materials for the institute and for each evaluated organizational unit:

- A) Quality and results of the main and other activities of the organizational units according to the foundation deed.
- B) Participation in the support of the activities of the CAS and its institutes.
- C) Level of the management of the institute (method of management of the institute with material and human resources – based on their own SWOT analyses).
- D) Measures adopted based on the results of the evaluation from 2005–2009.

E) Vision of the development of the institute in 2016–2019.

The background materials for the institute or organizational unit if the given thematic area is relevant:

F) Evaluation of the position of the institute in the national context.

G) Extent of international cooperation, including cooperation on foreign projects.

H) Participation in the solving of national grant and programme projects, research for practice and other activities.

I) Pedagogical activity.

J) Popularization activity.

Components of the background materials were also questionnaires on the usage of professional and infrastructure services of both evaluated institutes completed by the research institutes of the CAS and their own SWOT analyses of the whole institute and the individual evaluated organizational units and justification of their necessity.

### **Course of the evaluation**

#### **1. Evaluation of the research-oriented institutes of the CAS**

The first phase of the evaluation was commenced on 1 April 2015. Its conduct was entrusted to 13 field panels, the chairs and members of which were appointed by the Academy Council of the CAS. Within the first phase, 5,594 outputs were assessed, which were submitted by 377 scientific teams from 52 research institutes of the CAS. Of the total number of outputs, 4,553 were articles in impacted scientific journals, 446 monographs, 244 articles in non-impacted scientific journals, 168 chapters in a monograph and 183 other types of outputs. Simultaneously, 163 outputs were submitted by more than one team, of which 151 outputs were by two teams and 12 outputs by three teams.

According to the approved timetable of the evaluation, the first phase of the evaluation was to have been completed by the end of June 2015. Based on the justified requests from the chairs of several field panels, the Academy Council of the CAS at its 30<sup>th</sup> session on 9 June 2015 agreed with a shift of the completion the first phase of the evaluation to 15 July 2015. The evaluation of all of the outputs was completed by the deadline of 30 June 2015 by five panels, in the rest of the panels the extended deadline for the first phase to 15 July 2015 was used for justified reasons.

In the given period, it was possible to evaluate 5,580 of the 5,594 outputs, i.e. 99.7 % of all of them. Fourteen outputs remained unevaluated, of which 11 in Commission 3, two in Commission 6 and one in Commission 7. In total, 18,076 requests for the assessment were sent to the remote evaluators. Of which, 9,750 assessments were prepared, 8,050 requests rejected, 215 requests remained unanswered, in 61 cases the assessment was promised but was not prepared despite reminders being sent. 3,324 outputs were addressed with more than two evaluators. The vast majority of the evaluators were from abroad. 24 evaluators from the Czech Republic were

operatively involved in the evaluations of the outputs submitted in Czech or in Slovak with which foreign evaluators had fundamental language problems. A total of 501 such outputs were submitted for evaluation from the 27 institutes of the CAS.

Of the evaluated outputs, 921 outputs (16.5 %) were given quality level 1 (“world-leading”), 2,334 outputs (41.8 %) quality level 2 (“internationally excellent”), 1,967 outputs (35.3 %) quality level 3 (“internationally recognized”), 336 outputs (6.0 %) quality level 4 (“nationally recognized”) and 22 outputs (0.4 %) quality level 5 (“below the standard of nationally recognized work or work which does not meet the published definition of research for the purposes of this assessment”). With 1,699 outputs, the evaluators gave the same quality level, which was given as the final quality level for the output. With 3,881 outputs, it was necessary for the relevant member of the panel to recommend a final quality level to the chair of the panel. Of which, three assessments by remote evaluators were acquired for 365 outputs, two for 2,347 outputs, one for 861 outputs and no assessment was possible to get for 408 outputs. In 485 cases, the chair of the panel gave the output a different quality level than was the recommended quality level by the panel member.

The results of the evaluations of the individual outputs were subsequently used for the preparation of qualitative profiles of the outputs of the individual teams and institutes, which were one of the materials for the field commissions in the second phase of the evaluation. The qualitative profiles were prepared by experts from the LCAS; in advance, before the commencement of the second phase of the evaluation, the directors of the relevant institutes of the CAS were acquainted with them and had the opportunity to apply their observations.

Before the commencement of the second phase of the evaluation, all of its participants were acquainted in detail with the individual activities and tasks. The commissions had the task to evaluate 9–48 teams from 4–13 institutes of the CAS. After an agreement with the chairs, deputy chairs and the members of the commission on the one hand and at the same time with the directors of the institutes of the CAS on the other hand, detailed timetables of the on-site visits of the evaluated institutes were planned (Tab. 2).

Tab. 2: Dates of the on-site visits of the field commissions at the institutes of the CAS

<b>Commission</b>	<b>Dates</b>	<b>Commission</b>	<b>Dates</b>
<b>1</b>	30 November–2 Dec 2015	<b>8</b>	12–21 October 2015
<b>2</b>	23–25 November 2015	<b>9</b>	20–27 November 2015
<b>3</b>	15–23 October 2015	<b>10</b>	19–23 October 2015
<b>4</b>	30 November–4 Dec 2015	<b>11</b>	19–23 October 2015
<b>5</b>	29 October–4 Nov 2015	<b>12</b>	19–21 October 2015
<b>6</b>	9–18 November 2015	<b>13</b>	27–30 October 2015
<b>7</b>	3–11 November 2015		

In accord with the Basic Principles, observers – representatives of the contracting authority (Academy Council of the CAS) and observers – representatives of the evaluated institute participated in the work of the field commissions in the second

phase to ensure transparency and comparability of the evaluation of all of the institutes. The observers – representatives of the CAS were approved at the 30<sup>th</sup> session of the Academy Council of the CAS on 9 June 2015. If the appointed member of the Academy Council of the CAS could not attend some of the discussions in person, another representative of the Academy Council or the Council for Sciences of the CAS, named in the list of alternates issued by the President of the CAS, took his/her place. The directors of the relevant institutes appointed in accord with the resolution of the Academy Council of the CAS from 12 May 2015 and the Presidium of the Academy Council from 7 July 2015 the observers – representatives of the evaluated institute, or their alternates in the period to 31 August 2015.

The on-site evaluation was always attended by the chair and deputy chair of the commission and further by at least as many members of the commission for the total attendance of the commission to be an overall majority and at the same time for its members, who were professionally closest to the given field, were present. From the course of the on-site evaluation minutes were prepared right at the institute, complemented with an attendance list of the participants of the on-site evaluation.

In the second phase of the evaluation, the institutes of the CAS and the scientific teams were assessed according to the following points of view:

- a) quality of the results and share of the team(s) and of the institute in their acquisition,
- b) societal (social, economic and cultural) relevance (educational activity, research for practice, outreach and publishing activities, services to research),
- c) involvement of students in research,
- d) position in both the international and national context (scientific reputation and visibility on the international scale, ability to attract foreign researchers, position in the national context),
- e) vitality, sustainability and perspective (financial aspects, management, human resources, grant and project activity),
- f) strategies and plans for the future.

The evaluation commissions submitted the results of their evaluations in the form of 91 Final Reports in the period to 31 December 2015. In the case of two commissions, the deadline was shifted after an agreement with the Coordination Board to 15 January 2016. Subsequently, the directors of the institutes of the CAS were acquainted with the final reports, and submitted their statements on them by 22 January 2016. Directors raised objections to 47 reports and requested the Coordination Board for their re-evaluation, 44 reports were accepted without objections. In all of the cases, the Coordination Board found the objections of the directors to be justified, the relevant commissions were then asked for possible reassessment. In 11 cases, the commissions insisted on the original versions of the reports, whereas 36 reports were reassessed by the commissions and amended. On all of the reports which were submitted to the commissions for re-assessment, the directors of the institutes subsequently submitted their final statements in the period to 29 February (exceptionally until 9 March) 2016.

## 2. Evaluation of the infrastructure oriented institutes of the CAS

The complete materials were made accessible to the evaluation commissions on 1 December 2015 through the information system KIS. The obligatory on-site visits of the evaluation commissions took place at the evaluated institutes: 11 January 2016 (LCAS), resp. 13 January 2016 (CAO). The evaluation commission of the CAO met to discuss its final position at its session on 9 February 2016. Part of the on-site visits were presentations of the institute by its director and introductions of the individual evaluated organizational units by their heads.

The evaluation commissions assessed the institutes and the individual organizational units according to the following points of view:

1. Quality and amount of results achieved including their impact.
2. Quality, extent and necessity of the provided infrastructure activities, the reception of the provided infrastructure activities in the scientific community.
3. Position of the institute in the national and international context.
4. Perspective of the institute and its organizational units, the potential for involvement in new infrastructure activities and increasing the level of the existing activities.

Within each point of view, the commissions categorized the evaluated institute and the individual organizational units from 1 to 5 levels: 1 – outstanding, 2 – very good, 3 – standard, 4 – with exception, 5 – unsatisfactory.

The results of the evaluation in the form of final reports on the evaluation of the professional activities of the infrastructure institutes of the CAS were submitted by the chairs of the evaluation commissions by 12 February 2016. Both infrastructure institutes as a whole were evaluated as level 1. The institutes responded to the results of the evaluation after discussion in their Boards of the institutes in the period to 29 February 2016.

### **Conclusion**

Despite the considerable complexity and logistical demands of this cycle, it was possible, with small exceptions, to realize fully the evaluation according to the set timetable and rules. The amassed results from the 1st and particularly the 2nd phase of the evaluation have been provided to the Academy Council of the CAS, whose task is to make management decisions based on them by December 2016, including setting the institutional support of the individual institutes of the CAS, and possibly to recommend the implementation of desirable organizational changes at the individual institutes of the CAS.

*This report was taken into account by the Academy Assembly of the CAS at its XLVIIIth session held on 21 April 2016.*